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During 1907 the Street Railway Journal printed and circulated 427,250 copies, an average of 8216 copies per week. Of this issue 7500 copies are printed.

Handling Condensing Equipment Efficiently

Steam auxiliaries in a good many power plants receive comparatively little attention except in the direction of watching lubrication and stopping leaks. There is no place where steam can be more easily wasted than in the operation of pumps and auxiliary engines at uneconomical loads, and it pays to ascertain from time to time what is going on in this class of equipment. When a pump is arranged to slow down under light load many engineers seem to think nothing else is needed, but in view of the fact that steam goes through reciprocating pump cylinders not fitted with eccentric cut-offs, and to the full volume of the cylinders, it is clear that the operation of pumps at or near full load is a very desirable state of affairs. In connection with condensing apparatus there is considerable room for the practice of a similar economy.

In many steam turbine plants the circulating or injection pumps for the condensers are driven by engines, but it is often the case that very little care is given to the engine speed and steam consumption. An illustration of how carefully this point may be looked after is found in the Market Street power plant of the New Orleans Railway & Light Company. Injection water for the condensers is drawn from the Mississippi River, but on account of the varying height of the river at different seasons, and, because of fluctuations in level from day to day at certain periods, the speed of the engines driving the centrifugal injection and circulating pumps has to be changed in order to secure the flow best suited to high station economy. A gage connected with the river and graduated in feet has been set up in the engine room basement, and this is read once a day when the river is quiescent and at least twice daily when its level is fluctuating or changing. On one of the engine room walls has been mounted a chart showing in the form of a curvilinear function the relation between the stage of the river and the pump speed, the latter being figured on a 4-in. opening of the injection water valve, which supplies the proper quantity of condensing water to operate a 2000-kw turbine under 30 deg. rise of temperature between intake and discharge, namely 24,000 lb. of water per minute. The engine speed is thus regulated by hand cut-off, to avoid consuming excess power for different river levels.

In ways like these, and particularly in the observation of temperatures in different parts of the steam and water ends of plants, opportunity can often be found to reduce the steam consumption of auxiliaries. Prompt stopping of pumps when their work is completed and the use of smaller pumps when the larger ones would operate below normal efficiency are worth considering. The suppression of leaks is by no means the only end and aim of the successful power plant operating engineer.

Auditing Transfers

Abuse of the transfer privilege is one of the most difficult and tantalizing problems with which any street railway, large or small, has to deal. The subject has become acute in New York City, but exists in every community where transfers are given. The forms of abuse are myriad. Transfers are traded, sold and given away; conductors fail to punch the time and destination properly, if at all; frequently they accept any colored piece of paper that

looks like a transfer regardless of the punch marks, and so on indefinitely. In spite of the ingenuity displayed in designing fraud-proof transfers, as evidenced by the widely varied forms in use all over the country, abuses continue to the detriment of the earnings and the despair of the managers.

The greatest difficulty in preventing these abuses lies in the fundamental difficulty of detecting specific offenses. Flagrant cases of selling and trading transfers on street corners, in stores and shops can usually be discovered by alert agents and inspectors, and many prosecutions have been carried on successfully in the courts which have gone far to stop them. The question may be asked, however, whether these flagrant abuses would exist if the street railway company began at the bottom and took the proper measures to prevent the issue of transfers which by reason of careless punching or promiscuous handing around make it possible and profitable to traffic in them. The root of the evil is largely in the laxity of accounting for transfers issued and received. A transfer is only a printed piece of paper, but so is a dollar bill. Wrongfully used, the transfer saves the passenger a nickel and costs the company a nickel. Most street railways make no attempt to audit transfer receipts in any way; there is no settled policy as to whether transfers should be rung up on the register. There are arguments for and against such registration and either way seems open to objections.

A complete daily audit of the receipts of every line and car would usually involve an amount of clerical work out of all proportion to the benefits to be gained thereby, but it would be a comparatively simple matter to institute an occasional check audit of each line, the moral effect of which would be almost if not quite as good as a more complete count. Traveling auditors, register inspectors and others work along these lines, jumping from place to place at irregular intervals without forewarning of their coming and for the sole purpose of keeping the men under them keyed up. One clerk could do the work and the results would pay even if it took him a week to check up a single day's receipts on a single line. He could check every one of a dozen lines four times a year and locate carelessness or dishonesty with precision and proof.

Such a plan would involve recording the serial numbers of the pads of transfers issued at the beginning of the day to each conductor and entering up the last serial number at the end of each trip on the trip sheet or envelope. All transfers taken up on each trip would be put in a trip envelope and deposited in a sealed box in the car or at the cashier's office at the terminal plainly marked with the time of completing the trip. This would be all the work required by the conductor. The auditor on beginning the checking would sort from all of the trip envelopes of connecting lines the transfers issued by the line being checked up and arrange them in the order of the time accepted on the connecting lines, as shown by the entries of time of completion of trips. Suppose, for example, the Main Street line is being audited. Conductor Jones, on Car No. 25, begins a south-bound trip at 10 a. m. with a beginning serial number on his transfer pad of 1000. At the end of the trip at 10:45, he has issued 50 transfers, as shown by the ending serial number 1050. Transfer No. 1031 is found in the envelope of Conductor Smith, on Car No. 16, running on the Fourth Street line for the trip ending at 2 p. m. If it is properly punched to be void after 10:45 a. m., Conductor Smith is responsible for accepting it. If it is punched improperly or not punched at all, Conductor Jones is responsible for its misuse. The checking need be done only by comparing the transfers turned in by connecting lines with the transfers issued by the line under investigation. Cross checking is unnecessary.

With an irregular auditing of this kind the worst abuses could be stopped quickly. If the punching is carefully done and each transfer offered by passengers is carefully scrutinized and refused if expired, traffic in transfers would quickly die out. The cost would not exceed the salary of one clerk at $75 a month and expense of printing suitable trip envelopes and transfer number record sheets. Such a system is applicable to individual lines of large systems or all the lines of a smaller system and for a road which does not already employ such a plan, it would be well worth trying.

Improving Shop Hoisting Facilities

A trip recently made through a number of street railway repair shops and car houses disclosed a wide variation in the hoisting facilities. In some of them the work was done largely by hand jacks and slow chain-and-fall methods; in others air hoists were in effective use as far as they were installed, and in a few other cases the facilities were complete and efficient throughout the entire establishment. The average shop, however, does not now attempt to get along without mechanical methods of hoisting even the minor pieces of equipment near the pits and more important inspection bays, but in many cases the maximum usefulness of the apparatus is not secured, because the original installation was not sufficiently extensive. It cannot be too much emphasized that to handle car repairs with the most speed, including wheel changes, truck adjustments and motor work, the line of labor-saving devices must be complete between the track and the shop tools.

In one shop a space about 30 ft. wide had been given up to pit work, two tracks having been installed. At each side of the pits ample space was arranged for the handling of equipment parts and over one of the pit tracks a traveling hoist was in service to take any truck or motor part to any other part of the shop. The second pit track, however, was not provided with any hoisting facilities, and this was a serious handicap in the rapid handling of the work. It may be that the overhead traveler facilities were not extended because of an idea that it could not be done without interfering with the trolley wire over the pits, but this is now no serious obstacle if the hoist runways are carefully laid out. Cars can be moved in and out of the shop with ease even in cases where no overhead trolley is in service, by the simple expedient of using a flexible jumper cable with outlet plugs at various points in the shop. It is a mistake to assume that a car must always be moved in the shops by overhead trolley. It is also an easy matter to interrupt the overhead trolley at one or more points in the shop after the manner used in rolling lift-door installations. The electrical feed can be arranged simply enough and the car can be coasted past the gap in the ma-

jority of cases. A jumper cable used as a supplement in a shop is easily handled if insulated with care, and it takes up little room. The rest of the time it can be coiled and hung out of the way.

The practice of installing hydraulic or pneumatic jacks at the side of the pit track at the car-house floor level is proving helpful in the shops where it has been tried. The plungers of these jacks set into the floor when not in the raised position and take up practically no space of value. Two jacks of this sort will quickly and economically raise the end of a car. It is perhaps better to install the hydraulic type where a car is likely to be held supported for half an hour or so at a time, for the leakage question is less troublesome with water than with air, as far as our observation extends. A complete installation of this kind calls for at least four jacks, two being located at each end of the pit at a distance between pairs equal to the distance between the sills of the company's standard double-truck car. It is desirable in installations of this kind to put valve cocks at several places along the wall beside the pit track, operating these by an air-brake handle or other detachable fixture, so that unauthorized parties cannot move the jacks and cause trouble. It is impossible to avoid a large amount of hand work, even in a shop equipped with no restriction as to expense for labor-saving apparatus, but it will pay many master mechanics to follow out the continuity of their handling processes more carefully and to avoid the gaps in the free vertical and horizontal movements which at present are causing delays.

Branch Line Service and Trunk Line Congestion

In the more exact studies of traffic which are characteristic of present methods of operation in both city and interurban service the relations between the car movements and facilities offered on different lines in the same system deserve very careful consideration. There are many causes for congestion of service or unduly slow movement of the rolling stock, and while all of these cannot be avoided, every analysis of traffic that clearly defines obstructions to the free operation of the cars helps to make the control of conditions on the track better if the facts are brought home to the men in the car service.

One of the intricate problems which are in need of more thorough analysis at the present time on roads now suffering from the effects of irregular headways at certain periods of the day is the relation between the service given on branch routes and that offered on the main lines of travel. In dealing with a question of this kind it is, of course, clear that unless all the local conditions are ascertained no good solution of the problem can be reached, but in some cases the influence of widely different headways on closely related lines has resulted in such troublesome delays to the proper movement of traffic on the main and branch routes that it is worth while to look a little more closely into these relations.

As one starts from the end of an important trunk line in the district where the headway is the shortest, the number of cars moving over each section of track per hour between the neighboring switches where the branches deflect from the main route will steadily decrease, supposing we are dealing with a system operating on the radial plan. At the terminal of the trunk route in the heart of the business district there may be 250 cars per hour handled, or one every 14.4 seconds. At the first point where a branch route is taken off there may be a local headway of 6 minutes, so that beyond the intersection the maximum number of cars per hour falls to 240 and the headway lengthens to 15 seconds. As the service decreases beyond each branch it will be found that the interval on the main line increases at a more rapid rate than the actual number of cars per hour taken off reduces, expressing both in percentages. Thus, the drop from 250 to 240 cars per hour decreases the cars by 4 per cent, and it lengthens the headway by 4.16 per cent. At the next branch the cars drop, let us say, to 200 per hour beyond the intersection on the main line. This means a car decrease of 16.6 per cent and a headway increase of 20 per cent. Finally one reaches the point where only 100 cars per hour are left, and if 50 of these are dropped off at the next switch the decrease in cars on the main line becomes 50 per cent and the increase in headway 100 per cent.

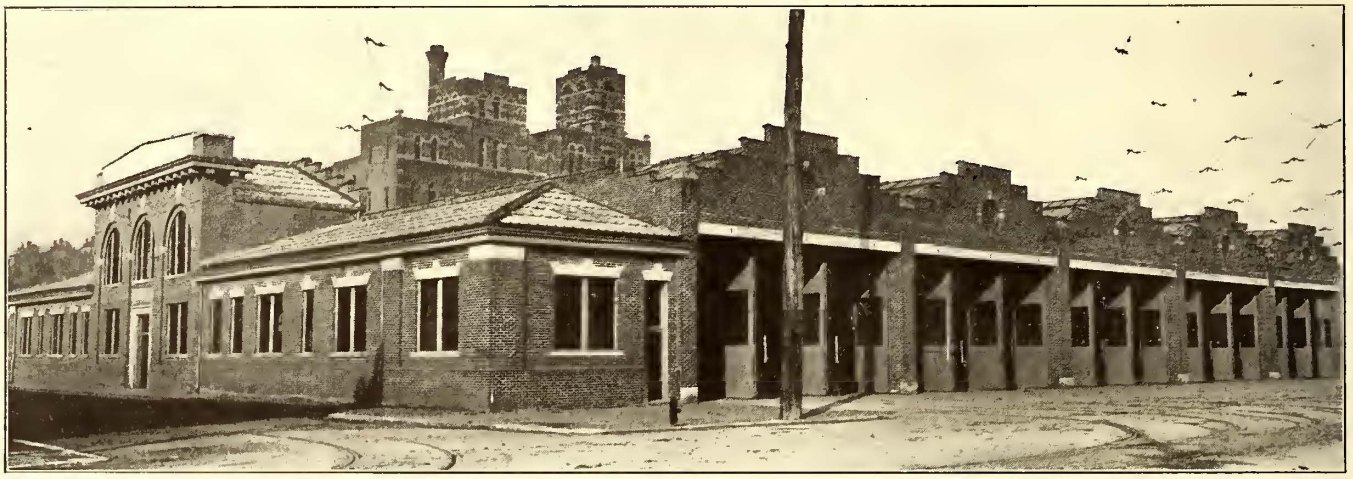
From the standpoint of the traffic manager, figuring that so many passengers per hour can be handled by a given number of cars, these differences may seem unimportant, but when one considers the relative attractiveness to the public of very short compared with longer intervals, it becomes clear that the possible delay of cars on the main line by the overcrowding of such cars when accessible from longer interval branches by short cross streets may become a matter of some moment. The conditions may show when carefully studied that unless the headway on a long branch line parallel or diagonal to the main route is even and well proportioned to the traffic, the dislike of would-be passengers to wait for the regular service of the branch route will lead them to walk in considerable numbers through cross streets to the practically parallel main lines, to the additional burdening of those lines at times when every possible stop that can be cut out on the densely traveled sections is a far-reaching aid to better and more economical service. It may be urged that the separation of passengers by lines is a chimerical thing to attempt, but the difficulties some companies have had when new, larger or faster cars have been placed in service on a route over which less modern rolling stock is run in part, show that every reasonable inducement which can be offered to passengers to make them take the proper cars designed for their specific accommodation is worth trying to effect.

Another feature of inadequate branch line service is the delay which results on the branch itself when the headway is too long. This affects the main line again at the point of intersection and beyond, and slowdowns on the branch service tend to multiply congestion on the closer interval sections. Nothing in these comments is intended to urge the employment of more cars than are actually needed for a given service, but the close quantitative study of traffic, intervals and delays on related lines will sometimes show where the conditions can be improved—if not by the use of more cars, by the better distribution of routes or their slight modification, added to the best possible handling of cars on existing lines.

NEW CAR HOUSE AND SHOPS OF THE CHATTANOOGA RAILWAYS COMPANY

A concrete, brick and steel operating car house of modern construction has recently been completed by the Chattanooga Railways Company, which has also lately finished a repair shop of improved design. The car house is located on Market Street at the corner of Third Street, and it extends a block to the southward with a rear entrance on Broad Street. Combined with the car house are the general offices of the company. The new shops are located on the opposite side of Third Street, fronting on Market. Cars can be run into or out of the shop and car house from either Market or Broad street.

The car house building cost about $275,000 and occupies a ground space 210 ft. long by 190 ft. wide. It is divided into five fireproof bays containing three tracks each, all tracks being built with pits. As shown in the plan on the next page, four bays are 36 ft. wide each, and are separated by 13-in. fire walls. The fifth bay, the first 85 ft. from Broad Street inward, is reserved as a space for car washing and only two tracks are provided here. In general, the pit tracks are spaced 12 ft. apart on centers, but the tracks in the washing bay are 16 ft. apart. The floor of the washing section is drained to 22 catch basins, which are spaced in rows 24 ft. to 30 ft. apart and individually from 6 to 8 ft. apart in the standard pit sections; each pit is drained by four catch basins. The total capacity of the car house is about 100 cars.



CAR HOUSE AND OFFICE BUILDING, CHATTANOOGA

The offices of the general manager, superintendent, auditor and clerical staff are all located in the two-story brick portion of the building fronting on Third Street. This location of the offices midway between the car house and the shops enables the work of all departments to be supervised with the greatest convenience, and minimum lost time in reaching different points in the property are reduced to a minimum. All the executive offices are located on the street level to give the maximum accessibility. The manager's and superintendent's offices are provided with two doors each, so that a separate entrance and exit can be enjoyed.

A typical cross section of the pits is shown on the opposite page. The car house floor is of cement carried on a concrete arch, which in turn rests on a 5-in. I-beam extending as a girder between the adjacent pits. Each of the track rails is carried on a 15-in. 42-lb. I-beam, the latter being supported by 6-in. channel iron columns spaced about 21 ft. apart. The main pit walls are of concrete 4 in. thick. The floors of the pits are of concrete and the piers are of the same steel material. The floors of the house between the pits are reinforced with steel bars bent to follow the conformation of the arch. The roof is supported on a steel truss, and is provided with ample skylight facilities. The height of the car house inside from the floor to the top of the division walls is 24 ft. At each girder of the pit construction, cross bracing is installed to tie the adjacent pit walls together. The car house plans were drawn by R. H. Hunt, architect, of Chattanooga.

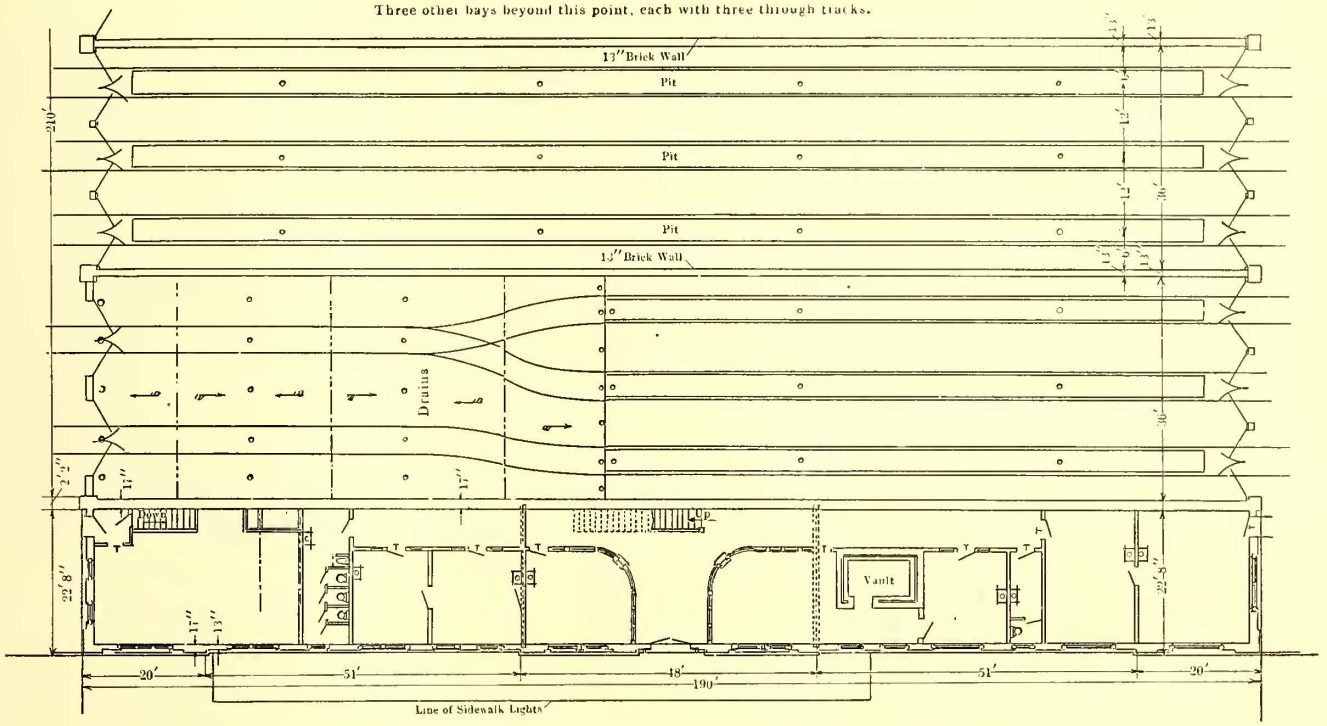
The cost of the shops, equipped complete, was about $175,000. A cross section is reproduced on page 634. There are six large work rooms and storage quarters for both heavy and light material. The paint shop, carpenter shop, general repair, machine and blacksmith shops are all located on the street level, but on account of the limited ground space in the heart of the city the heaviest wood working machinery is located in a commodious basement 10 ft. high, the tools being mainly beneath the carpenter shop. The total length of the shop is 200 ft. and the width on Market Street is 110 ft. Five tracks are provided in the shop, one of these being carried through from one end to the other. The carpenter shop is served by two tracks entering from Broad Street; the paint shop has two tracks entering from Market Street, and the general repair, machine and blacksmith shops are served by a single through track, the general shop also having a second track from Market Street.

The car shops are surmounted by a roof of asphalt construction carried on steel girders. The height of the shops inside varies from 19 ft. 8 in. to 21 ft. 10 in. The floor consists of concrete arches reinforced with continuous wire mat, and supported on cast iron columns. The central track which runs through the entire building and the general repair and machine shop tracks are provided with pits. Wire glass skylights are installed in the roof, and the shop is equipped with 12-ft. 4-in. folding doors at the ends of each track. The pit floors are of concrete construction and are 5 ft. 10 in. below the top of the rail.

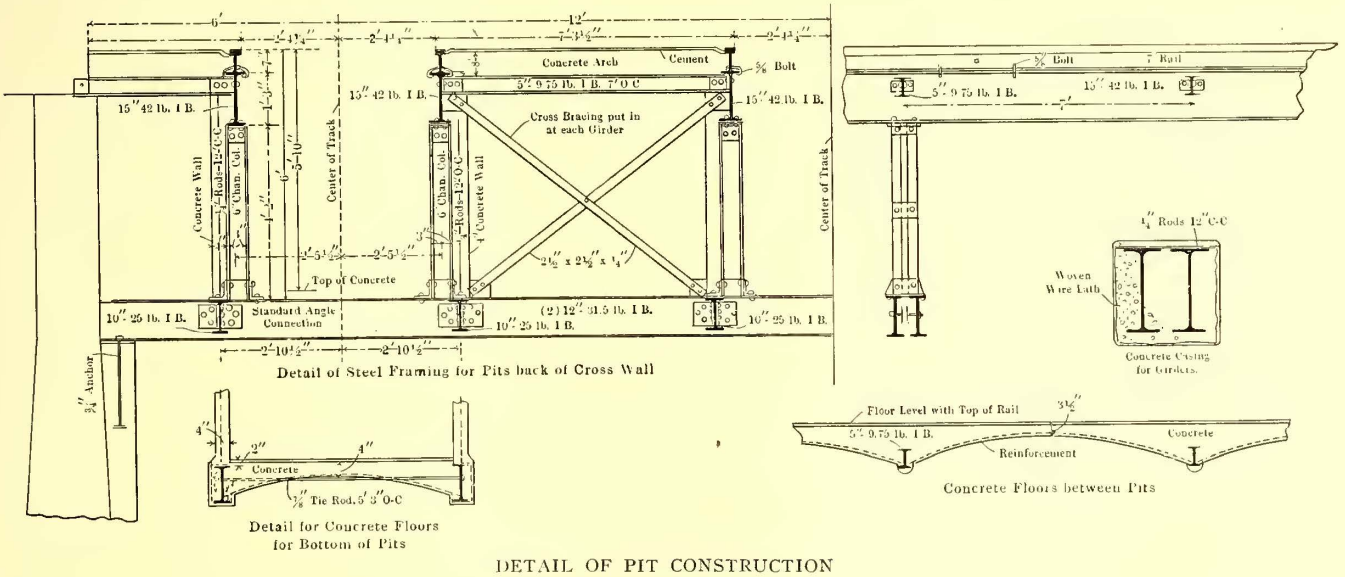
The general repair shop is 103 ft. long by 41 ft. wide and it is separated from the rest of the building by an iron fireproof wall. A 6-ft. x 4-ft. trap door is provided at one end to admit the passage of wheels to and from the storage space in the basement beneath.

The main machine shop is 64 ft. long by 31 ft. wide, and is entirely free from belts and shafting. All the machine tools are direct driven by individual motors, and the result

is a great improvement over the usual method of group driving. The working space is clear for shop operations, and no power is lost by the operation of mechanical drives when the machine is not in use. Speed regulation is more flexible and the chance of accident is much lessened. The first cost of the direct motor drive was not far from 30 per cent more than the cost of the group method, but it is expected that the compactness, economy of operation and



FLOOR PLAN OF CAR HOUSE, SHOWING TWO BAYS



DETAIL OF PIT CONSTRUCTION

better speed control of the individual system will pay for the extra cost of the direct application.

The following are the particulars of the machines installed:

One 24-in. emery wheel, and one buffing wheel for polishing brass, belted to a 2-hp shunt motor; motor speed 1425 r.p.m., diameter motor pulley 4 in., emery pulley 6 in., face 4 in., distance, center to center, 23 in.

One 20-in. Cincinnati shaper, belted to 5¼-hp compound wound motor; speed of latter 1600 r.p.m., motor pulley 5½ in. diameter, shaper 14 in., center to center 14 in., face 3¼ in.; extra pulley provided for driving old drill press, diameter 20 in.

One 40-in. Bickford drill press, six speeds, double reduction gearing drive by 2-hp compound wound motor; diameter pinion 2¼ in., intermediate gear 6½ in., gear on machine shaft 7¾ in., motor speed 1425 r.p.m.

One 10-in. Burr metal saw ⅛ in. thick, spur and worm geared to ¾-hp shunt motor, automatic feed, gear diameter 11 in., pinion 3 in.

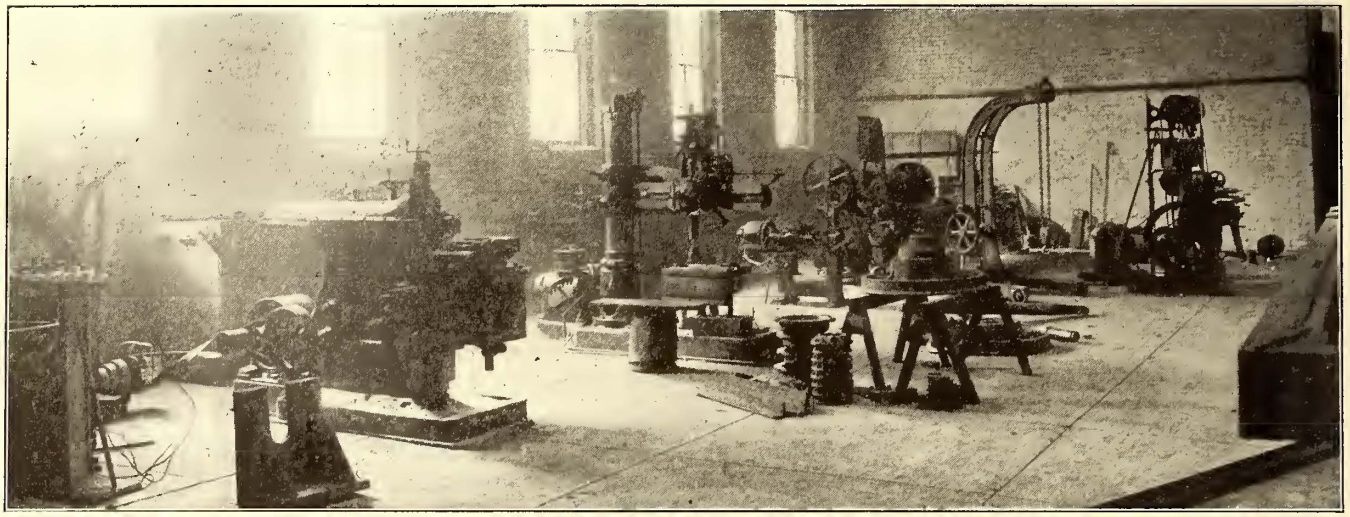
One engine lathe used on most of the machine work, 24-in. swing, three speeds, belt driven by 8-hp, 1400-r.p.m. shunt motor; motor gear 3½ in. diameter, lathe gear, 24 in., face 4¼ in., 32 in. center to center, provided with Cutler-Hammer reversible starting box.

One 20-in. engine lathe driven by old 5-hp motor. Used for commutator turning, field winding and armature bearing work.

The blacksmith shop, 31 ft. x 30 ft., is located next the machine shop, and contains one regular 4-ft. forge supplied with air from a motor-driven compressor, the latter being used also for general shop distribution of air. Space is provided for the storage of bar iron. There is also a small forge in this shop, used exclusively in the making of rail bonds. The terminals of these bonds are purchased in the open market, but the bond connectors proper are made by twisting up pieces of old armature or field wires

One planer, 15-hp motor, compound wound.
One buzz planer, 15-hp motor, compound wound.
One portable swing cross-cut saw, 5 hp.
One wheel press, Westinghouse 8-hp compound motor.
One boring machine, 5-hp Northern motor, commutating pole type with speed control.

The paint shop contains no unusual features, but is well provided with canvas covered racks for the reception of drying window frames. It is well lighted by natural

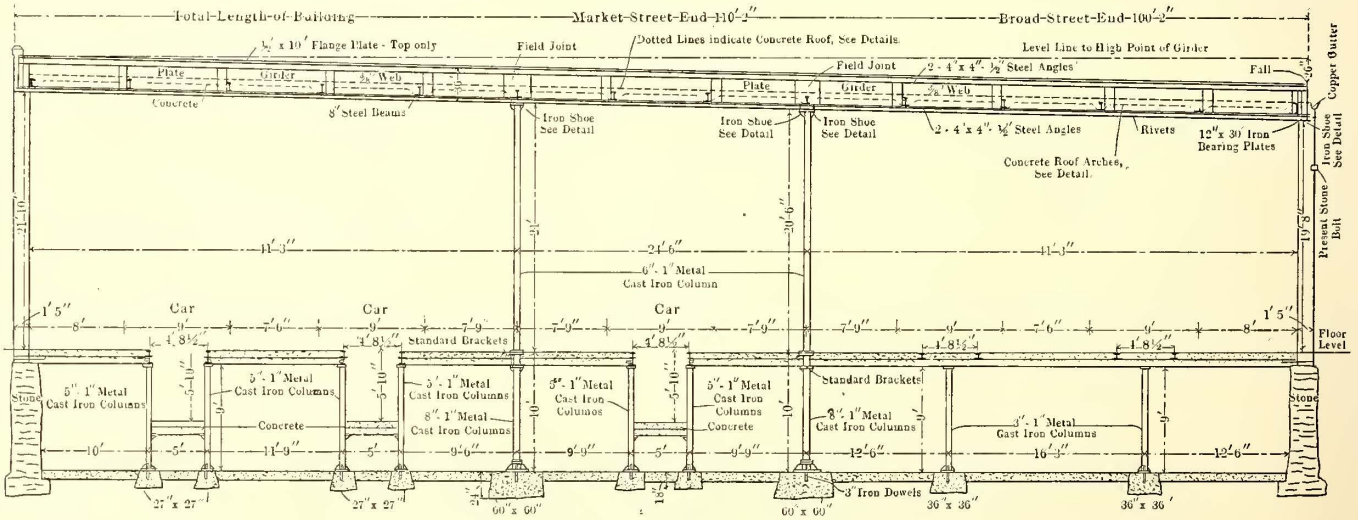


MACHINE SHOP, CHATTANOOGA RAILWAY

and soldering them into the terminals. The blower for this forge is a 10-in. outfit located underneath the forge and driven by a ¼-hp Holtzer-Cabot fan motor. A piece of car register cord is used as a belt and gives good service. All the shop motors are 500-volt direct-current machines, and those in the machine shop are Westinghouse outfits.

Bench space is provided in the machine shop for controller, circuit breaker and other light repairs. The runsources and is large enough to handle a considerable future increase of work.

The engraving on page 635 shows the inspection room in the center of the shop building. At one side of this in the center is a storeroom for general supplies 41 ft. long by 21 ft. wide. To avoid the need of either keeping a man on duty in the storeroom or taking stock out of it at night, a special cabinet has been built, shown in the illustration,



CROSS SECTION OF REPAIR SHOPS

ning of one track entirely through the machine shop to the blacksmith shop affords the maximum convenience.

The carpenter shop in the basement is well equipped with labor-saving tools, the motors with two exceptions being General Electric machines. The tools include:

One shaper, 5-hp compound motor.
One 8-ft. band saw, width ⅞-in., 5-hp compound motor.
One speed lathe, 3 hp; can also drive 20-in. sander.
One emery wheel and mortising machine, 3-hp motor.

which is located beside the storeroom door for the use of the night inspection force. Fuses, controller parts, motor brushes, tape, bearings and other supplies for use in light repairs are kept here, and the arrangement has been found to be one of great convenience. In the nightly inspection the cars are usually entered at one end of the building and passed out at the other end as fast as they are examined and approved.

With the recent growth of Chattanooga the company has

found it desirable to improve its track facilities and about 40 miles of road have been re-built, nearly all of the new rail being laid on concrete. About $300,000 have been expended on the track and roadbed, the standard rail length

GENERAL INSPECTION ROOM AND CABINET FOR NIGHT FORCE

being 60 ft. and the weight per yard 70 lb. The property is controlled by Graham & Company, of Philadelphia, the local manager being D. J. Duncan.

THE CLASSIFICATION OF ACCOUNTS FOR LIGHTING COMPANIES IN NEW YORK STATE

The Public Service Commission of the Second District of New York State has issued a tentative classification of accounts for electrical corporations and gas corporations. The circular is dated April 1. Criticisms and suggestions are requested "at the earliest possible date, but to be of use to the commission must be made by April 25, 1908." Electrical corporations are defined as including "every corporation, company, association, joint stock association, partnership and person, their lessees, trustees or receivers appointed by any court whatsoever (other than a railroad or street railroad corporation generating electricity for its own use exclusively), owning, operating, managing or controlling any plant, or property for generating and distributing, or generating and selling for distribution, or distributing electricity for light, heat or power, or for the transmission of electric current for such purposes."

Corporations are graded tentatively in four classes as follows:

Class A. Those whose annual gross revenues are over $1,000,000.

Class B. Those whose annual gross revenues are between $1,000,000 and $100,000.

Class C. Those whose annual gross revenues are between $100,000 and $10,000.

Class D. Those whose annual gross revenues are less than $10,000.

The report is a voluminous one, occupying 158 pages. No attempt will be made here to publish the classification, but a summary will be presented of the number of accounts.

In capital accounts the proposed classification recommends for Class A, 106 accounts; for Class B, 106 accounts; for Class C, 84 accounts, and for Class D, 82 accounts. In addition, the assets side of the balance sheet contains for all companies "floating capital" with 11 accounts, "treasury holdings" with 4 accounts, "investments" with 2 accounts, one of which is subdivided into 10 sub-accounts and the other into 30 sub-accounts; "special deposits," which is subdivided into 3 accounts; "prepayments," which is subdivided into 4 accounts; "suspense accounts," which is subdivided into 7 accounts; "questionable debts," "bad debts" and "surplus or deficit."

The liability side of the balance sheet carries "funded debt," with 3 accounts; "unfunded debt," with 12 accounts; "permanent reserves," with 2 accounts, one of which has 4 sub-accounts; temporary reserves, with 2 accounts, one of which is subdivided for Classes A and B into 15 sub-accounts, for Class C into 13 sub-accounts and for Class D into 7 sub-accounts; "stocks," which is subdivided into the different classes and "surplus or deficit."

The revenue accounts are as follows:

For Class A	63 accounts
For Class B	63 accounts
For Class C	58 accounts
For Class D	41 accounts

A summary of the operating accounts follows:

Name of Primary Accounts	No. of accounts in Class A.	Class B.	Class C.	Class D.
General	14	12	3	3
Departmental—				
Clearing accounts	29	23	19	7
Electrical Department—				
Power production	45	35	24	15
Power transmission	50	42	18	7
Consumption	20	20	6	2
Electric commercial exp.	4	4	2	1
By-products exp.	1	1	1	1
Amortization	8	8	1	1
Miscellaneous elec. exp.	3	3	1	1
Adjustment accounts	5	5	5	5
Gas Department—				
Gas production	44	44	29	13
Gas distribution	20	20	15	3
Gas consumption	16	12	6	2
Gas commercial	4	4	2	1
Residuals and by-products	5	5	1	1
Amortization	8	8	1	1
Miscellaneous gas exp.	3	3	1	1
Adjustment accounts	5	5	5	5
Total	284	254	140	70

The power production accounts in the electrical department provide for generation by steam, hydraulic power, gas power and purchased electric power and in gas production for coal gas manufacture, water-gas manufacture, acetylene production and purchased or jointly produced gas.

Taxes must be kept separate for each particular class of operation, such as electric operations, gas operations, street railway operations, etc., and for those chargeable against each particular class of non-operating revenues. Each tax account is further subdivided into 7 sub-accounts. The non-operating revenues, such as rent, interest and dividends receivable, are to be divided as follows: Classes A and B, 10 accounts each; Classes C and D, 6 accounts each. Non-operating expenses, such as rent payable, interest expense, dividend expense, etc., are to be divided into 6 accounts for Classes A and B and 5 accounts for Classes C and D, with a separate account for non-operating taxes.

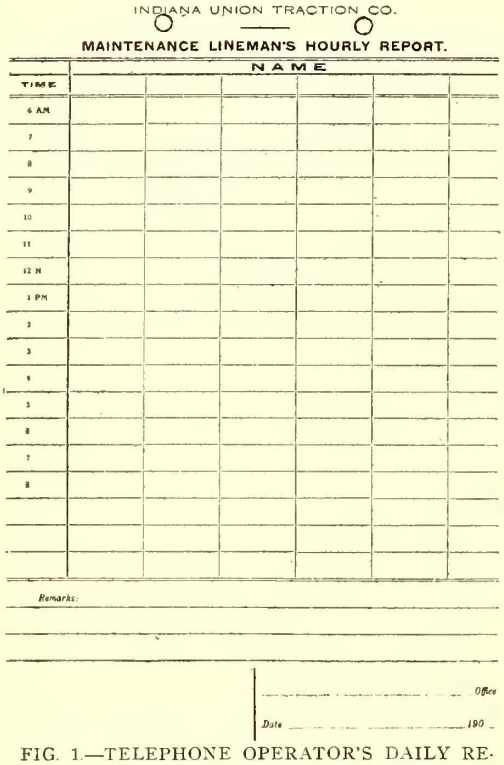
Income deduction accounts are classified as follows: Classes A and B, 14 accounts each; Class C, 13 accounts; Class D, 9 accounts.

Appropriation accounts are divided: Classes A, B and C, 13 accounts each; Class D, 11 accounts.

Suggestions are also requested for the most desirable fiscal year.

MAINTENANCE OF OVERHEAD LINES AND ELECTRICAL EQUIPMENT BY THE INDIANA UNION TRACTION COMPANY

The Indiana Union Traction Company's system comprises 314 miles of interurban road in the central and northeastern part of Indiana, together with 51 miles of city lines in Anderson, Muncie, Marion, Elwood, Alexandria and Indianapolis. Power is supplied from the main generating station at North Anderson, which is approximately the geographical center of the system, and from two smaller power houses at Eaton and Winchester, which supply respectively the Muncie-Bluffton line, 42 miles long, and the Muncie-Union City line, 33 miles long. The transmission system requires 22 substations, 183 miles of single, three-phase, high-tension lines, 65 miles of double, three-phase, high-tension lines, about 265 miles of single trolley, 100 miles of double trolley and 315 miles of feeder cable.


INDIANA UNION TRACTION CO.

MAINTENANCE LINEMAN'S HOURLY REPORT.

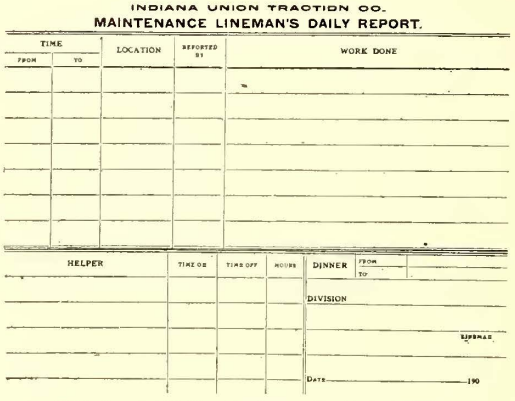
TIME	NAME					
6 AM						
7						
8						
9						
10						
11						
12 N						
1 PM						
2						
3						
4						
5						
6						
7						
8						

Remarks:

Office

Date 190

FIG. 1.—TELEPHONE OPERATOR'S DAILY REPORT FORM ON WORK OF LINEMEN


INDIANA UNION TRACTION CO.

MAINTENANCE LINEMAN'S DAILY REPORT.

TIME FROM	TIME TO	LOCATION	REPORTED BY	WORK DONE

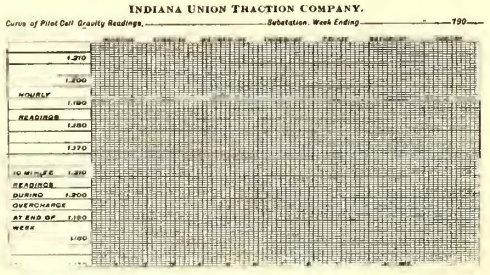
HELPER	TIME ON	TIME OFF	HOURS	DINNER FROM / TO

DIVISION

FOREMAN

DATE 190

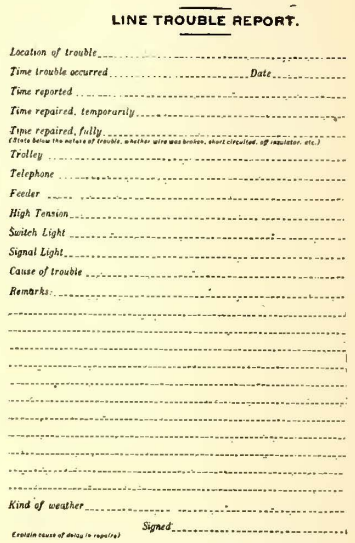
FIG. 2.—DAILY REPORT BLANK USED BY LINEMEN


INDIANA UNION TRACTION COMPANY.

Curve of Pilot Cell Gravity Readings. Substation. Week Ending 190

1.210
1.200
HOURLY
1.190
READINGS
1.180
1.170
10 MINUTE 1.210
READINGS
DURING 1.200
OVERCHARGE
AT END OF 1.190
WEEK
1.180

FIG. 3.—PILOT CELL GRAVITY READINGS


LINE TROUBLE REPORT.

Location of trouble

Time trouble occurred Date

Time reported

Time repaired, temporarily

Time repaired, fully

(State below the nature of trouble, whether wire was broken, short circuited, off regulator, etc.)

Trolley

Telephone

Feeder

High Tension

Switch Light

Signal Light

Cause of trouble

Remarks:

Kind of weather

Explain cause of delay in repairs) Signed:

FIG. 4.—TROUBLE REPORT BLANK USED BY THE LINE FOREMAN

The maintenance of the overhead and electrical equipment on a system of this size and extent presents many interesting features.

For purposes of maintenance of overhead lines the system is divided into nine divisions averaging a little over 40 miles of track and one line crew is assigned to each division. These crews consist of one lineman and one helper and are stationed at the following points: One at Noblesville, Tipton, Kokomo, Lawrence, Anderson, Alexandria, Marion and two at Muncie. They are supplied with a single-truck line car with a working platform on the roof, a ladder car and one or more small push cars for carrying heavy material such as coils of wire, cross-arms or poles. The cars are stored near the substation or car barn to which they are assigned and the crews are required to live within quick call of the station attendants for emergency work at night and on Sundays. On the cars are carried all the necessary lineman's tools and supplies such as insulators, trolley ears, tire wires, tape, solder, etc., and a small quantity of each size of wire used on the section of which the crew is in charge. One or two spare cross-arms are also carried. Ample supplies of material of every description are stored at the stations where the cars are kept and when any heavy repairs are to be made this stock is drawn upon and loaded on to push cars which are hauled by the motor line car to the scene of the trouble.

The line crews begin work at 7:30 a. m. and put in nine hours a day, except Sundays. If no repair work is waiting the car and crew start on an inspection of the line, stopping to repair any defects found. The foreman acts as motorman and forward lookout and the helper as conductor and rear lookout on inspections. Ordinarily a complete inspection is made once a week of all of the overhead line under the charge of each line foreman.

Once every hour each line crew reports by telephone to the telephone operator at the general office either over the train dispatcher's telephone line, if at sidings, or over the general business line if working between sidings. It should be explained that two independent telephone lines are strung along the entire road, one for general use in communicating between offices and substations and the other for the exclusive use of the train dispatcher. Plugs are provided in the dispatcher's line at both ends and in the middle of each siding which can be conveniently reached by the train crews without leaving the car for connecting up the portable telephone sets carried on each car for reporting. Similar plugs are provided in the general line every half mile for emergency use. The telephone operator at the general office keeps a record of the time and place of reporting by each line crew throughout the day on the form shown in Fig. 1. The approximate location of each crew is thus kept before the operator, to whom is reported any trouble by the train crews or substation attendants. In case trouble is reported immediately after a line crew has telephoned in and no communication can be expected for another hour, the dispatcher notifies the first regular train crew proceeding in the direction of the line car and when the car is met they instruct the foreman to call in for fur-

ther orders. The line cars work as extra trains and have no rights over regular trains except in emergencies. The line crews are expected to be in a siding in time to clear the line of all regular train crews.

At the end of each day the line foremen send to the office of the superintendent of power a statement of the day's work in detail on the form shown in Fig. 2. This is a combined pay-roll report, material report and record of inspection and repair. It shows the time required for each repair made, the location, by whom reported and the nature of the work done. The daily time card of the helper is attached below and on the back is space for an itemized account of material used and any remarks. These reports are filed permanently in the office and are a valuable record in any case involving a question of maintenance of any part of the overhead lines. From them the cost of labor and material for any class of repairs can be gathered and by classifying the repairs made, information can be obtained as to the service given by any detail of overhead line material.

In addition to this daily work report a line trouble report of the form shown in Fig. 4 is made out by the line foremen to cover the more serious cases of trouble and damage. It shows the location of trouble, time reported, time repaired temporarily, time repaired fully and nature of the trouble. These reports are useful in determining causes of train delays and in co-operating with the operating and mechanical departments in reducing damage to overhead lines by defective equipment or careless trainmen.

On new construction the line foreman turns in each day on a special form the name, occupation, time and rate of each man in his gang, the amount and kind of material used and a statement of the work done during the day. From these reports the auditor's office obtains in detail a daily record of the cost of all new line construction.

The line maintenance crews are in charge of the telephone and signal lines and switch lights in addition to the trolley, feeder and high-tension lines. They do not, however, have anything to do with bonding or substation maintenance or the testing of circuits. At irregular periods special men are assigned to testing all trolley, feeder and return circuits under the direction of the division electricians, of which there are three on the staff of the superintendent of power. These tests are made to determine

INDIANA UNION TRACTION CO.
BATTERY INSPECTION REPORT

_____ STATION DATE _____ 190__

TIME AT BEGINNING OVER CHARGE _____ TIME AT ENDING OVER CHARGE _____

TEMPERATURE OF ROOM _____ OF ACID _____

CELLS WATERED DURING WEEK _____

CELLS INSPECTED WITH BATTERY LAMP DURING WEEK _____

CELLS PROBED DURING WEEK _____

REMARKS.

CHARGING CURRENT _____ AMPERES

SPECIFIC GRAVITY READINGS (Form H-2W 1-08)

CELL NO.	BEFORE CHARGE	AFTER CHARGE	CELL NO.	BEFORE CHARGE	AFTER CHARGE	CELL NO.	BEFORE CHARGE	AFTER CHARGE	CELL NO.	BEFORE CHARGE	AFTER CHARGE
1			77			153			229		
2			78			154			230		
3			79			155			231		
4			80			156			232		
5			81			157			233		
6			82			158			234		
7			83			159			235		
8			84			160			236		
9			85			161			237		
10			86			162			238		

FIG. 5.—PART OF REPORT BLANK ON OVERCHARGED CELLS

the efficiency of the transmission and to locate any low tension, leakage or fault which the ordinary inspection by the line crews would not discover.

High-tension line repairs, so far as possible, are made during the night, after 2 o'clock. Day repairs are, of course, made when the trouble threatens to interrupt the service. When work is to be done on any high-tension line the operator in the substation adjacent to the trouble cuts out the circuit breakers and hangs on the panel a warning board, on which is written with white chalk the name of the lineman ordering the circuit off, the name of the station attendant on duty at the time and the time of cutting out. This board cannot be removed or current turned on until the lineman who ordered it off reports to the substation, giving his name and stating that the repairs have been made. If the lineman is working near the substation he reports in person, but if some distance away he reports the trouble cleared over the telephone, using the general wire with which the substation telephones are connected.

All of the high-tension wires are strung on the trolley poles with the exception of the main feeders for the Indianapolis Northern division, which run cross-country over private right of way from the power house at North Anderson to Elwood, 15 miles. The grade for an interurban road has been constructed on this right of way, so that a passable road is made along the high-tension line. Over this road an inspector drives once a week with a horse and light wagon. He is equipped with the necessary tools and supplies to renew broken insulators.

INDIANA UNION TRACTION CO.
DAILY SUBSTATION REPORT
Black Indicates A.M. Red Indicates P.M.

_____ Substation.
_____, 190__

	CUT OUT	CUT IN	CUT OUT	CUT IN	CUT OUT	CUT IN	CUT OUT	TIME IN HOURS
Rotary No.								
Rotary No.								
Rotary No.								
Storage Battery								
Booster								
Feeder No.								
Feeder No.								
Feeder No.								
Feeder No.								
Feeder No.								
PREVIOUS MID-NIGHT READING	6 A. M.		NOON		6 P. M.		MIDNIGHT	
Line Voltage								
At Amperes								
Bat'ry. Voltage at Zero Amps								
Wattmeter No.								
Wattmeter No.								
Wattmeter No.								
Weather								
Temperature Pilot Cell								

Output of Station for Day _____ Kilowatt Hours

Peak Load. Rotaries _____ Amps., Battery _____ Amps., Time

Remarks.

	PILOT CELL GRAVITY	CIRCUIT BREAKER OPEN	TIME	LENGTH OF TIME OPEN	CAUSE, IF KNOWN
12 M					
1 A M					
2 A M					
3 A M					
4 A M					
5 A M					
6 A M					
7 A M					
8 A M					
9 A M					
10 A M					
11 A M					
12 M					
1 P M					
2 P M					
3 P M					
4 P M					
5 P M					
6 P M					
7 P M					
8 P M					
9 P M					
10 P M					
11 P M					
12 M					

Max. Gravity Pilot Cell Previous Week _____

Temperature at Above Time _____

EMPLOYEE	TIME ON	TIME OFF	TOTAL HRS.

NOTE.—Indicate the exact time on duty and off duty.

FIG. 6.—FORM OF DAILY SUBSTATION TAG SENT TO THE SUPERINTENDENT OF POWER

put on new tie wires, etc., and, if he finds any defects requiring attention, he telephones in to have the power shut off while he makes the necessary repairs. As most of the substations on the division supplied by this line have storage batteries, an interruption in the transmission line for a short time does not materially interfere with train operation.

The routine maintenance of the electrical apparatus in the power houses and substations is intrusted to the chief switchboard operator and to the substation attendants. At the main power house the chief switchboard operator and the night and day assistants each work 10 hours. This provides for four hours' duty by the chief operator at the switchboard and six hours for maintenance and inspection of the electrical apparatus under his care. The generators are laid off alternately during the minimum load period and the power house is completely shut down from 2:45 a. m. to 4 a. m. every day, so that ample time is given for thorough inspection and adjustment of both the engines and generators. In case of emergency repairs being required all of the facilities of the new car shops adjoining the power house at North Anderson are available.

The storage-battery equipment at the power house and substations requires the most time for maintenance and constant inspection. Sixteen of the 22 substations are furnished with storage batteries and an hourly record is kept of their condition as indicated by the pilot cell readings. This record is kept in the form of a plotted curve. The readings for an entire week are plotted on a small sheet, 4 in. x 6 in., on which is also plotted the curve of overcharge readings taken at the end of the week (Fig. 3). Red ink is used for p. m. readings and black ink for a. m. readings. The overcharge given to the batteries at the end of each week is continued until the pilot cell shows the same gravity for six consecutive readings taken 10 minutes apart. Before and after the overcharge the gravity of every cell is read and recorded on the form shown in Fig. 5. Any cells which appear defective are inspected later by a special battery man who is employed to clean and renew plates and do other heavy maintenance work at any of the substations where he is needed. The complete battery record also includes at the top a statement of the number of cells watered during the week, the number inspected with battery lamp and the number probed. This work is done by the station attendants. Distilled water in barrels is supplied from the power house as required and acid of suitable gravity is furnished from the general store house by the company's freight car.

INDIANA UNION TRACTION COMPANY.
SUPT. POWER. DAILY MAINTENANCE REPORT.

POWER STATIONS _____ 190__

	ANDERSON		WINCHESTER		EATON	
	THIS YEAR	LAST YEAR	THIS YEAR	LAST YEAR	THIS YEAR	LAST YEAR
Output K. W. H.						
Max. Load for an Hour						
Average Load						
Average Demand Factor						
Coal Consumed, Tons						
Coal Consumed per K. W. H. lbs.						
Coal in Bunkers, Tons						
Coal in Storage, Tons						
Regular Men Employed						
Extra Men Employed						

Remarks _____

SUBSTATIONS

Work done other than regular maintenance _____

HIGH TENSION INTERFERENCES OF FIVE MINUTES OR MORE

Time M. Between ..... and ..... Time ..... M. Between ..... and .....
Time M. Between ..... and ..... Time ..... M. Between ..... and .....
Time M. Between ..... and ..... Time ..... M. Between ..... and .....

LINEMEN

Regular Linemen ..... Helpers ..... Extra Linemen ..... Helpers .....
Work being done by extra linemen _____

Trolley wire down ..... Div. Reported ..... M. Repaired ..... M
Trolley wire down ..... Div. Reported ..... M. Repaired ..... M
Trolley wire down ..... Div. Reported ..... M. Repaired ..... M
Trolley wire down ..... Div. Reported ..... M. Repaired ..... M

TELEPHONE LINES

All telephone lines O. K. at 10 A. M. except _____

Supt. of Power.

FIG. 8.—FORM OF DAILY REPORT SENT BY THE SUPERINTENDENT OF POWER TO THE GENERAL MANAGER

INDIANA UNION TRACTION COMPANY.
POWER PLANT ELECRICAL REPORT. 190
Black Indicates A. M. Red Indicates P. M.

TIME	A. C. WATTMETER	OUTPUT PREVIOUS HOUR	D. C. WATTMETER	OUTPUT PREVIOUS HOUR
Midnight				
1 AM				
2 AM				
3 AM				
4 AM				
5 AM				
6 AM				
7 AM				
8 AM				
9 AM				
10 AM				
11 AM				
Noon				
1 PM				
2 PM				
3 PM				
4 PM				
5 PM				
6 PM				
7 PM				
8 PM				
9 PM				
10 PM				
11 PM				
Midnight				

Total Output for Day-Generators: Rotaries:

	OUT	IN	OUT	IN	OUT	IN	TIME IN HOURS
Generator No. 1							
Generator No. 2							
Generator No. 3							
Generator No. 4							
Generator No. 5							
Exciter "S"							
Exciter 50 K. W. — "M"							
Exciter 75 K. W. — "M"							
Exciter "B"							
Muncie-Daleville							
Ingalls-Lawrence							
Alex., Fmount, Marion, La F No. 1							
" " " " " 2							
I. N. T. No. 1							
I. N. T. No. 2							
Rotary No. 9							
Rotary No. 10							
Rotary No. 11							
Rotary No. 12							
Storage Battery							
Booster							

	3 A. M.	6 A. M.	9 A. M.	NOON	3 P. M.	6 P. M.	9 P. M.	MIDNIGHT
A. C. Voltage								
D. C. Voltage								
100 Amp. Discharge Battery Voltage								
Exciter Voltage								
Exciter Current								
Weather								
Temperature								

PREVIOUS MIDNIGHT READING

WATTMETER	6 A. M.	NOON	6 P. M.	MIDNIGHT
I. N. T. No. 1.				
I. N. T. No. 2.				

SWITCHBOARD ATTENDANT	TIME ON	TIME OFF	TOTAL HOURS

Peakload Generators Kilowatts. Time
Peakload Rotaries Ampiers. Time
Special Event

FIG. 7.—FORM OF DAILY ELECTRICAL REPORT OF POWER STATION TO THE SUPERINTENDENT OF POWER.

In addition to these battery reports the substation attendants send to the superintendent of power a daily log of the station showing the operation of all of the apparatus, Fig. 6. Spaces are provided for recording the time in and out of each rotary, battery, booster and feeder line, power consumption and line voltage, condition of pilot cell of storage battery at hourly readings, circuit breaker openings with time and cause and remarks concerning any unusual circumstance arising during the

time covered by the report. The columns for recording circuit breaker openings are especially valuable in tracing delays due to interruption of power supply.

A power station operating report somewhat similar to the daily substation report is also made out and sent to the superintendent of power each day, Fig. 7. On the back of this sheet a record is kept of circuit breakers opening on any of the transmission lines. This is a check on the substation reports giving the same information. Any serious failure of transmission lines usually opens the circuit breakers in the power house. They are closed at the end of two minutes and if they then fail to stick and the cause is apparently due to some line failure the switchboard operator gets the general telephone line paralleling the circuit in trouble and calls all substation attendants on that circuit by four rings. They report consecutively as called by name, and if the trouble cannot be located at once the switchboard operator gives the proper instructions for making such tests as are necessary. As soon as the trouble is located, if due to failure of the line, the nearest maintenance crew is reached at the next reporting time and sent to repair it.

From the linemen's, substation and power house daily reports the superintendent of power makes up a condensed daily report to the general manager, as shown in Fig. 8. On this is given, besides the power house data, any special maintenance at substations, record of high-tension interferences, emergency or construction work by linemen, record of trolley wires down with time reported and repaired and test report of all telephone lines, which test is made every morning by the telephone operator at 10 o'clock.

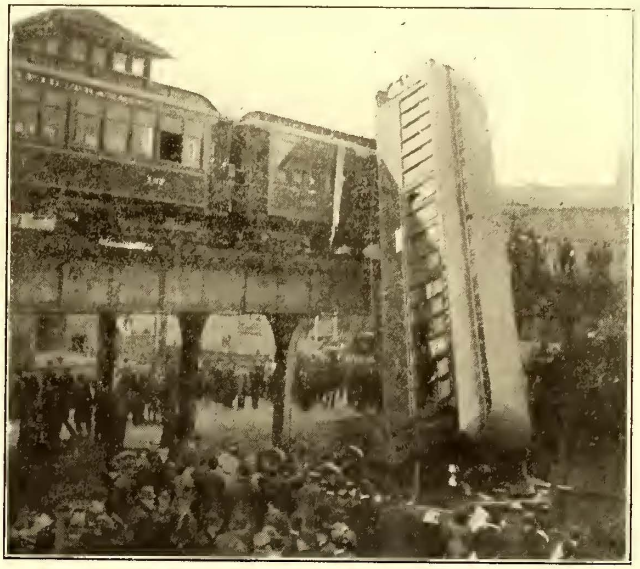
Acknowledgment is due to G. H. Kelsay, superintendent of power, for the information from which this article was prepared.

AN ELEVATED RAILWAY ACCIDENT IN CHICAGO

A three-car south-bound train on the South Side Elevated of Chicago was derailed on the morning of April 7 at a point about 300 ft. north of the Forty-third Street station. The forward car left the structure and fell to the ground, but the two rear cars remained on the tracks. None of the 20 passengers in the first car or the motorman was fatally injured, although all of them were badly shaken up and bruised and cut. The accompanying illustration, which is reproduced through the courtesy of the *Chicago Daily News,* was made from a photograph taken a few minutes after the accident and shows the position and condition of the derailed car.

The accident occurred at a cross-over where the three-track structure to the north narrows to a two-track structure. The train left the Indiana Avenue station, the next station north of Forty-third Street, apparently in good condition. No indication of derangement of any part of the equipment was noticed by the motorman until the front end of the forward car suddenly lurched outward as it reached the cross-over and fell clear off the structure as it dropped end-on to the ground. Both trucks of the car fell to the ground with the body, but fortunately the coupling broke between the first and second cars. None of the passengers in these cars was injured.

The motorman of the derailed train estimated the speed at the time of the accident at about 15 m.p.h., but it is probable the speed was nearer 20 m.p.h. A careful investigation into the cause of the derailment showed that one of the motor casings on the forward truck dropped down and lifted the truck entirely off the rails as the cross-over was reached. The deck of the elevated structure is laid with outside timber guard rails 6 in. x 8 in. and inside wooden guard rails 6 in. x 6 in. At the cross-over the inner guard rails are, of course, omitted. Marks on the inner guard rail, showing that the motor casing had dropped and was dragging along its top surface, were found beginning just south of Indiana Avenue station. When the inner guard rail terminated at the cross-over the casing dropped on to the ties and struck the track rails of the cross-over with such force as to lift the forward truck and throw it out against the outer guard rail. The guard rail at this point was sound and in good condition, but it was struck with such force and at such an angle by the wheels



DERAILED ELEVATED CAR IN CHICAGO.

of the truck that enough of it was torn away to allow the truck to fall to the ground. The rear truck ran along about 50 ft. beyond the cross-over before leaving the rails and plunging over the edge of the structure.

The forward car in falling assumed a vertical position with its front end buried in the ground of an unpaved area below. The strong construction of the car undoubtedly prevented any loss of life, as the front platform, although buried nearly 3 ft. in the ground, was almost undamaged except for bent guard rails and gates. The body was not structurally injured, the damage being principally broken glass and scratches on the wood work. The car was one of the older reconstructed type, 46 ft. long, with wooden underframe and steel I-beam platform framing. These platform sills received the full force of the 20-ft. fall as the car hit end-on, but they were only slightly buckled. In clearing the wreck the derailed car was lowered to the ground, but it will be raised to the structure later and sent to the shop for repairs.

The Coney Island & Brooklyn Railroad, which proposes to build its line between Prospect Park and Coney Island, five miles distant, is seeking permission to convert the track into a "park bed" by sodding between the tracks. The purpose is to better the appearance of the roadway and to make it impossible for teams to use the tracks, Coney Island Avenue, on which the line runs, being very wide. Building according to the new plans will also permit high-speed service between the Park and the Island. The cost of the proposed "park" is estimated to be $278,000.

COMBINED RAILWAY, LIGHTING AND EXHAUST-STEAM PLANT

BY JUDSON H. BOUGHTON

The economy of operating electric railway and lighting systems from one generating station has long been known and is being realized in a constantly increasing number of installations throughout the country. The further possibilities of combining these and other fluctuating loads to secure a

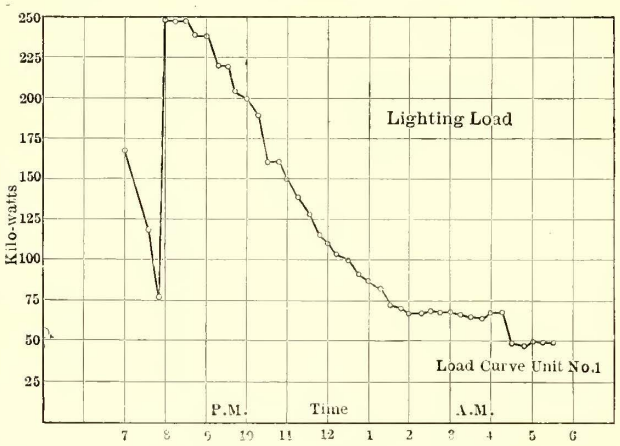


DIAGRAM SHOWING LIGHTING LOAD

more nearly constant station output, and of the utilization of exhaust steam, are well illustrated by the results of a test conducted by the writer and an associate during the coal strike and famine of 1902-3 of a power plant in central New York. The installation was designed to serve a street railway, an electric light and power company and a manufacturing concern and the test was made to settle a controversy as to the proportionate amounts of power and of fuel to be charged to each of the three accounts.

The steam generating equipment includes six Wickes boilers, hand fired, arranged in three batteries of two boilers each and served by three steam feed pumps and a blower, forced draft being necessary with the grade of coal

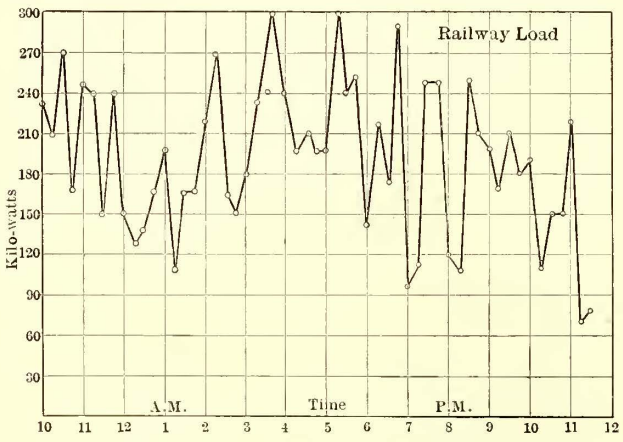


DIAGRAM SHOWING RAILWAY LOAD

used. One 13-in. main carries the steam to the engines at the power house and one 14-in. pipe is utilized to conduct the exhaust steam to the apparatus of the manufacturing company which is also directly supplied with live steam by one 6-in. and one 4-in. main. In the manufacturing plant, which is located some 400 ft. from the boiler house and about the same distance from the power house, the exhaust steam is utilized for the evaporation of brine in the manufacture of salt. The conditions are such that all of the exhaust steam produced in the power plant can be utilized as produced, irrespective of the character of the power plant load curve. Such additional steam as is required at any period of the day in the manufacture of salt, is obtained directly from the boiler plant as live steam. The power plant proper is equipped with three direct-connected horizontal units consisting of a pair of simple non-condensing Russell engines, and a rotating field, 400-kw, three-phase Westinghouse generator.

Current is generated at 2400 volts, at which pressure it is transmitted over separate lines to substations located in the distribution centers, where it is transformed by rotary converters and transformers to pressures suited to the requirements of the railway and the light and power companies. A steam direct-connected exciting set for starting purposes and an induction motor-generator exciting set together with proper switchboards and measuring instruments are included in the station equipment.

In designing the installation to handle satisfactorily the various loads with maximum commercial efficiency, provision was made for carrying the street railway and the power and lighting loads separately during that part of the day when more than one engine-generator unit would be required, the advantage of simplicity and better regulation

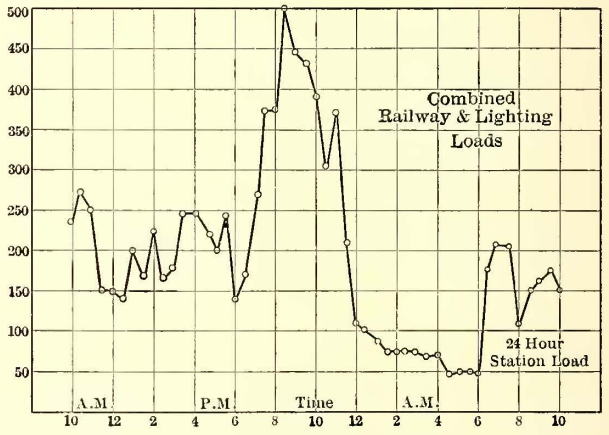


DIAGRAM SHOWING COMBINED RAILWAY AND LIGHTING LOADS

being greater during that period than that to be secured by combining all loads and operating the generators in parallel.

By reference to the accompanying load curves which are typical of the service indicated, it will be seen that the entire railway load and the small power and lighting loads from 6 a. m. to about 7 p. m., aggregating 300 kw as a maximum, is carried by one unit. About 7 p. m. the incandescent and arc light load becomes heavy and is carried by one unit, while power for the railway is furnished by a second unit about 11 p. m., when both loads decrease sufficiently to be carried again by one unit. The railway load between 7 p. m. and 11:30 p. m. is seen to vary with characteristic irregularity from 100 kw to 250 kw, during which period the combined arc and incandescent load reaches a maximum at 8 p. m. of 250 kw. The station load curves reaches a maximum of about 500 kw at 8 p. m. from a minimum of 50 kw at 5 a. m., the mean total station load for twenty-four hours being 250 kw.

After performing its work in the engines the steam as exhaust is sent to the apparatus of the manufacturing plant where its value is determined by the heat units it still contains. The calorimeter tests made at regular intervals indicated the quality of steam to be 94.6 per cent at admission and 81.1 per cent in the exhaust so that although with its simple non-condensing engines the station showed an apparent

consumption of 30.96 lb. of steam per indicated hp-hour, or 8.67 lb. of coal per kw-hour, proper allowance for the heat units returned and actually utilized for manufacturing purposes reduced these figures to a steam consumption of but 5.58 lb. of steam per ihp-hour or 1.62 lb. of coal per kw-hour. These figures represent the average results throughout the test, which was continued for 24 hours, the readings being taken at intervals of 15 minutes.

Without discussing the investment, maintenance and operation features of this interesting installation it will be apparent that the requirements of the community to be served were carefully analyzed, and in designing the station were met in such a way as to produce highly satisfactory results from a commercial standpoint. This problem of analyzing and grouping the power, lighting, traction, heating and industrial requirements of communities and of utilizing such resources and adapting such apparatus and systems of distribution as will produce maximum commercial efficiency, is well worthy of the further consideration of promoters and engineers.

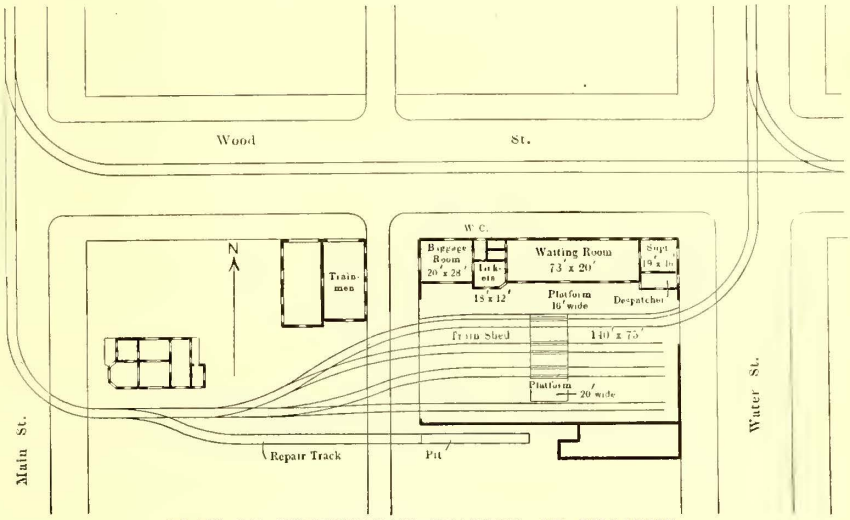
CONEY ISLAND & BROOKLYN ASKS PERMISSION FOR NEW BOND ISSUE

The Coney Island & Brooklyn Railroad Company has made application to the Public Service Commission for permission to issue additional bonds of the par value of $462,000, secured by the consolidated mortgage authorized in December, 1904. The purposes of the issue are to pay the estimated cost of the reconstruction of the railroad on Coney Island Avenue from Prospect Park to Coney Island, given as $278,000; to pay the balance of the cost of 10 new cars, given as $30,000, and to defray the rest of the cost of reconstruction of the company's power system over the moneys raised therefor by sale of stock, given as $82,973. The application states that it was intended to meet the cost of most of the improvements out of the proceeds of the sale of capital stock, which was increased in 1907 from $2,000,000 to $3,000,000. Since beginning the work, however, it has been found that the cost was underestimated. The proceeds from the sale of the capital stock amounted to $983,900. Out of this amount the company's floating debt of $326,920 has been paid.

It is officially announced by the New York, New Haven & Hartford that it has now 83 trains in operation electrically on week days between New York and Stamford, and 33 on Sunday. Before July 1 it will have its full complement of new electric engines, and then all trains between the two points will be operated by electricity.

NEW INTERURBAN STATION AT DECATUR, ILL.

On March 10 the Illinois Traction System opened a new interurban terminal station at Decatur, Ill. The interurban business was formerly handled at the city transfer station in the Public Square. The facilities here were not adequate and the company purchased an old brick building at the corner of Wood and Water streets, a block south of the Public Square, which it remodeled into an attractive and convenient terminal station. Three divisions of the electric traction system run into Decatur, from Champaign on the east, from Bloomington on the north and from Springfield on the west. The present schedules require 12 in-bound and 12 out-bound trains on the Champaign division; 18 in-bound and 18 out-bound trains on the Springfield division, and 16 in-bound and 16 out-bound trains on the Bloomington division, a total of 46 in-bound and 46 out-bound regular passenger train movements in each 24 hours.



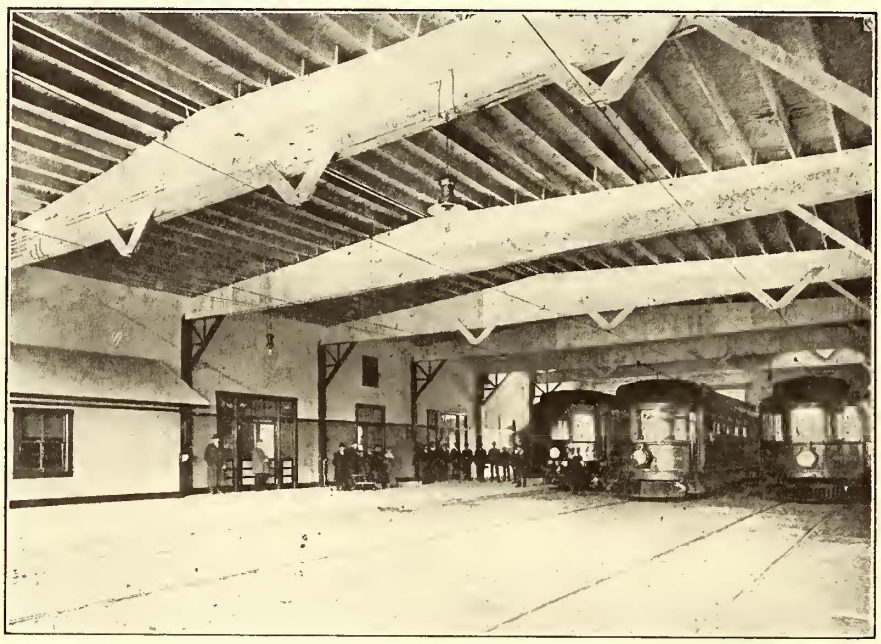
PLAN OF INTERURBAN STATION AT DECATUR

The accompanying plan shows the general layout of the new station, and its interior and exterior appearance is shown by the illustrations from photographs. The building is a low one-story brick structure with a wooden roof. In remodeling it, it was extended about 20 ft. to the south, in order to make room for four tracks. The south end of the old roof trusses are carried by a row of wooden posts between the third and fourth tracks. The exterior of the building is painted light yellow with dark-green trimming, which is the standard building color of the Illinois Traction System. The interior is painted white.

EXTERIOR OF INTERURBAN STATION AT DECATUR

The track arrangement shown on the plan has been de-

signed for through movements on the north track and for storage of layover cars on the three south tracks. A repair track with a depressed pit 60 ft. long has been built south of the building. The entire west end of the train shed is open; but in the east end there is only one opening for the through track. Large windows in the east and south walls provide ample light in the day time, and at night the train shed is lighted by five enclosed arc lamps suspended from the roof trusses. The trolley wires are carried on triangular wooden hangers suspended from the roof trusses also. The floor of the train shed is paved with cinders with the exception of a cement platform 20 ft. wide which connects the concourse along the south side of the waiting room with all of the tracks in the shed. The concourse is paved with cement and is 16 ft. wide. Two wide-swinging doors connect it with the waiting room and doors are also provided in the ticket office, baggage room and train dispatcher's office. The local superintendent has an office 19 ft. x 16 ft. in one corner of the



INTERIOR OF NEW STATION AT DECATUR.

building, and adjoining it is the train dispatcher's office. The waiting room is 73 ft. x 20 ft. and is finished with a dark oak wainscot 3 ft. high, above which the walls are calcimined a light salmon color. The ticket office is at the west end of the waiting room. At the west end of the building is the baggage room, 20 ft. x 28 ft. An elevated loading and unloading platform extends into the baggage room and outside of the building so that baggage can be loaded or unloaded from wagons driving into the alley west of the station. A trainmen's room has been provided in a separate building west of the alley.

RESULTS OF TESTS ON SEVERAL GRADES OF FUEL IN A PRODUCER GAS POWER PLANT

The accompanying table, published by permission of the director of the United States Geological Survey, shows the results obtained on a wide range of fuels tested by the technologic branch of that department, under the direction of Joseph A. Holmes, expert in charge, and Robert Heywood Fernald, engineer in charge. These tests were made at St. Louis, Mo., at the fuel testing plant which was located on the grounds of the Louisiana Purchase Exposition. At the time this plant was erected there were but few gas producer plants in the country burning any class of bituminous coals, and many prominent engineers were in doubt as to the possibility of operating a gas engine on gas produced from coals such as are mined in the Central and Western States.

This branch has done a valuable service to the country in demonstrating the possibility of burning nearly all classes of low-grade fuels with good economy. As will be noted in the table the poorer coals required a correspondingly greater quantity of the fuel to produce a horse-power.

The equipment used was a 250-hp pressure producer with a centrifugal tar extractor and gas holder. A 235-hp three-cylinder vertical gas engine belted to a generator produced power which was measured by electric instruments connected with the switchboard. As will be seen, the results obtained are much better than those from steam plants of corresponding size.

Of the four Pennsylvania coals tested, two came from the lower Kittaning bed, one from the lower Freeport and the fourth from the Pittsburg bed.

Of the West Virginia coals, one came from the Ansted bed, another from the Eagle, both of these being mined in the New River district, a third from the Pittsburg and the fourth from the Keystone bed.

TABLE OF DATA AND RESULTS ON REPRESENTATIVE FUELS BURNED IN A PRODUCER GAS PLANT AT THE FUEL-TESTING PLANT OF THE TECHNOLOGIC BRANCH, U. S. GEOLOGICAL SURVEY.

Fuel	Proximate analysis per cent.				B.T.U. per pound of fuel		Cu. ft. standard gas produced per pound of equivalent* fuel consumed by producer plant		B.T.U. per cubic ft. of standard gas	Pounds of equivalent* fuel per B.H.P. Hr.	
	Moisture	Volatile matter	Fixed carbon	Ash	As fired	Dry	As fired	Dry		As fired	Dry
Florida peat	21.00	51.72	22.11	5.17	8,127	10,289	28.5	36.1	175.2	2.57	2.03
Average of four lignites	35.05	28.96	27.72	8.27	7,164	11,038	26.3	40.3	169.9	2.43	1.73
Average of four Illinois coals	11.51	31.81	43.46	13.22	10,651	12,030	49.6	56.1	153.2	1.66	1.47
Average of four Penna. coals	3.47	19.68	67.31	9.54	13,651	14,136	71.4	74.0	141.6	1.16	1.12
Average of four W. Va. coals	2.47	32.12	60.24	5.17	14,248	14,610	77.5	79.5	149.6	1.03	1.00

* Equivalent fuel includes that used in the producer, and also the amount required to generate the steam necessary for operating the producer.

As will be seen, the moisture varied from 35 per cent to nearly 2½ per cent, the volatile matter from over 51 per cent in the case of peat to about 19.7 per cent, and the fixed carbon from 22.11 per cent to 67.31 per cent.

OPENING OF THE EXHIBITION OF SAFETY DEVICES

The exhibition of safety devices, which is being conducted at 231 West Thirty-ninth Street under the auspices of the American Institute of Social Service, was opened April 13. On April 11 the management gave a private view for the exhibitors and their friends. Speeches on the importance of safety devices were made by Walter C. Kerr, Prof. F. R. Hutton, W. H. Tolman, Dr. Josiah Strong, Prof. Lucke, of Columbia University, and Charles Kirchhoff. The exhibition will remain open about two months. Particulars of some of the exhibits follow:

The Pennsylvania Railroad is making an exhibit of its emergency devices for use in case of accidents or sudden sickness. The service was instituted about four years ago in connection with the voluntary relief department of the company, which is a benevolent organization conducted by and for the employees, but with the financial assistance and sanction of the company. The force of the relief department includes some 70 physicians, who are employed exclusively by the company and who give instruction to the men in supplying first aid to the injured. These lectures were begun Oct. 1, 1904. Up to the present over 400 lectures have been given and over 20,000 men have been instructed in the work. The practical results have been very satisfactory, and during 1907 47,985 cases were treated.

The emergency outfit, as shown at the museum, consists of a collapsible stretcher, or cot, and a sealed metal emergency case. The collapsible cot weighs 40 lb. and makes a roll when folded up 6 in. in diameter and 45 in. long. It consists of two side poles of ash, each in two sections, which can be joined by malleable castings and are connected by pieces of canvas. The cot is supplied with supports so that it can be set on the floor or ground. One of these cots is carried in every baggage car of every train on the railroad. Others are placed in every telegraph tower, in every freight and passenger station and at other places where their use might be required. The emergency case consists of a sterilized tin box containing six emergency packages which are wrapped in moisture-proof coverings and sealed. Each package contains a triangular bandage of sterilized cloth, a cambric bandage and two compresses, as well as a printed memorandum of instructions in giving first aid to the injured and blanks on which reports of the accident can be entered and sent to the company. Each metal case is contained in a canvas cover, and they are distributed liberally in stations, baggage cars, towers, warehouses, etc., and one is carried on every locomotive. In the exhibit at the Museum of Safety Devices the emergency cases are shown enclosed in the canvas cover, removed from the cover and open, the contents of a package being displayed on a table. The exhibit is in charge of E. B. Hunt, assistant superintendent of the relief department, and H. T. Wilkins, chief clerk to the chief of motive power of the Pennsylvania Railroad at Philadelphia.

The Automatic Gate & Signal Company, of New York, shows a model about 12 ft. long of an automatic gate for railroad crossings which closes at the approach of a train and opens after the train has passed. At the same time an alarm signal bell is rung. Power for operating the gate is furnished either by storage batteries or direct supply. The actuating relay is thrown by current taken from an insulated section located usually about 2 miles from the crossing. The alarm gong starts to ring about 6 seconds before the gates descend. The latter are jointed so that if a team is caught on the track it can drive out, but no team can drive on to the crossing after the gates are down.

E. H. Edwards and P. S. Scanlan, of New York, show a model of folding and disappearing gates for station platforms. These gates are designed especially for crowded platforms, such as on subways and elevated railways. For such places three openings are recommended, one for exit and two for entrance. The latter are provided with rolling gates which fold inside of supports when not in use. A guard stationed at the exit opens these gates for the entering passengers after the leaving passengers have passed through the exit.

The Pay-as-You-Enter Car Company, of New York, has on exhibition a mutoscope showing views of pay-as-you-enter cars in use.

The United States Engineering Company, of Philadelphia, exhibits a model of the Nachod automatic signal for electric railways. This signal has been described in these columns and is arranged with a counting mechanism, so that any number of cars up to 15 may enter a block in succession, and are counted as they pass out of the block, so that no car can enter in the opposite direction until all cars have passed out and the block is clear.

The Quincy, Manchester, Sargent Company, of New York and Plainfield, N. J., exhibits a Stanwood steel step as well as a non-slipping step and floor. The latter is made of steel strips like the Stanwood step, but the interstices are filled with cement to make an even floor for cases where such a construction is desirable.

Louis Dube, of Albany, is exhibiting a new type of railroad spike in two parts. One is about the size and shape of the ordinary spike, but has an enlarged neck and its shank is notched on the side nearest the rail. After this spike has been driven in place a thin key or wedge is driven behind it, holding the main portion firmly in position. The inventors claim that the spike will not be loosened by vibration of the rail, and being held in position firmly there is less likelihood of wear between the base of the rail and the neck of the spike. The enlarged neck gives a shearing surface practically double that of the ordinary spike. The Dube spike can be redrawn by first taking out the key, after which the remaining portion will slip out of the hole. Spikes of this kind have been installed on the New York Central and Union Pacific railroads and are to be put on trial on the New York, New Haven & Hartford and the Pennsylvania railroads.

The Yale & Towne Company is exhibiting a safety hoist.

The Carey Automatic Coupler Company, of Chicago, is exhibiting a model of its combination automatic car and train pipe coupler such as used by the Aurora, Elgin & Chicago Railway. The head can be released by a crank, operated by the hand or heel.

Charles M. Jacobs, of Jacobs & Davies, engineers of the Pennsylvania and the Hudson and Manhattan tunnels, has loaned the museum a model of the tunneling shield used in that work.

L. S. Treadwell, of Albany, is making an exhibition of a new type of running board for open cars. This board is not continuous along the length of the car, but consists of a series of lateral steps, so that while no more space is taken on the side of the car than with the ordinary running board, an extra step is provided for passengers before they reach the level of the car floor.

Westinghouse, Church, Kerr & Company exhibit a number of photographs of the work being carried on by them in the Pennsylvania terminal and elsewhere.

The Niles, Bement, Pond Company, of New York, has at the museum an interesting line of photographs of its tools and shops. A similar exhibit is made by the Brown & Sharpe Company.

The Travelers' Insurance Company, of Hartford, has a very extensive exhibit of broken elevator ropes, corroded boiler tubes and heads, defective clutches and other causes of accidents, which have been found by the company's inspectors.

The United States Steel Corporation is planning to make an exhibit of steel props used in coal mines. These devices will be shown in a full-sized model of a coal shaft 16 ft. long, 8 ft. wide and about the same in height. The appearance of the interior of the mine will be carefully simulated in papier mâché, and a miner will be at work to make the exhibit more realistic.

THE EQUITY OF IRREGULAR FARE LIMITS

In connection with various legislation recently pending in Massachusetts the point was raised by the Public Franchise League of Boston that the present 5-cent territory in the Boston district is unscientific and inequitable because of its irregular limits. It is claimed that to be able to travel a long distance in a certain direction for 5 cents and to have to pay 10 cents for a ride of not half that length in another direction is an unjust state of affairs. To a certain extent this may be true in an extreme case, but a very broad principle is involved here which ought to be considered in dealing with cases of this kind.

The irregularity of the 5-cent fare limit in most American cities is primarily due to the fact that as these communities grow the local street railways expand with them and sometimes before each important increase in population or area. Franchise conditions sometimes confine a traction company to the limits of a single town, and in all such cases it is obviously impossible for the maximum ride on each route for a single fare to be a constant quantity. As some routes are inevitably longer than others, the cost per mile to the passenger is bound to vary. Few cities expand at the same rate in all directions, and fewer still develop the same population density in the different directions of expansion. It naturally follows that different lines vary widely in earning capacity and cost of operation, and the service that can be given to the public with a reasonable profit cannot in fairness be the same on all lines. It is usually the case that the fare is the same throughout the entire urban system of a single company, and the fact that this includes both long and short rides is rarely considered a disadvantage under American conditions.

To a very considerable extent it is a misfortune that urban fares have no elasticity, at least from the standpoint of operating cost. The extension of lines and transfer facilities during the past decade has actually resulted in a net lowering of fares to the public, considering the distances traversed. Precedent is strong in favor of retaining the flat rate in urban transit over the lines of a single company, and as long as this view prevails, it is difficult to see any cause for agitation on account of a mileage discrepancy between different routes. Even in cases that involve a trip over more than one system, it is hard to see any injustice in the fact that on one direction the maximum distance that can be covered on a single fare happens to be very much less than what obtains in another direction. No sensible person expects the same frequency of service to be maintained on all lines, regardless of their traffic density, and there is certainly no reason why the cost of service to the passenger should be the same in all directions in and out of a city where several different towns and perhaps two or three companies are involved. On the north side of a city the density of population may be so high that a very much shorter headway can be maintained than on the west or south, and where more than one road is concerned, it may easily be fair to charge at different rates for the same distance out of the metropolitan center. An arbitrary zone system is more likely to produce approximately the same rate per mile over a large area, but there appears to be little evidence that the zone system is desired in either the city or the shorter suburban service of this country, considering the zone as an area included within a circle or parallel circles drawn about a common center.

REPORT OF NEW JERSEY RAILWAY COMPANIES

The report of the State Board of Assessors of the State of New Jersey, which contains the returns of the electric railway companies for the year ended Dec. 31, 1907, has just been published. The board calls for the amount of capital stock issued and actually paid in; amount of funded debt and other debts; cost of road, expenditures for repairs during year; all expenditures for operation, superintendence and management; income from passengers, freight and other sources, and amount of dividends. The following table is made up from the operating reports shown:

OPERATING REPORTS OF NEW JERSEY COMPANIES

Name of Company.	Income from passengers.	Income form all sources.	Expenditures for repairs.	All expenses of operation, superintendence and management.	Dividends.
Atlantic City & Suburban...	$64,760	$65,581	$4,570	$42,457	....
Atlantic Coast Elec. Ry....	295,372	306,375	49,479	89,623	$60,000
Bergen Turnpike.....	98,202	113,958	....	74,580	....
Bridgeton & Millville Traction	123,728	130,605	25,261	68,618	14,000
Burlington County Ry.....	54,492	55,045	....	46,855	....
Camden & Trenton Ry.....	168,229	170,048	....	140,607	....
Cape May, D. B. & S. P. R. R.	15,319	21,376	23,700	16,964	....
Central Passenger Ry.....	31,891	32,094	....	19,927	....
Easton & Washington Trac..	52,546	....	....	25,579	....
Five-Mile Beach El. Ry.....	36,283	37,475	943	19,128	7,680
Hudson River Trac.....	92,616	94,967	16,018	59,640	....
Jersey Central Trac.....	84,780	88,270	16,286	69,151	....
Millville Trac.....	36,899	37,187	13,205	23,975	....
Monmouth County Elec.....	81,925	83,500	20,370	53,660	....
Morris County Trac.....	66,845	67,091	8,218	38,745	....
N. J. & H. R. Ry. & Ferry..	290,024	389,341	45,848	139,050	39.000
N. J. & Pa. Trac.....	95,015	95,247	12,021	63.958	....
New Jersey Rapid Transit...	3,088	....	365	3,711	....
Ocean City Elec. R. R.....	12,688	12,813	1,182	7,250	....
Ocean Street Pass. Ry.....	3,187	3,219	1,274	2,397	....
Phillipsburg Horse Car R. R.	54,074	54,245	8,168	48,724	....
Point Pleasant Trac.....	8,803	10,303	919	4,352	....
Public Service Railway.....	10,376,073	10,468,899	....	6,206.684	....
Trenton & New Brun'k R. R.	56,149	56,689	....	46,726	....
Trenton Street Ry.....	525,511	528,325	....	290,414	59,928

MEETING ON PRESERVATION OF NATURAL RESOURCES

Under the auspices of the American Society of Mechanical Engineers, a general meeting of the engineering profession was held at the Engineering Societies Building, New York, on April 14, to consider the conservation of the natural resources of the country. The presiding officer was J. W. Lieb, Jr., of the New York Edison Company. Addresses were made by W. J. McGee, LL.D., chief of the Bureau of Soils and secretary of the Inland Waterways Commission, Washington, D. C.; Prof. W. F. M. Goss, D.E., Dean of the College of Engineering, University of Illinois; Prof. George F. Swain, LL.D., director of the Department of Civil Engineering, Massachusetts Institute of Technology, and Henry S. Pritchett, Ph.D., LL.D., president of the Carnegie Foundation for the Advancement of Teaching.

VENTILATION SYSTEM IN THE NEW YORK SUBWAY

The introduction of ventilating systems in the North and East River tunnels makes appropriate at the present time a short account of the system of exhaust ventilation employed in the Manhattan Subway system of the Interborough Rapid Transit Company. This system was introduced during the summer of 1906 principally to lower the temperature at the subway stations, as previous bacteriological examinations of the air had indicated that its renewal was not necessary from a sanitary standpoint. The ventilating system was employed with very satisfactory results during the summer of 1907 and was designed on a basis of removing all of the air from the subway every half hour through chambers located midway between the stations, thereby inducing an inflow of fresh air at the stations.

The portion of the subway so equipped is that between the Brooklyn Bridge and Ninety-sixth Street stations. This comprises about 6½ miles of subway with 21 stations having 109 stairway openings aggregating 4792 sq. ft. area. Between Brooklyn Bridge and Columbus Circle the openings from the subway averaged 1 sq. ft. to every 4800 cu. ft. of interior space. Above Columbus Circle the average was only 1 sq. ft. to 9200 cu. ft., although this latter section has 17 ventilating openings between stations with a total area of 1734 sq. ft., while below Columbus Circle there were no openings between stations when it was constructed. These ventilating areas added to the stairways made a total of 2656 sq. ft., or 1 sq. ft. to 3200 cu. ft. of interior volume, which was about 50 per cent greater ratio than that on the lower end of the subway.

Two systems of mechanical ventilation are provided —automatic louvres and exhaust blowers. The former are operated entirely by the movement of the trains. They open outwardly and are so balanced that they always remain closed except when the air pressure inside is greater than that outside. As a train approaches the openings in which the louvres are placed, the air pressure forces them open, in which position they remain until the train passes, when they immediately close. To supplant the air thus forced out, fresh air rushes in at the station openings. The amount of air moved is, of course, entirely dependent upon the frequency of the trains, but it has been found the volume amounts to an average of 19,000 cu. ft. per minute through 100 sq. ft. of louvres between the hours of 6 a. m. and 8 p. m.; an average of 14,400 cu. ft. per minute between 8 p. m. and 1 a. m., and 4800 cu. ft. per minute between 1 a. m. and 6 a. m.

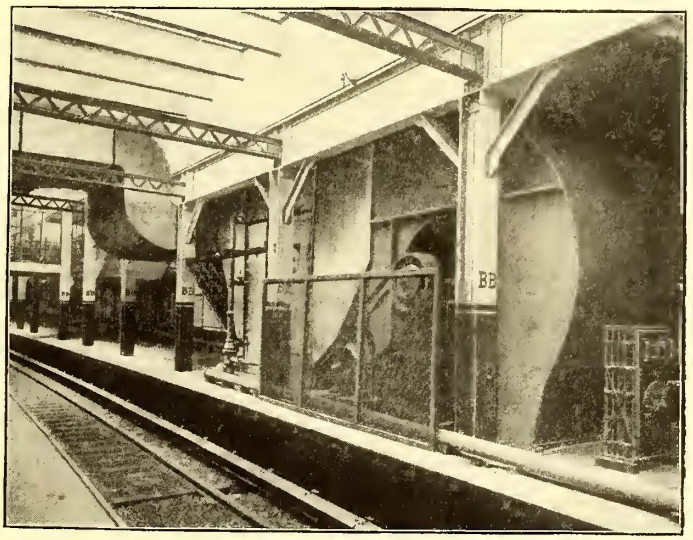
These louvres alone would be sufficient for all needs of ventilation, as the volume moved is in direct ratio to the number of trains operated, hence to the number of passengers carried. It does not, however, produce sufficient circulation to properly cool the subway in summer, especially as it becomes less effective as the traffic becomes less, and it would leave the heat stored up inside all night. It was therefore decided to supplement the system by exhaust fans driven by motors to maintain the circulation when the trains are not in operation, to cool the subway during the night by circulating the cool air of the early morning hours when the traffic is least, and in case of emergency to clear away the smoke from a train which had been stalled.

To facilitate the inflow of fresh air at the stations vault lights were removed at various places and gratings substituted until the aggregate net area of air openings was increased from 4792 sq. ft. to 8953 sq. ft., or about 87 per cent more area was provided.

The fan equipment installed consists of 25 American blower exhaust fans, varying in size from 5 ft. to 7 ft. diameter of wheels and generally direct driven. The units were duplicated as far as possible and are supplied with power from a special cable. The combined capacity of the fans at normal speeds exceeds 990,000 cu. ft. per minute and at maximum speed about 1,230,000 cu. ft. per minute, thus giving an air change in from 15 to 19 minutes.

The most interesting feature is, perhaps, the cooling plant installed at the Brooklyn Bridge station and shown in the accompanying engraving.

This plant consists of two units, one on the east and one on the west side of the stations. Each unit consists of two artesian wells, from which water is pumped by electrically driven triplex pumps through a bank of pipe situated on the unused local platform on each side. This bank of pipe is inclosed in a galvanized iron casing which has an inlet at one end connected to the discharge of two electrically driven fans delivering about 75,000 cu. ft. of air per minute for each unit, or 150,000 cu. ft. of air per minute for the entire station. These fans discharge directly over the station platforms.



INTERIOR OF BROOKLYN BRIDGE STATION OF SUBWAY, SHOWING VENTILATION FANS

The fan equipment of the Hudson & Manhattan Railroad Company, which is also to employ artificial ventilation, includes two 180-in. plate fans, each driven by a 55-hp motor, two 140-in. plate fans with 40-hp motors, two 110-in. plate fans, four 100-in. plate fans and two 96-in. cone fans, all supplied by the American Blower Company.

The Chicago City Railway Company has put into service 50 new pay-as-you-enter cars on its State Street line. This makes 300 pay-as-you-enter cars which the company has in operation in addition to 100 more which it has under construction.

It is stated that the Brooklyn Ferry Company, which operates a number of ferries between New York and Brooklyn, will abandon certain of its lines, disposing of its wharf property to a large terminal company. Redistribution of traffic following the operation of surface cars over the Brooklyn Bridge, the opening of the Williamsburg Bridge, the operation of the New York subway and the tunnel to Brooklyn are cited as affecting the ferry traffic.

BALANCED SPRING HARP

A balanced spring trolley harp which is simple in its details is being made by the United Copper Foundry Company, of Boston, Mass. The harp has a flexible washer and contact which are combined. The elliptic springs are fitted over the pinion on either side between the wheel and are held in place merely by inserting the end through a projection on the inside of the harp below the pinion. The springs are said to give perfect action and at the same time afford the wheel a maximum of play. In addition to the harp the company makes copper wheels and high-speed bushings.

SPRING HARP

THE ROOKE SYSTEM IN DES MOINES

The Rooke system of collecting and registering fares was adopted last Thursday by the Des Moines City Railway Company, of Des Moines, Ia., for its University Avenue line. The system has been in use in Providence and other eastern cities for some time, and as explained in a description in the Street Railway Journal for July 13, 1907, is giving satisfaction. The Des Moines Company, to facilitate the use of the system and for the convenience of its patrons, proposes to adopt an aluminum fare check which will be issued in neat holders. Transfers will not be registered. The plan under the Rooke system is to assign a register to a conductor for a day, to be turned in by him with his collections and trip reports. Thus the record of one register does not have to be checked up with the reports of several conductors and the work of the auditing department is greatly simplified.

ELECTRIC LOCOMOTIVES FOR INDUSTRIAL HAULAGE

The use of electricity as a motive power in surface and industrial haulage is strikingly illustrated in two types of electric locomotives recently built for the Carnegie Steel Company and the Illinois Tunnel Company by the Baldwin Locomotive Works and equipped with electrical apparatus supplied by the Westinghouse Electric & Manufacturing Company. The locomotive for the Carnegie Steel Company is one of two in service at the company's Ohio works. It is of the mine type, built for standard-gage track and fitted with a cab. The width over all is 7 ft. 1 in., the height to top of cab 10 ft. and the length 10 ft. 8 in.

PLAN AND ELEVATION OF LOCOMOTIVE FOR ILLINOIS TUNNEL

The total weight of the locomotive is approximately 40,000 lb. The frames are of cast iron, placed outside the wheels and supported on coiled springs placed over the journal boxes. The bumpers are also of cast iron, machine fitted to the frames and supplied with automatic couplers. The wheels are 30 in. in diameter. They are steel tired with cast-iron centers and are spaced 4 ft. 10 in. apart. The journals are 4¼ in. x 8 in. The locomotive is equipped with both hand and air brakes, the air compressor being placed in the cab. The two motors are classed as No. 102B and are each of 75 horse-power. They are inside hung. This necessitates a comparatively long wheel base, but results in greater stability and better balance. The equipment is wired for metallic return and the two contact shoes are supported on a frame mounted on the cab roof. Electric headlights and cab lights are provided.

The locomotive for the Illinois Tunnel Company is one of 25 recently built for underground haulage in Chicago. The mine type is conveniently used for such service, and the example shown is arranged for single-end operation and is built for a track gage of 2 ft. The frames are placed outside the wheels and the bumpers are of channel iron filled in with oak buffers. A radial draw bar with auto-

matic coupler is provided at each end of the locomotive. The wheels are 28 in. in diameter, spaced 2 ft. 7 in. between centers. The journals are 3¾ in. x 7 in. The approximate weight of the locomotive is 11,000 lb. The electrical equipment includes two No. 155 motors, suitable for 250 volts pressure. They are tandem hung. As they are

ELECTRIC LOCOMOTIVE FOR ILLINOIS TUNNEL

suspended in an angular position, a short wheel base can be used, enabling the locomotive to traverse sharp curves without difficulty. The brakes are of the screw type, operated by hand. Four sandboxes are provided with spouts to all wheels. The trolley pole is placed on the center line near the operating end.

ELECTRIC LOCOMOTIVE FOR CARNEGIE STEEL CO.

Officials of the United Traction Company, of Reading, Pa., who have been inspecting the system of the Wilkes-Barre & Wyoming Valley Traction Company for several days, were the guests of Mayor-elect Kniffen at the Nesbitt Theater last week. After the performance dinner was served at the Cumberland House by E. L. Lindemuth, manager of the claim department of the United Company.

RECUTTING PINIONS AND MOTOR CASE WELDING AT THE ANDERSON SHOPS OF THE INDIANA UNION TRACTION COMPANY

In an article on shop practice at the Anderson shops of the Indiana Union Traction Company, published in the Street Railway Journal, Feb. 22, 1908, an account was published of the method of cutting down worn Westinghouse No. 85 motor pinions to fit a Westinghouse No. 56 motor. Through the courtesy of R. C. Taylor, superintendent of motive power, the accompanying data on the cost are presented.

Turning blank, 1 hour, at 17½ cents	$0.17½
Cutting teeth, 3 hours, at 15 cents	.45
Scrap value of worn-out pinion, No. 110, at ½ cent	.55
Total cost	$1.17½

Besides the economical advantage of this practice there is the additional advantage that instead of having to carry

MOTOR CASES WELDED BY THERMIT

11 different varieties of pinions in stock only four kinds are now required.

GOLDSCHMIDT THERMIT WELDING OUTFIT

The Indiana Union Traction Company has recently purchased a Goldschmidt thermit welding outfit and intends to use this process where it may do so advantageously in the ordinary course of its maintenance work. The accompanying picture shows a group of motor cases welded by this process in the company's shops at Anderson, Ind.

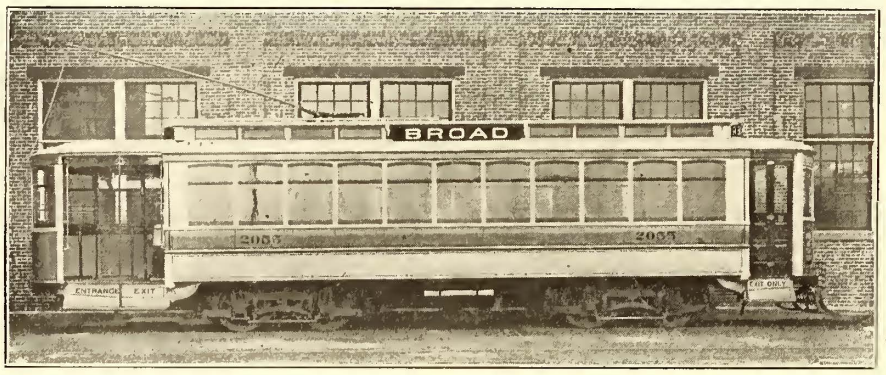
The Toronto Railway Company has recently succeeded in convicting three men of bringing fake accident claims. One man was sentenced to two years' imprisonment, another to nine months, and in the third case sentence was suspended. Full details of the case have been filed with the Claim Agents' Association.

A collision between two cars of the Washington, Baltimore & Annapolis Electric Railway occurred April 12 on a curve near Crownsville about 8 miles from Annapolis. Eight persons were injured, none of them seriously, however. The accident is attributed to the fact that a special was on the switch at Crownsville, the usual passing point, and that the motorman of the eastbound car mistook this special for the regular westbound car.

PAY-AS-YOU-ENTER CAR SERVICE STARTED IN NEWARK, N. J.

On April 15 the Public Service Railway Company began the operation of pay-as-you-enter cars on the Broad and Clinton Street lines of Newark. The announcement of the service had been widely advertised to the public through newspaper articles, folders distributed in the cars and by large car window posters. At present 50 cars are in service, but more will be added as rapidly as possible. To encourage the proper use of these cars the company has arranged to sell tickets at the rate of twenty-one for $1, or 106 for $5, from the leading department stores and other places in or near the territory through which these lines are operated. Tickets at this rate have been on sale for some time, but they could be purchased only at the company's offices.

Owing to the fact that the pay-as-you-enter car does not differ materially in appearance to the ordinary observer from the type of car to which Newarkers are accustomed, it has been deemed advisable to distinguish them by red signs. It is likely that the pay-as-you-enter plan will work out well in a short time in Newark, because the passengers are already acquainted with divided platforms and the only novelties to which they will have to become accustomed are the method of entering the car only at the rear and passing into the body of the car through a special door, and of paying the conductor on the platform. The general appearance of the car will be seen from the accompanying view. Longitudinal seats are placed at the ends to minimize congestion at the doorways.



PAY-AS-YOU-ENTER CAR OF PUBLIC SERVICE CORPORATION

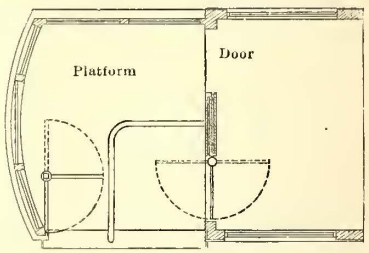
In introducing the new cars to the public the company announced that cash fares and tickets must be deposited by the passenger in a glass-covered fare receiver located on the rear platform inside the dividing bar. The fare thus placed in the box drops upon a glass slide and remains in full view of the conductor and passenger until the former, by operating a lever, drops the fare in a box below. This receiver is made by the J. G. Brill Company. Transfers will not be deposited in this receiver, but must be collected by the conductor, who, after inspection, will register them as at present. Conductors will also have to register the fare for each passenger entering the car except for municipal and company employees wearing badges or other persons entitled to ride without paying fare. No passenger will be allowed to remain on the rear platform between the two dividing bars except while paying fares. If it is necessary to make change for a passenger the conductor will request him to stand inside the rear railing until he has cared for those passengers who have the exact fare. Transfers will be issued only on payment of fare.

The cars have been furnished with buzzers so that the passengers may indicate their stopping places without obliging the conductor to enter the car.

TURNSTILE FOR STREET CARS

L. M. Levinson, manager of the Shreveport Traction Company, of Shreveport, La., has recently invented a turnstile for electric cars so that passengers will register themselves as they get on the platform or pass into the body of the car. A plan of a car showing the turnstile in position is given herewith. That at the left is in the entrance passageway and that at the right is at the exit. The principal novel feature of the device is that it oscillates—that is, the arms pass through an angle of 90 deg. only instead of 360 deg. After they have made a quarter turn they return to their normal position. This is necessary, because with the limited space available on a car the usual type of turnstile could not be used.

The spring which automatically returns the arms to their original position is located in the base of the turnstile, as are also the devices which make it necessary for the arms to complete their quarter turn before they can commence their return. The latter result is secured by providing the base of the revolving shaft with an internal rack into which two stationary pawls can engage, but only one at a time. Each prevents the movement of the stile in a different direction and the proper one is thrown into engagement with the rack at the end of a complete quarter turn by a lug on the revolving part of the stile.



TURNSTILE FOR CARS

The registering device, which can be of any approved pattern, is set on the top of the stationary stile standard and is operated by a pawl carried within the revolving base of the arms.

Following the refusal of the Senate Railroads Committee to vote to report the bill of the Assembly Railroads Committee, purporting to reduce from 10 to 5 cents the fare from New York City to Coney Island, Senator McManus gave notice of his intention to discharge the committee from further consideration of the bill. The executive session of the committee was preceded by a hearing, at which representatives of the Brooklyn Rapid Transit Company, Coney Island & Brooklyn Railway Company and Delaware & Hudson Company, all spoke against the bill. Mr. Hatch, for the Brooklyn Rapid Transit Company, asked to have the matter left to the Public Service Commission, First District.

The committee on railroads and telegraphs of the Ohio House of Representatives has recommended the bill, introduced by Mr. Spicer, requiring that interurban railway companies fence their right of way in districts outside of cities and towns.

LEGAL DEPARTMENT *

CONSTRUCTIVE ACCEPTANCE OF PASSENGERS

Several months ago there was discussed in this place the decision of the Supreme Judicial Court of Massachusetts in Duchemin vs. Boston Elevated Railway Company (71 N. E. 780), in which it was held that the technical relation of carrier and passenger does not commence until a person has touched the step, or hand-rail, or some part of a street car, with the purpose of boarding it. The recent decision of the Supreme Court of Wisconsin in Karr vs. Milwaukee, etc., Traction Company (113 N. W. 62) is based upon a somewhat similar but essentially distinguishable state of facts. It appeared that an interurban electric railway company maintained between its parallel tracks a night signal device, with direction to passengers to hold up the handle thereof, and thereby cause a light to appear until a car came in sight. Passengers only boarded the cars from the outside rail of each track. It was held that the device was an invitation to passengers to cross the track to give the signal and to recross to board the car.

The court directly decided that one, who in good faith signals in the recognized manner an interurban car, with a view to board it, which signal is responded to by the motorman by whistling or setting his brake, is a passenger. This latter decision brings out what we said was the principal significance of the discrimination between ordinary users of a street and constructive passengers; that is, its bearing upon the question of contributory negligence. The rights of the public and of a street car company are concurrent in a street, and the carrier owes a duty of reasonable care to pedestrians to avoid injury to them through the running of its cars. The company owes the duty of extraordinary care to its passengers, and substantially this difference in the grades of care will be indicated by the greater reliance for protection permissible on the part of a constructive passenger and the less degree of personal caution he is required to exercise. Accordingly it was held in the Wisconsin case that a passenger, who is invited by the carrier to cross a track in going to or leaving a car, is chargeable only with reasonable care, and is not necessarily guilty of contributory negligence in failing to look and listen for the approaching car before crossing, he having the right to believe that the speed of the car would be so regulated as to permit his crossing in safety.

The court thus justly applies to persons who have been accepted as passengers on an open street or road before boarding or touching the car the same measure of protection as is extended to persons who have entered a depot or depot premises of a steam railroad company with the intention of taking a train.

LIABILITY FOR NEGLIGENCE

ALABAMA—Carriers—Personal Injuries—Pleading.

In an action against a street railroad for injuries to a passenger, where the complaint charged negligence of the conductor in signaling the motorman to go ahead while plaintiff was on the car's sideboard, preparatory to alighting, and that the proximate cause of the injury was the motorman's starting the car with a sudden jerk after being so signaled, but it was not averred that the conductor signaled the motorman to start the car, or that the jerk was due to the motorman's negligence, or that he knew of plaintiff's position upon the car when he increased its speed, the complaint was demurrable, in failing to show that the conductor's signaling the motorman to go ahead or that the motorman's starting the car with a sudden jerk was the proximate cause of the injury.—(Mobile Light & R. Co. v. Bell, 45 S. Rep., 56.)

ALABAMA—Assuming Fact.

A question asked a witness, "How long does it take a car going from 15 to 20 miles an hour to run 25 or 30 feet?" is properly excluded, as being not susceptible of a definite answer.

In an action against an electric railway company for injury to one crossing the track, a passenger could testify whether the car stopped suddenly or gradually, and whether he was thrown forward when it was being stopped.

In an action against an electric railway company for injury to one crossing the track, the motorman could state whether he used the most effective method of stopping the car as quickly as possible; he being an expert, and having detailed what he did to stop the car.

In an action against an electric railway company for injury to one crossing the track, an instruction that limited the defense of contributory negligence to the motorman's failure to keep a proper lookout was improper, since, if plaintiff was guilty of contributory negligence in going upon the track, the company was not liable unless its servants were guilty of wanton misconduct or of subsequent negligence by failing to use all reasonable means to avoid striking plaintiff after discovering his peril, and the company could not be chargeable for wanton misconduct, nor for subsequent negligence, because of mere failure of the motorman to discover the plaintiff.

In a personal injury action, an instruction that defendant was seeking to escape liability by pleading not guilty and that plaintiff was guilty of contributory negligence; that from the pleas of contributory negligence it was not presumed that plaintiff was guilty, and no burden rested on plaintiff to prove affirmatively that he used due care and diligence, but that the burden was upon defendant to prove the pleas, unless plaintiff's evidence established such negligence; and that if defendant did not prove the pleas, and plaintiff proved his allegations, plaintiff should recover—was improper, as referring to the jury questions of law and a construction of the complaint.

In an action against an electric railway company for injury to one crossing the track, an instruction that it was the motorman's duty to keep a lookout for persons or obstructions on the track, and upon discovering a person on the track in peril or going toward the track in such way as to indicate to the motorman that he was about to become imperiled, the motorman should have used all appliances at his command to stop the car or materially reduce the speed to avoid striking a person in front of the car; that use by the motorman of a part of the appliances at his command is insufficient; that the motorman did not use all the appliances at his command to stop the car or reduce its speed before the plaintiff was struck; and that, if by using all the appliances the injury would have been averted plaintiff should recover—was improper, as being confusing and tending to mislead the jury.

A count in a complaint against an electric railway company for injury to one crossing the track, alleging that the company by its servants or agents so wantonly conducted itself in the operation of one of its cars as to wantonly run it violently against plaintiff, charged the company with actual participation in the damnifying act, and, there being no proof to support the averment, the company was entitled to the affirmative charge as to that count.

In an action against an electric railway company for injury to one crossing the track, *held*, under the evidence on certain counts, questions for the jury whether the company's servants were guilty of simple or wanton negligence, and whether plaintiff was guilty of contributory negligence.

In an action against an electric railway company for injury to one crossing the track, *held*, under the evidence, a question for the jury whether the motorman had the right to assume that plaintiff was not going upon the track.

In an action against an electric railway company for injury to one crossing the track, *held*, under the evidence, a question for the jury whether plaintiff had the right to assume that the blowing of the car's whistle before he was struck was in response to a signal given it to stop, and that the car would stop; he intending to take passage on the car.

In an action against an electric railway company for injury to one crossing the track, an instruction that if the testimony did not, to the jury's reasonable satisfaction, support the charge that the motorman was negligent after discovering plaintiff's peril, they could not find for plaintiff, though the motorman might have acted with greater promptness prior to his discovery of plaintiff's peril, was properly refused, as pretermitting any

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wanton misconduct of the motorman for running the car at a high rate of speed at the place of the accident.

In a personal injury action, an instruction assuming that plaintiff was guilty of contributory negligence is properly refused, where such negligence is a question of fact.—(Birmingham Ry., Light & Power Co. vs. Hayes, 44 S. Rep., 1032.)

ALABAMA.—Carriers—Passengers—Injuries—Actions—Pleadings.—Trespass or Case.

In an action for injuries to a passenger, it is sufficient to charge negligence in general terms.

A complaint for injuries to a passenger, which alleges the existence of the relation of carrier and passenger just before and at the time of the injuries, and which states that the carrier, failing in its duty to carry the passenger safely, so negligently conducted its business that by reason of such negligence the passenger received as a proximate result thereof personal injuries, states a cause of action for simple negligence, and is good as against a demurrer.

A complaint in an action for injuries to a street car passenger, which ascribes the injury to the company's negligently running the car while the passenger was in the act of alighting, avers the proximate cause to be the consequential, as distinguished from the intentional, result of the misconduct charged, and states a cause of action in case, as against a demurrer.

A complaint for injuries to a street car passenger, which alleges that it was the duty of the company to carry the passenger safely, and that, failing in the duty, and with a reckless disregard for the safety of the passenger, and knowing that the probable consequences thereof would be to inflict injury on him, wilfully, wantonly or intentionally ran the car while the passenger was in the act of alighting, so that, as a proximate result thereof, he was injured, states a cause of action in case, and not in trespass.

A complaint for injuries to a street car passenger, which alleges that it was the duty of the company to carry plaintiff safely, and "that, failing in this duty, and with a reckless disregard for the safety of plaintiff, and knowing that the probable consequences thereof would be to inflict injury on plaintiff," the employees in charge of the car, acting within the scope of their duties, wilfully, wantonly or intentionally ran the car while the passenger was in the act of alighting, so that he was injured, only charges simple negligence, and is good as against a demurrer raising the question of a joinder of corporate negligence with negligence of employees; the word "this" referring only to the duty of the company, and the conjoined sentence beginning with the words "with a reckless disregard" referring to the circumstances under which the company, as distinguished from the employees, failed to perform its duty.

Where a count in a complaint in an action for injuries to a passenger charged simple negligence, it was error to sustain demurrers to pleas setting up contributory negligence as an answer to the count, on the ground that the pleas were interposed to a count for wilfulness or wantonness.

The measure of damages for a permanent personal injury is compensation for the disabling effects of the injury, past and prospective; and in estimating the damages the loss of time and the incapacity to do as profitable labor as before the injury, as well as the mental and physical suffering caused by it, are legitimate factors.—(Birmingham Ry., Light & Power Co. vs. Wright, 44 S. Rep., 1037.)

ALABAMA.—Carriers—Transportation of Passengers—Rules—Reasonableness.

A carrier of passengers has a common-law right to make reasonable rules for the conduct of its business.

The reasonableness of a given rule adopted by a carrier of passengers is, in an action for ejection, a question for the court.

The rule of a street railway company operating motors and trailers as part of the same train, with a conductor on each car, requiring each conductor to collect and register fares from all the passengers on his car, and prohibiting a passenger, who had paid fare on one of the cars of the train, from passing to the other without again paying his fare on that car, was reasonable and enforcible.

In an action for ejection of a street car passenger from a trailer for his refusal to pay fare on it, after he had paid fare on the motor, a plea alleging a rule prohibiting passengers from riding on different cars of the same train without paying fare on each car was not objectionable for failure to show that reasonable accommodations were furnished plaintiff on the car on which he paid his fare; the carrier's failure to do so, if any, being matter for replication.

Where, after plaintiff had paid his fare on a motor car, and gone to the trailer, and refused the demand of the conductor of the trailer for a second fare, he was informed of the carrier's rule that passengers must pay fare on the car on which they ride, and that he might return to the motor before he was ejected, a plea alleging such matters was not objectionable for failure to aver that plaintiff had knowledge of the rule before he boarded the car from which he was ejected.

A carrier is responsible for an unjust application of a reasonable rule, or for enforcing it with undue severity.

Where a violation of a carrier's rule is relied on as a defence to an action for ejection of a passenger, the rule must be brought forward by special plea.—(Birmingham Ry., Light & Power Co. vs. McDonough, 44 S. Rep., 960.)

ALABAMA.—Street Railways—Duty Toward Boarding Passengers.

Though a street car must be held stationary until those desiring to enter are on the car and have reached a place of safety, under ordinary conditions the passenger is considered as having reached a place of safety when he is on the car, and it is not negligent to start the car in the usual manner and without any unusual jerk while a passenger is stepping from the platform into the car.

In an action for injury to a passenger while entering a car, an instruction that it was not necessary to keep the car stationary until she reached the inside of the car was properly refused, as tending to mislead, where there was testimony that the car was started improperly.—(Birmingham Ry., Light & Power Co., 44 S. Rep., 983.)

CONNECTICUT.—Street Railroads—Collision with Vehicles—Last Clear Chance—Proximate Cause.

Although a person in a buggy does not exercise ordinary care in attempting to cross the tracks in front of a street car, yet if the motorman in charge of the car can by the exercise of due care stop it, and avoid the accident, after the person's danger becomes apparent, his failure to do so is the proximate cause of the accident, and decedent's negligence, not being contributory, is not a bar to a recovery for his death.

The reasonableness of a car's speed is measured by the relation of the speed to the circumstances under which it is maintained, having regard to the view and crowded condition of the thoroughfare.

A street car company which operates cars over a highway under a franchise has no greater rights therein than the proprietor of any other vehicle, except that, since the cars can move only on fixed tracks, those who also travel on the tracks must make reasonable efforts to avoid them.—(Smith vs. Connecticut Ry. & Lighting Co., 67 Atl. Rep., 888.)

DISTRICT OF COLUMBIA.—Appeal and Error—Review—Contributory Negligence.

An exception to the refusal of the trial court to reconsider its order, made on defendant's motion, permitting the withdrawal of a plea in abatement and the filing of a plea in bar, and to allow the trial of the issue joined on the plea in abatement, is not available in the Federal Supreme Court.

Whether it is negligence to run a street car at full speed past a usual stopping place when persons can plainly be seen standing upon the platform between the inner rails, awaiting a car approaching from the opposite direction, is a question for the jury, where the street car company had sanctioned such a practice on the part of intending passengers, and the space between the rails, while wide enough to enable a person standing in the center to escape injury, left but a narrow margin of safety.

A person is not, as a matter of law, guilty of such contributory negligence in following the customary practice sanctioned by a street car company of standing upon the platform between the two inner rails at a usual stopping place, awaiting an approaching car, as precludes a recovery for injuries sustained from being struck by a car which ran by this stopping place on the other track at full speed, where the space between the rails, though leaving but a narrow margin of safety, was wide enough to permit a person standing directly in the center to escape injury.

The negligence of one who carelessly places herself in a position exposed to danger cannot, as matter of law, be said to be the proximate cause of an injury, if her negligence was dis-

covered in time to avoid the injury by the use of reasonable care, and such care was not exercised.—(Sarah Chunn, Plff. in Err., vs. City & Suburban Railway of Washington, 28 Sup. Ct. Rep., 63.)

GEORGIA.—Writ of Error—Failure to Furnish Seat.

Where the case brought to this court or the Court of Appeals is not one in which a judgment on a motion for a new trial is to be reviewed, the plaintiff in error shall plainly and specifically set forth the errors alleged to have been committed.

A petition was filed for the recovery of damages on account of personal injuries received by a passenger on a street car by being thrown down by a jerk of the car. The plaintiff offered an amendment, alleging that the conductor refused him equal accommodation with other passengers by failing to furnish him a seat while other passengers were so furnished, and that, by reason of being required to stand, he was not able to resist the jerk of the car as he would have done had he been seated, and also that these circumstances and other things alleged created circumstances of aggravation. The trial court refused to allow the amendment. Held, that this ruling cut off a part of the case which the plaintiff claimed the right to set out in his petition as a basis for recovery, and prevented him from relying on a ground of recovery which he sought to set up. It was such a ruling as necessarily controlled the final judgment in the sense that it prevented the plaintiff from placing before the jury at all a substantial allegation of duty violated, constituting negligence, on the basis of which a recovery was claimed. A fortiori it was a material and substantial ruling.—(Lyndon vs. Georgia Ry. & Electric Co., 58 S. E. Rep., 1047.)

ILLINOIS.—Negligence—Contributory Negligence—Question for Jury.

The question of contributory negligence is ordinarily one for the jury, and only becomes one of law where the undisputed evidence establishes that the injury resulted from the injured person's negligence.

That electric railway tracks are far beyond any municipal limits, and there is no law relating to speed that does not affect the company's duty toward persons crossing its tracks to use ordinary care to avoid injuring them.

The failure of one crossing electric railway tracks to look and listen is not negligence as a matter of law.

An electric railway company must exercise greater care in running its cars along a public highway in a thickly settled locality, where the view of approaching cars is obstructed, than in a highway in the country, where the view is unobstructed.—(Chicago & J. Electric Ry. Co. vs. Wanic, 82 N. E. Rep., 821.)

ILLINOIS.—Appeal—Estoppel to Allege Error—Acquiescence of Party—Use of Streets.

Where an action was brought against a street railroad company and the receivers of another company jointly, and at the trial counsel for defendants acquiesced in the statement of the court that plaintiff had brought his suit against the right defendants, defendants cannot on appeal raise any question of misjoinder of parties, though a motion in arrest of judgment was made on that ground.

Where, in an action against a street railroad for injuries to one who was struck by a car, the undisputed evidence showed that the car was running at a high rate of speed at the time of the accident, it was not error to refuse to strike out the testimony of a witness that the car was running at the rate of 20 miles an hour at the time of the accident; the witness stating on cross-examination that he knew it was going at that rate, because he knew it to go "very fast out there."

In an action for personal injuries, the testimony of a physician who treated plaintiff at the time of his injury and had examined him a few days before the trial, that plaintiff had degeneration of the spinal cord, based on subjective symptoms only, was admissible; the fact that witness, in arriving at his conclusions, was guided somewhat by what the plaintiff said to him, not making his evidence incompetent.

A street railroad has not the exclusive right to the use of its car tracks on the public streets of a city.

In an action against a street railway for injuries to one who was struck by a car, an instruction that plaintiff could only recover for injuries alleged and proved and for damages sustained by reason of said injuries was not erroneous, as permitting plaintiff to recover for injuries not the result of the accident.

Where a street car is negligently run into a vehicle, one riding in the vehicle, and injured thereby without negligence on his part; may recover for the injuries, although the driver of the vehicle was negligent.

In an action against a street railway for injuries received by plaintiff while riding in a vehicle struck by defendant's car, the declaration did not allege which way the vehicle was going at the time of the accident, though plaintiff's proof showed it was going east at that time. Held, that an instruction, based on testimony of defendant's witnesses, that if the vehicle was being driven in a westerly direction at the time of the accident there could be no recovery, was properly refused, as singling out portions of the testimony.

The instruction was also erroneous as entirely ignoring defendant's negligence; it being immaterial which way the vehicle was going at the time of the collision, if defendant was negligent and plaintiff free from negligence.—(Eckels et al. vs. Muttschall, 82 N. E. Rep., 872.)

ILLINOIS.—Carriers—Action for Ejecting Passengers—Instruction—Exemplary Damages.

In an action for ejecting a passenger, an instruction that if the conductor ejected plaintiff, and used more force than was reasonably necessary, and "thereby" wantonly and maliciously injured and humiliated her, as charged, the jury should find for her, was not objectionable as declaring the use of more than reasonably necessary force to be of itself a wanton and malicious injury and humiliation.

In an action for ejecting a passenger, instructions that, though plaintiff failed or refused to give the conductor a transfer or cash fare, the carrier could not wantonly or maliciously injure her, or use force not reasonably necessary in ejecting her; that she could recover if the conductor ejected or attempted to eject her, and used more force than was reasonably necessary, and thereby wantonly and maliciously injured and humiliated her, as charged; and that if the conductor without provocation assaulted and injured her, as charged, and such assault was malicious, aggravated and wanton, and resulted in physical injury to plaintiff without her fault, and if justice and the public good required it, the jury could allow exemplary damages—plainly told the jury that malice, or such wanton recklessness as amounted to malice, must be proved before exemplary damages could be awarded.

In an action for a malicious, aggravated and wanton assault exemplary damages, partly to compensate plaintiff, and partly to punish defendant, may be awarded.

In an action for a malicious, aggravated and wanton assault the court must determine whether the evidence tends to show facts warranting exemplary damages; but the amount recoverable as a punishment is for the jury in the first instance, subject to review by the court.

In an action against a carrier for assaulting and ejecting a error in instructing, "when it is said in these instructions" that plaintiff must have exercised ordinary or reasonable care at and before the "accident, it means that she was required to exercise such care as a reasonably prudent person would have used under the same circumstances," there being no other instruction referring to the care required of plaintiff, was harmless to defendant.

In an action against a carrier for assaulting and ejecting a passenger, instructions requested by defendant to the effect that, if the passenger failed to pay her fare or present a transfer, the conductor could eject her, were properly modified by the words "subject to the limitations elsewhere laid down in these instructions"; such limitations referring to the carrier's duty not to eject her recklessly, etc.

In an action against a street car company for ejecting a passenger, who refused to pay her fare or present a transfer, having dropped her transfer on the step, evidence that when she boarded the car witness saw the transfer on the step and that the conductor looked at it was admissible as part of the res gestæ.

An objection that a declaration is partly in trespass and partly in case cannot be made after a plea of general issue and verdict.—(Chicago Consol. Traction Co. vs. Mahoney, 82 N. E. Rep., 868.)

ILLINOIS.—Street Railroads—Collision with Vehicles—Contributory Negligence—Question for Jury.

Whether decedent was guilty of contributory negligence in taking the chances of a collision between a street car and his wagon, held, under the evidence, a question for the jury.

In an action to recover for death resulting from a collision between a street car and wagon, an instruction that, if the sole cause of the injury was the negligent manner in which the team and wagon were managed, the jury should find defendant not guilty, is equivalent to, and warrants the refusal of, an instruction that, if the sole cause of the accident was the manner in which the team and wagon were managed, plaintiffs cannot recover, since, if the cause of the accident was the manner in which the deceased managed his team, it was necessarily negligent.

In an action to recover for death resulting from a collision between a street car and wagon, where defendant's theory is that both parties thought the wagon far enough away so that the car might pass it in safety, defendant is not entitled to an instruction that, if the presence of the deceased served to impede the passage of the cars, and he failed to leave the track with his team and allow the cars to pass, plaintiffs cannot recover, because street cars have the right of way on their track, and public interest demands that they be run without delay.

In an action to recover for death resulting from a collision between a street car and wagon, an instruction that if the horses started to move while the car was passing, and the starting of the horses was the sole cause of the accident, plaintiffs cannot recover, is equivalent to, and warrants the refusal of, an instruction that if the jury believe that the team and wagon were standing in the street a sufficient distance from the track to allow the car to pass in safety, and after the first part of the team was passed in safety the horses turned so as to cause a collision with the car, plaintiffs cannot recover.—(Sampsell vs. Rybczyski et al., 82 N. E. Rep., 244.)

ILLINOIS.—Negligence—Elements.

To constitute actionable negligence there must exist a duty of the person charged to protect the complaining party from injury, a failure to perform the duty, and an injury resulting from the failure.

While it is a rule that the burden of proving the existence of a duty, its breach, and the resulting injury, is upon plaintiff, yet when a thing causing an injury is shown to be under the management of the person charged, and the accident is one which ordinarily does not happen when proper care is used by those in charge, the accident itself affords evidence in the absence of an explanation by the party charged, that it resulted from a want of proper care.

An injury caused by a street car leaving the track and striking a wagon in which plaintiff was riding is within the maxim, "Res ipsa loquitur," and proof of the injury will justify a recovery unless defendant shows that it was not at fault.

The ground in a motion for a new trial that the court admitted improper testimony, over objection, is broad enough to include an exception to a refusal to strike out objectionable testimony so as to save the point on appeal.—(Chicago Union Traction Co. vs. Giese, 82 N. E. Rep., 232.)

ILLINOIS.—Trial—Verdict—Special Findings—Motion for Judgment.

In an action for injuries received in a collision with a street car, where answers by the jury to special interrogatories contain nothing regarding the speed of defendant's car, its negligence stands admitted as concerning its motion for judgment on the verdict, and the general verdict for plaintiff authorizes the presumption that the car was running at the highest speed within the averment of the complaint.

In an action against a street railway for personal injuries, it appeared from answers to special interrogatories that it was not dangerous to cross the tracks from the north, as plaintiff tried to do; that he did not see the car until he was near enough to the south track to be in danger; that, after seeing the car, he tried to get across, but was hindered and delayed by the wheels of his wagon catching on the track; that, when between the two tracks, he could, by using ordinary care, have seen and avoided the car; that he would not have known by the use of ordinary care before entering upon the south track that it was dangerous to cross because of the high speed of the car; that he tried to get off the track without crossing; that, when he started on the south track, the motorman could not avoid a collision because of the high speed. Held, defendant's motion for judgment on the special findings was properly overruled, as there was no finding that plaintiff knew the speed of the car or from which it could be presumed that he should have known it, and he cannot be contributorily negligent for not anticipating defendant's negligence.

A traveler upon a public highway has a right to assume within reasonable limits that others using it will exercise reasonable care.—(Indianapolis St. Ry. Co. vs. Hoffman, 82 N. E. Rep., 543.)

INDIANA.—Trial—Verdict—General and Special Findings—Conflict—Injury to Child.

Unless the answers to special interrogatories are in irreconcilable conflict with the allegations of the complaint and the facts provable under the issues and all inferences that may be given thereto, a general verdict for plaintiff must stand.

Where a heavy train of work cars, without a fender in front of the motor car, was run at a high rate of speed along the streets of a city and over a crossing where another car was standing loading and unloading passengers, and where the motorman made no effort to stop the train, except to sound the gong, which may not have been heard, a finding of actionable negligence was warranted.

A finding, in an action against a street railroad for injuries to a child on the track struck by a work train, that the child was about 5 years and 10 months old, of average intelligence, was not equivalent to a finding that the child was capable of exercising some care for her own safety.

An allegation in an action for injuries to a child struck by a work train of a street railway company that she was too young to be capable of appreciating danger or to have caution and discretion, and the answer to special interrogatories that at the time of the injury the child was 5 years and 10 months old, and of average intelligence and ordinary judgment for a girl of her age, are not in irreconcilable conflict so as to defeat a general verdict against the company; "appreciate" meaning to be sensible of, to distinguish.

There is a time in the life of a child when the courts will refuse to say whether the child is conclusively presumed to be sui juris or non sui juris, and during such period the question of capacity is for the jury.

Whether a child 5 years and 10 months old is sui juris is for the jury.—(Hammond, W. & E. C. Electric St. Ry. Co. vs. Blockie, 82 N. E. Rep., 541.)

INDIANA.—Appeal—Presentation of Objections Below—Sufficiency of Complaint—Carriers—Injury to Passengers—Instructions—Other Instructions.

A complaint, alleging that plaintiff after having paid her fare and become a passenger on defendant's cars, in charge of a motorman and conductor, and after the car had stopped for passengers to alight at a place where plaintiff was to change cars, the motorman, without signal and with a sudden violent jerk, started the car, throwing plaintiff to the pavement, and causing the injuries alleged, stated a cause of action, as against an attack first made on appeal, being sufficient to bar another action for the same cause.

The gist of an action for injuries to a passenger as she was about to alight from a street car was the negligent starting of the car without warning, with a sudden jerk. The court charged that if the car had stopped to allow passengers to alight, and while plaintiff was attempting to do so, defendant negligently started the car with a sudden jerk, throwing plaintiff to the pavement and injuring her, she was entitled to recover, unless she was negligent, which proximately contributed to the injury. Held, not objectionable, as confining the jury to the evidence of the sudden jerk as the basis of plaintiff's right to recover, to the exclusion of other facts; such other facts being unimportant.

The conditional form of the instruction left the question of negligence in starting the car to the jury, so that the instruction was not objectionable as peremptory.

The court defined "contributory negligence," and charged that the burden was on defendant to show contributory negligence by a fair preponderance of the evidence, but if the evidence, as a whole, by whomsoever produced, established contributory negligence, it would bar recovery. He further charged that it was a passenger's duty to use reasonable care in alighting; that she should not attempt to alight while the car was in motion, if dangerous to do so; and that if she did so she assumed any additional risk attendant on such attempt. The court also charged that if plaintiff attempted to alight while the car was in motion, and her injury was caused thereby, she could not recover. Held, that under such instructions the further charge that plaintiff was entitled to recover in a certain event, unless it had been "shown" that plaintiff was herself negligent, was not objectionable, as implying that the proof of plaintiff's negli-

gence must be such as to amount to a demonstration, instead of establishing the fact by a preponderance of the evidence.—(Indianapolis Traction & Terminal Co. vs. Miller, 82 N. E. Rep., 113.)

IOWA.—Carriers—Carriage of Passengers—Actions for Injuries—Question for Jury.

In an action for injuries sustained in attempting to board a street car, defendant's negligence and plaintiff's contributory negligence held for the jury.

The Supreme Court cannot pass on disputed facts, count witnesses on either side, pass on their credibility or the weight of their testimony, or attempt even to determine where the preponderance of the evidence is to be found.—(Blades vs. Des Moines City Ry. Co., 113 N. W. Rep., 922.)

KANSAS.—Street Railroads—Collision with Team—Evidence.

In an action brought by the driver of a carriage against a street car company for personal injuries resulting from a collision between the carriage and a car, evidence is pertinent of the management of the car and of the conduct of the driver from the time the horse manifested such fear of the approaching car as should have attracted the attention of the motorman to the time of the collision.

In such case, whether the proximate cause of the collision was the negligence of the motorman and whether the driver was guilty of contributory negligence were, the evidence as to the circumstances being conflicting, questions for the determination of the jury under proper instructions; and the jury in solving such questions should take into consideration the circumstances shown by the evidence during the time specified in the preceding paragraph.—(Metropolitan St. Ry. Co. vs. Fawcett, 92, Pac. Rep., 543.)

KENTUCKY.—Evidence—Expert Opinions—Physicians.

Though in a personal injury action a physician, who stated plaintiff's symptoms, was uncertain whether she had had a miscarriage, or was suffering from polypus, other physicians could base opinions on his clear and undisputed statement of her symptoms.

A $2,000 verdict was not excessive, whether plaintiff's suffering and loss of health resulted from the expulsion of a polypus or from a miscarriage caused in falling; she having been confined to bed about a month and having been a healthy, vigorous woman before the accident.—(Louisville Ry. Co. vs. Oppenheimer, 104 S. W. Rep., 720.)

KENTUCKY.—Street Railroads—Injuries to Travelers—Collision with Vehicle—Evidence—Negligence.

In an action for injuries to plaintiff in a collision between a vehicle in which he was riding and defendant's street car, evidence held to sustain a verdict for plaintiff.

Where a street car approached a vehicle on the track it was the motorman's duty to have the car under reasonable control, to keep a lookout ahead to avoid a collision, to give notice of the presence of the car by the ordinary signals, and to exercise ordinary care to avoid a collision and consequent injury to persons or vehicles.

Where plaintiff, while driving a buggy, was injured in a collision with a street car through the negligence of the motorman, plaintiff was entitled to recover, unless his own negligence contributed to the injury, and the motorman by the exercise of ordinary care could not have prevented the injury, notwithstanding plaintiff's negligence.—(Louisville Ry. Co. vs. Hutchcraft, 105 S. W. Rep. 983.)

KENTUCKY. — Carriers — Passengers — Injuries—Negligence—Question for Jury.

In an action against a street railway for injuries to a passenger in the act of taking a seat, alleged to be due to the sudden starting of the car, a verdict in favor of the company held not contrary to the evidence.

Where, in an action against a street railway company for injuries to a passenger in the act of taking a seat, alleged to have been caused by the sudden starting of the car, the answer controverted the averments of the petition and pleaded contributory negligence, the allowance, during the trial, of an amended answer denying that the passenger attempted to board the car, was not erroneous; it not changing the issues.

It is not the duty of operatives of a street car to keep the car stationary until a passenger has seated himself, and a passenger injured while in the act of taking a seat, in consequence of the starting of the car, cannot recover unless the car was recklessly started.

In an action for injuries to a street car passenger caused by the sudden starting of the car, an instruction that if the passenger, after boarding the car in safety, fell, by reason of the ordinary movements of the car in starting, a verdict must be rendered for the company, was not erroneous, for, if the ordinary and usual movements of the car in starting caused the passenger to fall, the company was not liable.

Where the evidence showed that plaintiff, with a market basket in her hand, boarded a street car, and that while she was going in the door of the car, or immediately after she stepped inside, the car started with a violent jerk, causing her to be thrown against a seat, injuring her, a charge on contributory negligence was not prejudicial.—(Howard vs. Louisville Ry. Co., 105 S. W. Rep., 932.)

KENTUCKY.—Trial—Instructions—Applicability to Evidence—Admitted Facts.

Where, in an action for personal injuries caused by the premature starting of a street car while plaintiff was boarding it, the employees of the company in charge of the car admitted that it was stopped to allow plaintiff to get on, an instruction not predicated on the idea that they knew or by the exercise of ordinary care could have known that the plaintiff undertook to get on the car was not erroneous, since it was not necessary to submit that question to the jury.

In an action for personal injuries, an instruction that plaintiff, if entitled to recover, should receive such sum as would fairly compensate her for any physical injuries, or for injuries to any of her organs, or for any physical pain, mental anguish, or nervous shock, or for injuries to her nervous system, or for any permanent injuries to her, or her organs, or for reasonable physicians' or medical bills, not exceeding $350, but not exceeding in all the amount claimed, was erroneous, the jury being directed, in estimating plaintiff's damage, to segregate such of her injuries as ought to have been considered and estimated under the heads of physical and mental suffering and the permanent impairment of her ability to earn money into special items, and allowing them to estimate the damage for each item as distinguished from the others, and from the damage on account of physical and mental suffering or permanent disability.

A proper instruction on the measure of damages in a personal injury case is that, if the jury find for the plaintiff, they should allow her such a sum in damages as they believe from the evidence will fairly and reasonably compensate her for her physical and mental suffering, if any of either, for her loss of time, if any, for the reasonable expense, if any, incurred by her for physicians' bills or medicines, not exceeding the sum of $350, and for the permanent impairment, if any, of her ability to earn money, resulting directly to plaintiff from her injuries, if they were caused by the negligence of defendant's servants, but not exceeding the sum claimed in her petition.—(Paducah Traction Co. vs. Burradell, 104 S. W. Rep., 709.)

KENTUCKY.—Appeal—Instructions—Harmless Error.

Where, in an action against a street railway company for injuries to a passenger, there was evidence of gross negligence in the management of the car, and the jury found such gross negligence, an instruction that, if they found that the company was guilty of gross negligence in the management of the car or in its construction or condition, exemplary damages might be allowed, was not prejudicial, though there was no evidence of negligence in the construction or condition of the car.

A passenger on a street car in a collision with a train at a crossing received a cut in the top of his head, his arms, face, hip and legs were bruised, and his hands were punctured. He was dazed after the accident, due to concussion of the brain. Held, that a verdict for $600 as compensatory damages was not excessive.

One receiving a physical injury may recover not only for his physical suffering, but for such mental suffering as he endured.—(Owensboro City R. Co. vs. Robertson, 104 S. W. Rep., 707.)

KENTUCKY.—Master and Servant—Injury to Servant—Inexperienced Fellow-Servant—Question for Jury.

Whether a street railway company was negligent in placing an inexperienced motorman in charge of a car, resulting in injury to the conductor, held, under the facts, for the jury.

Whether a conductor injured by the derailment of his car, in consequence of the incompetency of the motorman, had knowl-

edge of his incompetency, thereby precluding a recovery, held, under the facts, for the jury.

A petition, in an action for injuries to a street car conductor, which alleges that the company knew of the incompetency of the motorman directed to operate the car which was derailed, in consequence of which the conductor was injured, pleads the legal effect of the fact that by the exercise of ordinary diligence the company could have discovered the incompetency of the motorman, and authorizes a recovery if the company knew or by the exercise of ordinary diligence could have known of the motorman's incompetency.

Where the court in its instructions properly used the word "negligence," the failure to define it, in the absence of a request therefor, was not error.

A conductor seeking to recover for an injury resulting from the incompetency of the motorman must show that the motorman was incompetent; that the company knew, or by the exercise of reasonable diligence, could have known, of his incompetency; that the conductor did not know and had no reasonable oportunity of ascertaining that the motorman was incompetent; and that he was injured through the motorman's incompetency.—(South Covington & C. St. Ry. Co. vs. Brown, 104 S. W. Rep., 703.)

KENTUCKY.—Street Railroads—Duty Toward Pedestrians.

Motormen must keep a lookout for persons using the street and for persons on or so near the track as to be liable to collide with the cars, and exercise ordinary care to avoid collision with them.

Whether a motorman has exercised ordinary care toward a pedestrian injured in collision with his car is a question for the jury.

An instruction that it was a motorman's duty to exercise ordinary care to discover persons on the track, and to avoid colliding with such persons, was not erroneous for omitting the clause "to use ordinary care" before the words "to avoid," etc.

In an action by an administrator for the negligent death of a child, it was error to authorize recovery for physical and mental suffering; the full measure of recovery being such amount as will fairly compensate the estate for the destruction of decedent's power to earn money.—(Paducah City Ry. vs. Alexander's Adm'r, 104 S. W. Rep., 375.)

KENTUCKY.—Damages—Personal Injury—Excessive Damages.

Where a boy 12 years old sustained injuries, consisting of the breaking of a thigh bone, causing it to protrude through the flesh and causing the leg to become shorter, a verdict for $1,900 is not excessive.

Where the use of a street by pedestrians is practically constant, a street railway company must give reasonable notice of the approach of its cars and exercise care to avoid injury to the pedestrians.

Where, in an action against a street railway company for injuries to a pedestrian, the evidence showed that the street was unimproved; that in the center was an embankment, in which the tracks were laid; that on one side was a spring used by people to get water; that they walked along the embankment until they got opposite to it, when they went down to it, an instruction that if there was a pathway across the tracks leading to the spring, which pathway was used by persons going to and coming from the spring, which fact was known to the company, it must exercise ordinary care to have the cars approaching the pathway under control, and to give signals of their approach thereto, etc., was not objectionable, as assuming that there was a pathway along or across the tracks, but imposed on the company the duty of exercising care.

Whether a pedestrian, struck by a street car, was guilty of contributory negligence, precluding a recovery, held, under the facts, for the jury.—(Louisville Ry. Co. vs. Hofgesand, 104 S. W. Rep., 361.)

MARYLAND.—Street Railways—Collision with Person Alighting from Wagon—Contributory Negligence.

One who in alighting from a wagon steps so near the track of a suburban electric railway as to be struck by a car is guilty of contributory negligence in not looking for a car before so alighting.

The case of one who, having been standing on the hub of a wagon wheel close to the track of a suburban electric railway, was struck by a car, just as he was alighting, is not within the doctrine of the last clear chance, even if his position on the hub was a perilous one; it not being the peril of that position, alone, at least, from which he was injured, and there being no evidence that the motorman saw, or could have seen, him start to step down in time to stop the car before it struck him.—(State, to Use of Carey et al., vs. Cumberland & W. Electric Rys. Co., of Allegany County, 68 Atl. Rep., 197.)

MASSACHUSETTS.—Street Railroads—Injuries to Persons Near Track—Rate of Speed.

A speed of 8 or 10 miles an hour by an electric car in the country between two villages late at night is not excessive, where the track is on the side of the road and it does not appear that there was any travel at the time.

Evidence in an action for injuries sustained in being run against by an electric car held not to show that the motorman's failure to detect plaintiff's prostrate form was negligent.—(Kupiec vs. Warren, B. & S. St. Ry. Co., 82 N. E. Rep., 676.)

MASSACHUSETTS.—Evidence — Intent—Assault—Malicious Prosecution.

Evidence of a person's intention or preparation to commit a particular wrong, subsequently committed by him, is admissible against him.

To render proof of a threat of violence admissible, it is not necessary that it should be directed against the particular person on whom the wrong was subsequently committed, where there was such a general threat, or such an indication of a general malicious intent, as could be found to include such person.

The declaration of a servant, not within the scope of his employment, is admissible against his employer only when it is a part of the res gestæ, either accompanying the act, which is itself material, and which it tends to explain, or when it is itself a part of the transaction under investigation.

The rule that the declaration of a servant, not within the scope of his employment, is admissible against his employer only when it is a part of the res gestæ, is applicable to declarations made before and after the event in question.

In an action by a physician against a street railway company for an assault committed by its conductor, and for false arrest and malicious prosecution caused by the conductor, proof of the professional standing and reputation of plaintiff, and the nature and extent of his practice before and after the injury, is admissible on the question of damages.

A witness, a physician, who testified that he knew plaintiff, a physician, and had known him for over 20 years, and had during that time been frequently in consultation with him professionally, was competent to testify with respect to the nature and extent of the practice of the physician.

Where, in an action against a street railway company for malicious prosecution instituted by its conductor, the jury might find that the prosecution was instituted by the conductor maliciously and without probable cause, and that he acted within the scope of his authority, and that the prosecution was made known to a manager of the company and was ratified by him, the refusal to charge that there was no evidence to sustain the action was proper.

In an action against a street railway company for malicious prosecution instituted by its conductor, evidence that subsequent to the institution of the prosecution the manager of the company stated that if plaintiff wanted to come to see him he could settle the matter, and if not he could go ahead, was evidence of ratification by the company of the act of the conductor.

Where, in an action against a street railway company for assault, false arrest and malicious prosecution, based on the act of its conductor in assaulting a passenger and causing his arrest and prosecution, an instruction that if the passenger was the aggressor, and made an unjustifiable assault on the conductor, he could not recover for malicious prosecution, nor for arrest and assault, was properly refused; for, though the passenger was the aggressor, and made an unjustifiable assault, the company was liable, if the conductor used excessive force.—(Conklin vs. Consolidated Ry. Co., 82 N. E. Rep., 23.)

MASSACHUSETTS.—Carriers—Street Railways—Passengers—Risk not Assumed.

A passenger does not assume the risk of injury from riding in a defective street car run at a dangerous rate of speed; the carrier being bound to exercise the highest degree of care consistent with the nature of its business to carry him safely.

An instruction that when a carrier undertakes to carry a person it undertakes to carry him safely, and that he does not assume a risk because he knows of some defect which might

cause an accident, is not objectionable, as meaning that a carrier is an insurer of its passengers' safety; the jury having been instructed that defendant carrier was bound to exercise the highest degree of care consistent with the nature of its business. —(Isbell vs. Pittsfield Electric St. Ry. Co., 82 N. E. Rep., 3.)

MASSACHUSETTS.—Master and Servant—Liability for Negligence of Fellow-Servants.

For the negligence of fellow-servants of the watchman at a street car barn, in putting in coal into the cellar in such a manner that it was liable to fall, and a piece of which did fall, on him as he was going on his rounds, the master is not liable.

Where coal is put into a bin, near which the watchman in a street car barn passes on his rounds, at irregular times and in varying quantities, without notice to him, he assumes the risk of its being put in in such quantity and manner that a piece of it may fall on him as he passes it.

Where coal was put into the cellar of a street car barn in such quantity and manner that a piece of it was liable to fall, and did fall, on the watchman while he was making his rounds, any negligence of the street railway company's superintendent, who, having been told that the coal ought to be pushed back or no more could be put in, had gone in the cellar before the accident, and on returning merely said to the watchman that he would find there was plenty of coal for a good while, was that of a fellow-servant.—(Lapre vs. Woronoco St. Ry. Co., 82 N. E. Rep., 9.)

MASSACHUSETTS.—Carriers—Injury to Passenger—Relation of Carrier and Passenger—Evidence—Diligence.

In a personal injury suit by a passenger against a street railway company, the evidence showed that defendant received and undertook to carry plaintiff and others in a car which it owned over a line of street railway. Held, in the absence of any contrary showing, that the inference that defendant was operating the car for the benefit of those who wished to avail themselves thereof was warranted.

A carrier must exercise such reasonable diligence for the safety of a passenger as the nature of the business allows.

The mere fact of a collision between street cars, until explained by the company, is evidence of its negligence.

In an action against a street railway company by a passenger injured in a collision, whether the company was negligent in managing the other colliding car held for the jury.

A street railway company is liable for an injury to a passenger, caused by negligent management of a work car, resulting in a collision with the car in which the passenger was riding, even if the work car and the railway were under the control of another company.—(Chaffe vs. Consolidated Ry. Co., Ingraham vs. Same, 82 N. E. Rep., 497.)

MICHIGAN.—Evidence—Relevancy—Character or Reputation.

A plaintiff's reputation or character is not admissible in his own behalf, unless attacked by similar evidence.

In an action for death, brought under the "death act," where the damages recoverable are measured by the injury to certain of deceased's dependents, the fact that he was a careful man has no bearing on the question of such damages.

In an action for death, caused by being struck by defendant's street car, there being strong evidence of deceased's negligence, testimony of his being a careful man cannot be regarded as not injurious.

In an action for death, caused by being struck by defendant's street car, an instruction, among others, that the deceased was blind in his right eye; that he had a glass eye and could not, of course, obtain any aid from that eye, is equivalent to, and warrants, the refusal of an instruction that in considering whether the deceased looked for the approaching car the jury may bear in mind the fact that his right eye was destroyed.

In an action for death caused by being struck by defendant's street car, a failure to give instructions asked, that the jury, in considering whether deceased looked for the approaching car, may bear in mind that his right eye was destroyed, and that they have a right and are bound to consider witnesses' former testimony before the coroner, to the effect that they did not know whether deceased looked or not, is not error, since such instructions are in the nature of arguments upon the facts.—(McQuisten vs. Detroit Citizens' St. Ry. Co., 113 N. W. Rep., 1118.)

MICHIGAN.—Street Railroads—Collisions—Injuries to Traveler—Negligence—Question for Jury.

In an action against a street railway company for injuries to a traveler in a collision with a car, evidence of defendant's negligence held sufficient to go to the jury.

Whether a traveler in a collision with a street car was guilty of contributory negligence, held, under the facts, for the jury.

A general ordinance of a municipality applies to all territory within its corporate limits at the time of its passage, and becomes effective in additional territory when the same is attached.

A village adopted an ordinance fixing the maximum speed of street cars. Subsequently it granted a franchise to a company to operate a street railroad in the village. The company obtained similar authority from an outlying township, pursuant to Comp. Laws, §6446, authorizing a company to operate a street railway on the highways of any township on conditions agreed on by the company and the township board. Territory belonging to the township was subsequently attached to the village. Held, that the ordinance was effective in the attached territory.

An ordinanec of a village fixing the maximum speed of street cars is in the nature of a police regulation, and an action for a personal injury due to its breach may be brought by the person injured.

Where, in an action against a street railway company for injuries to a traveler in a collision with a car, the declaration alleged that the injuries were due to the company's breach of a municipal speed limiting ordinance, the ordinance was admissible in evidence.

One in attempting to take what appears to be the safest course to avoid a discovered danger is not necessarily guilty of negligence, though he does not use the best of judgment.

In an action for personal injuries, two physicians, while testifying that there was a possibility that plaintiff might never entirely recover, stated that there would probably be complete recovery in from a couple of months to two or three years. Held, that such evidence would not support a finding that the injuries were permanent.—(Deneen vs. Houghton County St. Ry., 113 N. W. Rep., 1126.)

MINNESOTA.—Carriers—Expulsion of Passengers—Evidence—Damages.

A passenger upon a suburban railway between Minneapolis and Lake Minnetonka presented a transfer which had been given him by the purser of a steamboat which was run in connection with the railway. The conductor refused to accept the transfer unless the passenger exhibited the cover of the commutation ticket book from which the ticket which had been given the purser in exchange for the transfer had been taken. The passenger refused to pay his fare and was ejected from the car with unnecessary violence. The questions whether the book cover contained a statement that it must be produced, and also the existence of a custom requiring its production, were submitted to the jury under proper instruction, and a verdict for $150 returned for the plaintiff. The trial court reduced the verdict to $100. Held, that the evidence sustains the verdict, and that the verdict as reduced was not excessive.—(Brown vs. Minneapolis & St. P. Suburban Ry. Co., 113 N. W. Rep., 895.)

MINNESOTA.—Railroads—Accidents at Crossing—Contributory Negligence—Trespass.

The evidence does not conclusively establish the fact that respondent's son, a boy 11 years of age, was guilty of contributory negligence in not discovering and avoiding collision with a freight car while he was crossing appellant's railway tracks on a public highway.

Whether, as a matter of law, the boy was a trespasser upon appellant's right of way, if he was crossing the tracks on the public highway with the intention of going upon the company's property for the purpose of picking up scattered coal, is not decided; but, conceding such to be the law, the court substantially so charged the jury, and no error was committed in refusing appellant's request with refcrence to the same question. (Colson vs. Minneapolis & St. L. R. Co., 113 N. W. Rep., 1010.)

MINNESOTA.—Carriers—Injury to Passenger—Evidence.

Action to recover damages for injuries sustained by the plaintiff, as she claims, by the starting of the defendant's car while she was leaving it. Verdict for plaintiff. Held, that the evidence is sufficient to sustain the verdict, and that the rulings and instructions of the trial court as to the question whether the plaintiff was a passenger on the car were correct.

A medical expert, who has heard the testimony relevant thereto, may give an opinion, based upon the assumption that

the testimony is true, as to the cause of the present physical condition of a party.

Opinion evidence, as to the effect of the pendency of the suit or the recovery of a verdict upon a plaintiff in a personal injury case who is suffering from neurasthenia, is not admissible. (Ahern vs. Minneapolis St. Ry. Co., 113 N. W. Rep., 1019.)

MISSOURI.—New Trial—Instructions—Harmless Error.

Where, in an action for injuries to plaintiff's team by a collision with a street car, there was no evidence that the motorman failed to stop the car on the first appearance of danger, which was the only negligence charged, but all the testimony showed that, as the car started to go by the team, the pathway was clear with nothing to suggest danger of collision, and that the accident was caused by a sudden movement of the horse while the car was passing, a verdict for defendant was right, notwithstanding any error in an instruction given for defendant, and it was therefore improper to grant plaintiff a new trial. (Hess vs. United Rys. Co., 105 S. W. Rep., 277.)

NEW HAMPSHIRE.—Appeal—Harmless Error—Presumption of Prejudice—Argument of Counsel—Carriers—Injury to Passenger—Negligence—Evidence.

The statement to the jury of counsel for plaintiff in an action for injury to a passenger on an electric car, occasioned by the burning out of a fuse, that defendant was in fault for using an old car, knowing that its electrical equipment would deteriorate with age, cannot be presumed to have been prejudicial, as it is common knowledge that all mechanical devices wear out, and it cannot be said as matter of law that a fuse is not more likely to burn out in an old electrical appliance than in a new one.

Where, in an action for death of a passenger on an electric car, occasioned by the burning out of a fuse, and the frightening of the passenger thereby, plaintiff produced no witnesses who had been frightened by the burning out of a fuse prior to the accident, though producing witnesses who testified to others having often been so frightened, and from such failure to produce witnesses who had previously been so frightened, defendant's counsel argued that the testimony that passengers were frequently frightened in that way was false, the explanation by plaintiff's counsel of the failure to produce such witnesses, it appearing that decedent left no estate, by the statement that he would have made the effort to produce such witnesses if he had the resources of defendant, is not objectionable as unsworn testimony, but is the assertion of an inference which might properly be drawn from the evidence.

Where a female passenger on an open electric car, frightened by the burning out of a fuse box, on the floor of the car, accompanied by a loud report and the streaming of the flame above the floor, jumped to the opposite side of the car, and either stepped off or fell off, the question to a witness what she and another female passenger did at the time of the accident, with her answer that they arose to jump from the car and the motorman stopped them, was proper; the answer, so far as relating to the other passenger, amounting to no more than a statement that she appeared frightened and about to jump, but was prevented by the conductor, which was a mere description of what she saw and heard.

It being incumbent on plaintiff in an action for death to show decedent's capacity to earn, which could be proved by showing what work she habitually did, it was competent to show the number and ages of her children; it appearing that she cared for them besides doing other work.

Where evidence, being competent on an issue, is properly admitted, the other party, in the absence of a request therefor, may not complain that an instruction limiting it to such issue was not given.

As tending to show the speed of the car at the time of the accident, evidence of the customary speed of defendant's car at such place is competent.

Evidence in an action for death of a passenger on an open electric car, occasioned by the burning out of the fuse in the fuse box situated above the floor, accompanied by a loud explosion and a flame streaming above the floor, whereupon the passenger jumped to the opposite side of the car to avoid the flame and stepped or fell off, held sufficient to authorize a finding that the death was caused by negligence in not furnishing a safe car, without contributory negligence of the passenger. (Lord vs. Manchester St. Ry., 67 Atl. Rep., 639.)

NEW JERSEY.—Street Railroads—Injury to Person on Track—Evidence.

A man on a cold night, lying upon a trolley track, was pushed some four feet by the fender of a slowing-down car. He was found to have a fractured skull and died four days later. The deceased was on that night driving an open ice wagon, and his team was seen going at a slow trot, driverless, a short distance from where he lay. Held, that his condition of involuntary unconsciousness or helplessness raised so strong a presumption that the injury existed before the impact of the fender of the car that a verdict for the plaintiff should be set aside.—(Brink vs. North Jersey St. Ry. Co. et al., 67 Atl. Rep., 705.)

NEW JERSEY.—Carriers—Injury to Passenger—Instructions.

A request to charge that would have required the jury to acquit the defendant railway company of negligence, even though the quick effort of the motorman to stop the car were made carelessly and negligently, was properly refused.

Where, in an action against a street railway company and the owner of a wagon for injuries to a passenger in a car of the railway company caused by a collision between the car and the wagon, there was proof from which the jury might infer negligence of the driver of the wagon, there was no error in refusing to non-suit the plaintiff on motion of the owner of the wagon.

Where the plaintiff had made out a prima facie case of negligence, calling for explanatory evidence on the part of both defendants, it was not erroneous for the trial judge to refuse a request to charge that "the burden of proving negligence on the part of the defendant E. A. Williams Company is upon the plaintiff," in view of the fact that he did charge that "the case having now closed and all the evidence on both sides having gone in, it is all, without any reference to which side it came from, so much material for your judgment to act upon, and that, in order that you should be satisfied that the E. A. Williams Company was negligent, it must appear to you, from all the evidence in the case, that that conclusion is established."

An error of the court in sustaining an objection to a question on cross-examination, when the witness has already testified fully, during the course of the cross-examination, in respect to the matter excluded, and the party has the opportunity of pursuing his cross-examination as to the real question to which the excluded question was merely preliminary, is not reversible error.

A hypothetical question to an expert, which assumes the facts in accordance with the theory of the party asking it, and which the evidence tends to prove, is proper where, although the facts are disputed, there is ample testimony tending to support every phase of the question, and sufficient to justify the submission thereof to the jury. It is not necessary that the question should cient, on the contrary, if it embodies such a state of facts, fairly within the range of the evidence, as counsel propounding it deems to have been proved.

The true rule is that the driver of a wagon has the right of way if, proceeding at a rate of speed which, under the circumstances of the time and locality, was reasonable, he reaches the point of crossing in time to safely go upon the tracks in advance of the approaching street car, the latter being sufficiently distant to be checked, and, if need be, stopped before it reaches him. A request to charge on the subject of the right of way which ignored the limitations of that rule was properly refused.

The omission of a trial judge to instruct a jury on a particular point is not assignable as error, unless such instruction be specially requested.

A party has no just cause of complaint where, although his requests for instruction have been refused, the court embraced them in its charge, so far as they stated correct propositions of law.—(Daggett et ux. vs. North Jersey St. Ry. Co. et al., 68 Atl. Rep., 179.)

NEW JERSEY.—Carriers—Injury to Passengers—Duty of Street Car Conductor.

A passenger standing upon the rear platform of a trolley car has no right to rely, in preserving his equilibrium, upon the protection of the closed door, and it is not the duty of the conductor to warn him before opening the door, suddenly, when it appears from the evidence that the passenger was not leaning against the door, and was not in such a position that the opening of the door required him to move or in any way interfered with him; and therefore a request to charge that "a carrier owes to its passengers a high degree of care, and the plaintiff in preserving his equilibrium had a right to rely upon the protec-

tion of the closed door, and it was the duty of the conductor to warn the plaintiff before opening the door suddenly," was properly refused, especially when it was reasonably to have been inferred from the evidence that there was room for the passenger inside the car.

While it is not negligence per se for the passenger to ride upon the platform of an electric street railway car, nevertheless, a passenger who voluntarily rides upon the platform when there is room for him inside the car takes upon himself the duty of looking out for, and of protecting himself against, the usual and obvious perils attendant upon his position, such as the danger of being thrown from the platform by the ordinary jolting and swinging of the car. An instruction that, "as a general proposition, the defendant company, and its servants as well, were bound to use what is called a high degree of care for the safety of the passengers who entrust themselvs to its conveyance. That question is somewhat modified by the fact of Mr. Nirk standing on the platform, if he could get inside the car," is not erroneous when it appears that the trial judge, in another part of his charge, correctly stated to the jury the character and extent of the modification of the rule referred to.

When it does not appear that the door was maintained for the purpose of assisting passengers in preserving their equilibrium, but rather that one of its purposes was to allow ingress and egress of passengers, it was not negligence to open the door on the north side of the car to enable passengers to alight unless it was a dangerous place for passengers to get down; and therefore an instruction that "it might be a question whether the conductor would be negligent in opening the door on that side, unless it was in a place where it would be dangerous for passengers to get down; that would be the only reason that would make it negligent to do it at all," was not erroneous, especially when the evidence was most persuasive, if, indeed, it did not compel the conclusion that the place where the north door was opened was a safe place to alight, and that it would have been, on account of the snow, unsafe to have let the passengers out on the other side.—(Nirk vs. Jersey City, H. & P. St. Ry. Co., 68 Atl. Rep., 158.)

NEW JERSEY.—Street Railroads—Injury to Pedestrian—Evidence.

The dissevered body and mutilated remains of the plaintiff's intestate were found, at night, scattered on and along the defendant's tracks in the public highway, just after its car had struck and run over him, under circumstances detailed in this opinion. Held, they raised no legal presumption that the deceased had been guilty of such contributory negligence as would bar recovery in the action.

Whether, under all the evidence, the car, at the time of collision, was going at a reasonable rate of speed, or the motorman operating it was properly on his guard, and reasonably careful and vigilant in looking out for the safety of human life on and near his tracks, were jury questions upon the solution of which the defendant's negligence in law depended.

Except in cases where the motorman's negligence is not the immediate or proximate cause of the injury (as, for instance, where the injured person darts, or comes very suddenly, in front of the car, and the accident would have occurred even if it had been running at an entirely safe and proper rate of speed, and the motorman had been on his guard), the question of his negligence should be submitted to the jury.—(Merkl vs. Jersey City, H. & P. St. Ry. Co., 68 Atl. Rep., 74.)

NEW YORK.—Street Railroads—Injuries to Persons Crossing Tracks—Contributory Negligence.

Where plaintiff, as he was about to step on a street railway track in crossing a street at night, looked and saw a car which was approaching at a medium rate, 60, 75, or 80 feet away, and as he got to the middle of the track looked again, and the car was so close that he jumped, but was hit before he could get off the track, and there was nothing to prevent him from seeing the car all the time, he was not entitled to recover, it being an impossibility for him to have been struck unless he negligently remained in the way; and this was so, though the car's headlight may have gone out as the car was approaching and then lighted up again.—(Robinson vs. Union Ry. Co., of New York City, 106 N. Y. Sup., 203.)

NEW YORK.—Carriers—Carriage of Passengers—Actions for Personal Injuries—Instructions—Absolute Duty to Carry Safely.

In an action against a street railway company for injuries to a passenger, it was error to charge that the company was bound to carry plaintiff safely.—(O'Neil vs. New York & Q. C. Ry. Co., 106 N. Y. Sup., 128.)

NEW YORK.—Carriers—Street Railroads—Injury to Passenger—Negligence.

After a street car had slackened its speed to enable plaintiff to alight, she arose and went to the rear platform, where she stood holding the guard rail. The car was then moving very slowly, and without coming to a stop suddenly increased its speed with a jerk, to such a degree as to throw plaintiff into the street. Held, that the railway company was negligent, and liable for the injuries plaintiff sustained.—(Gardner vs. Forty-second St., M. & St. N. Ave. Ry. Co., 107 N. Y. Sup., 134.)

NEW YORK.—Evidence—Physician's Opinion—Cause of Personal Injury.

In estimating damages for personal injury, apprehended future consequences which are merely possible and speculative may not be considered, but physician may testify that in his judgment plaintiff's alleged condition as to nervousness, headaches, and pain after the accident and before the trial might or could have resulted from the accident; plaintiff having previously testified that such conditions so resulted.—(Kehoe vs. International Ry. Co., 106 N. Y. Sup., 196.)

NEW YORK.—New Trial—Insufficiency of Evidence.

A motion for new trial after verdict, because of the insufficiency of the evidence, can only be granted where the weight of the evidence is such that the court can see the verdict must have been the result of passion, prejudice, mistake, ignorance, or corruption.—(Dambmann vs. Metropolitan St. Ry. Co., 106 N. Y. Sup., 221.)

NEW YORK.—Carriers—Carriage of Passengers—Duty of Carrier—Gate as an "Appliance."

A gate on the side of the platform of a surface street car is an appliance within the rule requiring a carrier of passengers to exercise the utmost human skill, care, and foresight in the maintenance of its appliances for the protection of its passengers.

Where a street car platform gate broke, and a passenger fell off the car, whether the carrier exercised the utmost care in the maintenance of the gate was for the jury.

A passenger is not called on to provide against a defective appliance, unless the defect is known to him, or under the circumstances should have been observed.

The failure by a passenger standing on the rear platform of a street car to use precaution against loss of balance is not contributory negligence as a matter of law, where the cause of action is not based on negligent operation, but on negligence in the maintenance of a gate on the platform, which broke and permitted the passenger to fall off the car.—(Stappers vs. Interurban St. Ry. Co., 106 N. Y. Sup., 854.)

NEW YORK.—Street Railroads—Operation of Cars—Injuries to Travelers.

A motorman, who started a street car from a standing position and ran into plaintiff's vehicle, which was crossing the street at an intersection, without giving a signal and in broad daylight was negligent.

Where plaintiff started to drive across a street car track at a street intersection in front of a car which was standing, he was not bound to assume that the car would be started up in such a manner as to imperil his safety, and was not negligent as a matter of law.

Where plaintiff was riding in a buggy, accompanied by his driver, at the time he was injured in a collision with a street car, which was standing when the driver attempted to drive over the track at a street intersection, the driver was not negligent in failing to continuously watch the car until he had passed over the crossing.—(McGurgan vs. New York City Ry. Co., 106 N. Y. Sup., 201.)

NEW YORK.—Master and Servant—Death of Servant—Negligence—Contributory Negligence—Evidence.

In an action for death of a motorman by the bumper of another car overriding and crushing the vestibule of his car, evidence held to sustain a verdict finding defendant negligent in furnishing its employees cars with the bumpers constructed of different heights, and that intestate was not negligent.—(Durkee vs. Hudson Valley R. Co., 106 N. Y. Sup., 735.)

FINANCIAL INTELLIGENCE

Wall Street, April 15, 1908.

The Stock and Money Markets

The advent of the Easter holidays tended in large measure to restrict clearings in the stock market during the past week, and on this account the movements in prices were not so important as they have been in the recent past. However, there were a number of developments bearing upon the general financial and commercial situation, the nature of which would under ordinary conditions have exerted a pronounced influence on security values generally and would no doubt have led to an active speculation. Among these may be chiefly noted the efforts made in the direction of keeping the Erie Railroad Company out of receiver's hands, which, after considerable uncertainty, were made successful through the action of a certain large railroad magnate in taking care of the $5,500,000 notes of that company which recently fell due. The next most important development of the week was the publication of the government crop report, showing the condition and acreage of both winter wheat and rye as of April 1. As a matter of fact, this report had even more far-reaching significance than the Erie episode, although the latter for the time being no doubt attracted more general attention than did the condition of the two crops alluded to. Considerable time will elapse before the winter wheat and rye crops are harvested, but even at this early date it is apparent that, in the case of winter wheat at least, this season's yield will be fully up to that of last year and considerably above the average for the past 10 years. The condition of winter wheat, on April 1, as reported by the government, was 91.3, which compares with 91.1 on Dec. 1, 1907, and 89.9 on April 1 of last year. It is expected that the winter wheat crop this year is fully as large as that of last year, while with anything like favorable weather conditions between now and harvesting, it will in all probability run ahead of the returns for the previous season. What this means to the railroads of this country, and incidentally to the general financial and commercial situation, is perfectly obvious, as, despite all other considerations, the fundamental basis of prosperity in the United States rests mainly upon the crops.

This strength may be regarded as all the more remarkable in view of the fact that fears have prevailed that other railroads of this country may be in need of fresh capital and that there is a prospect of an early export movement of gold from the United States to France. However, money continues to pile up at this center in almost unprecedented volume, the surplus reserve now amounting to $42,250,000 and rates promise to continue easy for an indefinite period. In addition to this, the railroads are gradually reducing operating expenses, so that the outlook is that net revenues from now on will make a considerably better showing in comparison with last year than they have been doing of late.

While, as before stated, pretty much all stocks have advanced during the past week, few have scored such sharp gains as the local traction issues. As a matter of fact, stocks in this category have played a far more prominent part in the dealings of the past week than they have for a considerable time past. Not only is this due to the present and prospective large earnings of these companies, but the entire local traction situation has been benefited materially by the action of the Public Service Commission in granting permission to the Interborough Rapid Transit to issue $50,000,000 in bonds, as well as by the curtailment of the transfer privilege on certain important lines, through a recent order of the court. Buying of pretty much all stocks in this class was on an extensive scale and in response thereto, some very decided, if not sensational, advances were recorded.

Philadelphia

There was a material improvement in the local traction share market during the past week. More issues were traded in than for some weeks past, and prices generally scored further substantial advances. Philadelphia Rapid Transit was again the principal feature, the price rising from 17 to 17⅝, on rather heavy purchases. Union Traction was strong in sympathy with Philadelphia Rapid Transit, the price advancing a point to 53½. Philadelphia Traction moved up ½ to 80½ and Consolidated Traction of New Jersey rose to 65. Philadelphia Company common brought 36 and the preferred 37. Railways General sold at 4, the first transaction in the stock reported in several weeks, and United Railways Investment Company preferred sold at 34½. Frankfort & Southwark Passenger sold at 280.

Baltimore

Although the dealings in the local traction issues were comparatively light in volume, nevertheless prices displayed pronounced strength. The excellent showing made by the annual report of the United Railways & Electric Company was reflected in substantial advances in all of the company's issues. The 4 per cent bonds rose from 85 to 85¾, and the incomes from 50½ to 51½. The refunding 5s moved up 1½ to 77½. Other transactions included Richmond Traction 5s at 102, Norfolk Railway & Light 5s at 88½, and Knoxville Traction 5s at 104¼ @ 101.

Other Traction Securities

The market for traction shares at Boston was very quiet and without special feature. Boston Elevated held firm and West End stocks moved up fractionally, the common to 87¼ and the preferred to 105. Massachusetts Electric sold at 45⅛ @ 45. Boston & Suburban common sold at 11⅛, and Boston & Worcester preferred at 54½. The Chicago Tractions were more animated and fractionally higher. South Side Elevated sold at 60, Chicago & Oak Park common at 2, and the preferred at 8. Chicago Union Traction receipts sold at 4¾ @ 4; West Chicago receipts at 25 @ 27 and North Chicago receipts at 40 @ 42. West Chicago brought 30 and North Chicago 43.

Security Quotations

The following table shows the present quotations for the leading traction stocks and the active bonds as compared with two weeks ago:

American Railways	42½	42½
Boston Elevated	129	129
Brooklyn Rapid Transit	45⅛	46⅞
Chicago City	155	155
Cleveland Electric	a41	—
Consolidated Traction of New Jersey	64½	64½
Detroit United	31	31
Interborough-Metropolitan	7⅞	10⅝
Interborough-Metropolitan (preferred)	20	28⅜
International Traction (common)	33	33
International Traction (preferred)	62	55
Manhattan Railway	118	125
Massachusetts Elec. Co. (common)	10½	11
Massachusetts Elec. Co. (preferred)	45½	45
Metropolitan Elevated, Chicago (common)	16	16
Metropolitan Elevated, Chicago (preferred)	48½	47
Metropolitan Street	17	33
North American	50	52⅜
Philadelphia Company (common)	36	36½
Philadelphia Rapid Transit	17	17½
Philadelphia Traction	85½	—
Public Service Corporation, certificates	—	65
Public Service Corporation, 5 per cent notes	—	90
South Side Elevated, (Chicago)	60	60
Twin City, Minneapolis (common)	83	85
Union Traction (Philadelphia)	52	53½

a Asked.

Metals

Business is reported relatively good in structural steel, but in standard rail and other lines it is quiet. Prices, however, are firm. The copper metal market displayed increased weakness during the week, one of the leading selling agencies making on open reduction of ⅜c. @ ½c. in the price of electrolytic to 13c. On the local Metal Exchange, quotations were 12¾c. @ 12⅞c. for lake, 12⅝c. @ 12¾c. for electrolytic and 12⅜c. @ 12½c. for castings.

AFFAIRS IN NEW YORK

The Public Service Commission last week passed two resolutions. The first directed the chief engineer of the commission to prepare plans for the Broadway-Lafayette Avenue loop in Brooklyn, and the second directed him to submit plans for a tunnel under the East River to connect with the southern extremity of the Delancey Street loop, somewhere south of the Brooklyn Bridge and to connect in Brooklyn with the Fourth Avenue Subway.

The Public Service Commission will grant the application of the Interborough Rapid Transit Company for permission to mortgage the property of the company for $55,000,000. The decision was reached subject to the completion of the papers embodying the terms. For the present it is the intention of the company to issue only $30,000,000 of bonds, which will be used as security for $35,000,000 of short-time notes.

Before the Brooklyn League last week President Winter, of the Brooklyn Rapid Transit Company, made a plea for the further development of the elevated railways of the borough as against ephemeral talk of subways through impossible territory. He took the New York Subway as an example of the possible earnings of such lines, and quoted Vice-President Bryan regarding the earnings of the New York lines. In concluding his remarks President Winter said:

"I will go further, and say it is my belief as a transportation man, that it is not possible to build a subway anywhere this side of the East River that could, on its completion, or for a long time after its completion, be made to return one-half of what would be regarded as a fair rate of interest on its actual cost, plus the expense of maintenance and operation; indeed, it is most doubtful if any of the lines now so urgently demanded could be made to yield the bare cost of the three items of maintenance, operation and taxes on the basis of 5 cents per passenger and no transfers. The cost of supplying this form of transportation would be more than the public is prepared to pay.

"If Brooklyn is to hold her own, and Brooklyn's own, if held, will be very much of the future greatness of this incomparable city, she must bring herself to see things as they are, not merely as her fancy is inclined to paint them, and, however it may be, turn away from pet gods, for some of them are false."

The new transfer rules, the result of a recent decision of United States Circuit Court Judge Lacombe, which do away with transfers from cars of the New York City Railway Company to those operated by the Third Avenue Railroad, Forty-Second Street, Manhattanville & St. Nicholas Railway Company, and the Kingsbridge Railway Company, except at certain designated points, went into effect at midnight, April 10.

BOSTON & WORCESTER EARNINGS INCREASE

There was an increase of 12 per cent in gross earnings of the Boston & Worcester Street Railway Company for the quarter ended March 31 over the corresponding period of 1907. This is largely net, although the exact figures are not yet available. March 31 ended a half year in which the gross earnings of this company increased 11½ per cent over those of the corresponding half of the previous fiscal year. For the quarter ended Dec. 31 last the gross earnings increased 11 per cent and the net earnings 36 per cent over those of the corresponding quarters of 1906. Gross earnings by months for the first half of the current fiscal year are given as follows:

	1907-8.	1906-7.	Increase.
October	$44,195	$41,024	$3,170
November	39,313	35,182	4,131
December	36,187	31,767	4,419
January	31,406	28,491	2,914
February	30,496	26,147	4,348
March	35,821	32,518	3,302
Totals	$217,420	$195,132	$22,288

At the meeting of the City Council, of Cleveland, Monday evening, April 13, President Fanning, of the Forest City Railway Company, asked for grants over the Woodland Avenue and the West Side lines of the Cleveland Electric that are claimed to have expired. Mayor Johnson believes that this action was not taken with a view of putting an end to the peace negotiations, but Mr. Rifenberick, consulting engineer of the Cleveland Electric, thinks that it indicates a renewal of the street railway controversy.

INJUNCTION AGAINST LOW FARE IN DETROIT

Judge Swan in the United States District Court has made permanent an injunction restraining the City of Detroit from enforcing the Hally ordinance which would have compelled the Detroit United Railway to operate its cars on streets where its franchise rights have expired under the terms of the ordinance, which provided for five tickets for 15 cents and universal transfers.

ANALYSIS OF BALTIMORE REPORT

The report of the United Railways & Electric Company, of Baltimore, for the fiscal year ended Dec. 31, 1907, recorded a gain of nearly $500,000 in gross earnings, as compared with the previous year; an increase of nearly $1,000,000 over the year 1905, and a gain of more than $1,500,000, contrasted with the year 1904. Operating expenses increased $249,145, or 7.74 per cent, leaving an expansion of nearly $200,000 in net earnings for the year. An increase of about $122,000, or 5.17 per cent, in fixed charges, however, brought the gain in surplus down to $65,000. After making liberal charges for extraordinary improvements of more than $1,000,000 the company was still able to record a profit and loss surplus on the year's operations of $37,658, or $16,359 in excess of the year previous.

The increase in operating expenses, it was explained in the report, was due to increased car service and to advances in rates of wages paid employees in various departments during the year, while in the previous year such conditions were effective for only a little less than six months. Despite this fact, the percentage of operating expenses to gross earnings in 1907 was only 49.44 per cent, as compared with 48.93 per cent in 1906, and 47.05 per cent in 1905. It has been the policy of the management during the past few years to expend liberal amounts from income for improvements to the property. During the past three years such disbursements have aggregated in the neighborhood of $1,000,000 a year. The following table shows the gross and net earnings, extraordinary charges to income for improvements and surplus carried to profit and loss each year for the past four fiscal periods:

	Gross.	Net.	Ex. Chges.	Sur. to P. & L.
1907	$7,018,081	$3,547,994	$1,028,899	$37,657
1906	6,583,102	3,362,160	980,000	21,299
1905	6,023,698	3,188,168	929,762	31,065
1904	5,440,942	2,564,403	.....	330,062

The average earnings per car mile in the last fiscal year were 26.06 cents, being an increase of 0.76 cent over 1906. This increase is the more significant when the fact is considered that in 1906 the average earnings per car mile were 1.60 cents more than those for 1905. The cost of service per car mile in 1907 was 12.87 cents, or an increase of 0.50 cent, while in 1906 the gain in this item over 1905 was 1.22 cents. The number of car-miles run in the last fiscal year was increased by about 1,000,000 miles. The total revenue passengers carried was more than 8,000,000 greater than in 1906. There was also a very marked increase in the number of transfers used, about 40 per cent of the paying passengers availing themselves of the transfer privilege. The following table shows the car-mile runs, revenue passengers and transfers issued during the past four years:

	Car mile runs.	Rev. Passgrs.	Tranfs. issued.
1907	26,953,727	142,114,995	55,165,581
1906	26,035,327	133,785,601	53,413,492
1905	25,431,376	122,318,438	49,292,821
1904	23,397,515	109,526,908	43,932,219

The report states that, despite the fact that there was considerable recession in business during the last half of 1907, the earnings of the company were not noticeably affected until November and December. The receipts during those months, however, were greater than in 1906 for the corresponding periods, but not to the same extent as would have been obtained under normal circumstances.

President William A. House, in his report to the stockholders, stated that the physical condition of the property during the year 1907 was greatly improved and, notwithstanding the large expenditures, aggregating $3,176,573 for improvements, the company's bills payable and accounts payable increased but $168,664, which amount was more than offset by the cash balance on hand at the close of the fiscal year, which was $555,674, as compared with $115,977 in 1906, or an increase of $439,697.

ANNUAL REPORT OF BALTIMORE COMPANY

The annual report of the United Railways & Electric Company, of Baltimore, for the year ended Dec. 31, 1907, has just been made public. Compared with 1906 it shows an increase in gross earnings of $434,979, or 6.61 per cent, and an increase in operating expenses of $249,145, or 7.74 per cent. The increase in fixed charges was $122,355, or 5.17 per cent, and the increase in the amount carried to surplus $16,359. The increase in operating expenses is attributed to increased car service and to advance in rates of wages paid employes in the various departments, this advance being operative during the whole 12 months of 1907, while it was only effective for 5 2/3 months of 1906. This item was also increased by the cost of operating Bay Shore Park, and by the advance in the cost of materials and supplies. The increase in fixed charges is due to the additional obligations incurred for interest on Maryland Electric Railways Company's bond proceeds; increase in interest on the new funding bonds, and increase in park and other taxes. The percentage of operating expenses to gross earnings was 49.44 per cent, as compared with 48.93 per cent in 1906, an increase of .51 per cent. The average earnings per car mile were 26.06 cents, an increase of .76 cent, and the cost of service 12.87 cents, an increase of ½ cent. The number of car-miles run was 26,953,727, an increase of 918,400 miles. The total number of revenue passengers carried was 142,144,995, an increase of 8,329,394. The number of transfers used was 55,165,581, an increase of 1,752,089, from which it will be seen that about 40 per cent of the paying passengers availed of the transfer privilege.

The operating report for the year follows:

EARNINGS AND EXPENSES.

Gross earnings of lines (owned and leased)	$7,018,081
Operating expenses (including insurance)	3,470,087
Net earnings from operation	$3,547,994
Other income	6,505
Total net income applicable to fixed charges, taxes, etc.	$3,354,499
Fixed charges, including park and other taxes, interest on Car Trust Certificates, interest on Maryland Electric Railways Company's bond proceeds, interest on funding bonds, etc.	2,487,942
Surplus	$1,066,557
Of which there has been credited to extraordinary expenditures	1,028,899
Balance, surplus carried to the credit of profit and loss	$37,657

The report of President House is unusually complete, details being given of all the new work carried out. Mr. House said in part in presenting the report:

"While naturally it was to be expected that the revenue of your company should be somewhat affected by the recession in general business conditions during the latter portion of the year resulting from the closing down, in whole or in part, of the manufacturing establishments on its lines, it is very gratifying to your management to be able to state that the earnings were only so affected during the months of November and December. The receipts for those months, however, show increases over the corresponding months of 1906, but not to the same extent as would have obtained under normal business conditions.

"The company has continued the policy referred to in the last annual report, upon the recommendation of expert accountants, of charging to an account designated as 'extraordinary expenditure' the amount required for rehabilitating the property other than ordinary maintenance and repair. These expenditures for the year were $1,028,899.31, the details of which are given in the appended report of Mr. Stephen Little.

"The total amount of taxes, including park tax, cost of paving streets, track changes necessitated by regrading of streets, sewerage commission work, widening of streets, etc., was $694,246.29, as against $652,802.67 in 1906, an increase of $41,443.62.

"The park tax for the year was $435,065.84, as against $410,308.67 in 1906, an increase of $24,757.17, that for the third quarter of 1907 having been $113,040.85, the largest quarterly amount ever paid the city.

"New track and overhead construction amounted to $61,834.42, as follows:

Dickeyville extension	$28,447.29
German Street extension	33,387.13
Total	$61,834.42

"Of this sum $23,687.10 was provided from the proceeds of sale of 4 per cent treasury bonds and $38,147.32 is yet to be provided from the same source. Besides the $61,834.42 there was charged to capital account $315.491 for power house machinery and equipment. The latter sum was derived from the sale during the year of old property. The amounts so received were deposited in a special fund and disbursed by order of court. The acquisition of the new property, which included engines, generators, boilers, transformers, cables, etc., was essential to meet the increased requirements of the power plant.

"The amendment to the St. Paul street or Boulevard ordinance, designating the character of rail to be used, was approved by the Mayor March 22. The plans for track construction and overhead work were approved by the city engineer on July 6 and work begun on July 8, and one track constructed as far as Charles street avenue and Merryman's lane, when, owing to the protests of property owners, as to the method of stringing wires, work was suspended.

"In order to facilitate the movement during the excursion season of cars in the Sparrows Point and Bay Shore service, which terminate in the city at Howard and Franklin streets, and to avoid congestion, curves were installed under ordinance approved April 29 at Franklin and Howard streets, Park avenue and Centre streets and Franklin street and Park avenue, thus giving a loop for the city terminus of this line. Prior to the construction of these curves, blockades frequently occurred on Howard street, which greatly interfered with the operation of the lines using that street.

"The company now operates 396,192 miles of main line, of which 173,325 miles are laid with T rail on suburban lines, and 173,844 miles with 9-in. girder rail, while 49,023 miles are made up of various types of smaller sections, the joints upon 39.72 miles of which have been cast-welded.

"Under a contract entered into on Nov. 18, 1907, your company agrees to furnish current for the operation of the cars of the Washington, Baltimore & Annapolis Electric Railway Company, between its terminal on Park avenue and the intersection of Greene and Lombard streets, this agreement to continue in force one year.

"Eighty new double-truck cars of the semi-convertible type, equipped with airbrakes and multiple control, were received during the year and placed in the Sparrows Point and Bay Shore service, the cars thus released being assigned to other lines of the system, replacing single-truck cars of less capacity, thereby giving the company ample equipment to care for the traffic.

"Owing to the additions and improvements to the power plants of the company, undertaken in connection with the arrangement entered into with L. B. Stillwell on Sept. 1, 1906, not having been completed at the termination of the contract—Aug. 31, 1907—it was deemed advisable to extend the arrangement until March 1, 1908, with a further extension of six months, subject to certain modifications; that is, until Sept. 1, 1908.

"The service has been without any serious interruption, due to power-house failures, and the action of your board in authorizing the expenditures for the rehabilitation of its power plants and reinforcement of the transmission cables and distribution feeders has been fully justified by results.

"On June 28, 1907, an agreement was entered into with the McCall Ferry Power Company under which that company agrees to deliver 13,500 hp daily as an adjunct to the present power plants, the supply of current to begin Sept. 1, 1908. The McCall Company was, however, obliged to suspend operations on its plant owing to the unfavorable financial conditions which have existed since the fall of 1907. It is not thought, therefore, that it will be in shape to furnish current by the time specified in the contract.

"The power situation of the company at present is as follows:

GENERATING STATIONS.

Pratt Street	25,000 kw a. c.
Pratt Street	5,400 kw d. c.
Light Street	2,000 kw d. c.
Falls Road	750 kw d. c.
Owings Mills	780 kw d. c.
Bay Shore	1,375 kw d. c.
Total	35,305 kw

SUBSTATIONS.

Druid Hill	5,500 kw
Nunnery Lane	2,000 kw
Eastern Avenue	5,000 kw
Northern No. 1	4,000 kw
Northern No. 2	3,000 kw
Central	7,500 kw
Total	27,000 kw

MARYLAND ELECTRIC RAILWAYS COMPANY.

"The purchase of the 80 semi-convertible cars and one coal car; the acquisition of sites and construction of car

houses thereon; the acquisition of the necessary sites and construction of the Central and Northern No. 2 substation and the Bay Shore power plant with the necessary machinery and cables have been made by the Maryland Electric Railways Company at an expenditure during the year of $1,770,347.54, which company has, in turn, leased the same to your company under the financial plan adopted in 1906 and explained in the Eighth Annual Report of the company.

"After full consideration it was decided by the company to operate Bay Shore Park itself, placing a capable manager in charge, instead of leasing it to an outside party.

"The resort proved very attractive, as was evidenced by the largely increased patronage during the excursion season of 1907.

"The handling of passengers was greatly facilitated by the improvements made in the terminal station at the park.

"With a view to improving the transfer privilege and lessening the opportunities for abuse, the company on April 1 inaugurated a new transfer system, with day and date, whether for use in a. m. or p. m. prominently shown, and time-limit increased from 10 to 15 minutes. In addition to the junction, as heretofore, the line or lines upon which the transfer may be used and the direction bound and the issuing as well as the receiving line, are clearly indicated, thus reducing to a minimum the liability of any misunderstanding as to its proper use. By this change the company was enabled to afford its patrons more liberal transfer privileges. It may be of interest to state that there is now an exchange of transfers between lines of the system at 193 junctions, with 1614 direction privileges, thus enabling passengers to reach any section of the city for a single fare.

"Reference to this report and the report of Mr. Little, attached, will show that the following expenditures over and above the usual operating expenses were made for improvements, betterments and new constructions during the year 1907 by or for the use of your company:

For "Extraordinary Expenditures" account		$1,028,899.31
For extension of tracks		61,834.42
For power-house machinery and equipment account		315,491.84
For cars, car houses, power plants, substations, etc. (Md. Elec. Rwys. Co.)		1,770,347.54
Total		$3,176,573.11
These expenditures were provided for as follows:		
From income		$1,028,899.31
Balance from sale of Treasury bonds		23,687.10
Sale of real estate	$371,761.26	
Amount in hands of Trustee Dec. 31, 1906	25,089.75	
	$396,851.01	
Less amount paid through Trustee to redeem ground rent on Pratt Street power-house lot and cost of reconstruction of front wall of Pratt Street power house	53,825.00	
	$343,026.01	
Less cash in hands of Trustees Dec. 31, 1907	27,534.17	
		315,491.84
Sale of Maryland Electric Railway Company's bonds		1,770,347.54
Increase in notes payable on account German Street and Dickeyville extensions		38,147.32
Total		$3,176,573.11

"It will be seen, therefore, that the physical condition of your property was greatly improved during the year 1907 and that, notwithstanding these large expenditures, the company's bills payable and accounts payable increased but $168,664.29, while the amount was more than offset by the cash balance on hand at the end of the fiscal year, which was $555,674.17, as against $115,976.84 in 1906, an increase of $439,697.33.

"It will also be recalled that under the company's funding plan all surplus to Dec. 1, 1910, may be used to pay the company's floating debt, to improve its property, or for any of its corporate purposes.

"Realizing that one of the most valuable assets a public-service corporation can possess is the good will of the public, the officers of the company have endeavored in every way to encourage this feeling by pursuing a policy of frankness and liberality in their dealings with its patrons and complying with all reasonable requests for improved service or giving good reasons for noncompliance with suggestions of this character where they are impracticable.

"Acknowledging the fidelity to the company's interests and the efficient and faithful services rendered by the officers and employees during the year, this report is respectfully submitted.

"By order of the board.

"William A. House, *President.*"

ST. LOUIS RAILWAYS' YEAR

The pamphlet report of the United Railways of St. Louis for the year ended Dec. 31, 1907, gives an income account that compares with former years as follows:

	1907.	*1906.
Gross, including "other income"	$10,828,737	$10,287,889
Ex. taxes and depreciation	7,043,882	6,400,989
Net	$3,784,855	$3,886,900
Interest, etc.	2,778,023	2,782,249
Surplus	$1,006,832	$1,104,651
Preferred dividend	649,160	649,160
Net surplus	$357,672	$455,491

*St. Louis & Suburban Railway System figures included for comparison.

The general balance sheet as of Dec. 31, 1907, compares as follows:

ASSETS.

	1907.	1906.
Property and plant	$103,683,102	$102,608,623
Preferred stocks held by banks	3,000,000	3,000,000
General first mortgage 4 per cent bonds	.....	.....
Miscellaneous stocks	40,000	27,700
Investment reserve fund	600,000	383,500
Materials and supplies	318,162	338,475
Cash	826,403	1,154,734
Brown Brothers' and other accounts	.....	.....
Bills received and collected	716,300	625,918
Due United States Government, etc	11,912	12,568
Deferred assets	50,322	53,126
Total	$109,246,803	$108,204,746

LIABILITIES.

Preferred stock	$19,983,200	$19,983,200
Common stock	24,913,800	24,913,800
Funded debt	59,180,000	59,580,000
Bills payable	1,244,500	759,000
Auditing vouchers and payrolls	523,260	294,617
Matured interest	1,014,521	1,026,522
Preferred dividend	173,671	162,290
Reserve funds	909,400	659,827
Miscellaneous	49,432	43,617
Deferred liabilities	151,270	176,583
Profit and loss surplus	1,063,251	704,791
Total	$109,246,803	$108,204,746

In presenting the report of the United Railways Company of St. Louis for the year ended Dec. 31, 1907, President Beggs called attention to the comparison of figures for the past year with those of the preceding year, including the figures of the St. Louis & Suburban Railway system. They show that the gross earnings and other income increased $540,848, or 5.25 per cent. The operating expenses, taxes, reserve fund, accretions and depreciation charges increased $642,893, or 10.04 per cent, leaving a surplus for the year over and above the preferred stock of $357,671, equivalent to 1.43 per cent on the common stock. Mr. Beggs called attention to the fact that the physical condition of the St. Louis & Suburban property was not very good when the road was taken over, and that large expenditures were required to rehabilitate the road. Previous to the United Railways taking over the Suburban Company, no fund had been set aside for depreciation, but last year 5 per cent of the gross earnings were charged up, making a difference of $57,000. Increases in the cost of labor and material also had a decided effect on the earnings of the company. The general financial stringency and depreciation somewhat reduced the gross earnings. Mr. Beggs further said:

The total funded debt of the company, as shown on the balance sheet, shows a reduction during the year of $300,000.00. $1,500,000.00 underlying 6 per cent bonds of the Citizens' Railway Company (one of the constituent companies of the United Railways Company) matured on July 1, 1907, and were paid and retired out of the funds realized from the sale, at par, of $1,200,000.00 5½ per cent two-year collateral trust notes, the balance of $300,000.00 being raised on our notes, it being impossible to sell the 4 per cent bonds at any reasonable figure owing to the financial conditions prevailing during the year.

The trustee under the first general mortgage of the United Railways Company of St. Louis, certified and delivered out of the bonds reserved for retiring underlying liens, $1,500,000.00 4 per cent United Railways bonds, to the Mississippi Valley Trust Company, trustee, as part security for the collateral trust notes.

Your board of directors deemed it unwise to sell the $1,500,000.00 4 per cent United Railways bonds due this company upon the retirement of the Citizens' Railway 6 per cent bonds due July 1, 1907, and authorized the issuance of $1,200,000.00 in collateral trust notes, payable in two years from July 1, 1907, subject to redemption on 30 days' notice at the option

of the company at any time after Jan. 1, 1908, with interest at the rate of 5½ per cent per annum, and pledged with the Mississippi Valley Trust Company of St. Louis, as trustee, $1,500,000.00 4 per cent bonds and $500,000 (5000 shares, unregistered $100 par value) 5 per cent cumulative preferred stock of the United Railways Company of St. Louis.

Large expenditures have been made during the year for this account, but nevertheless it shows a steady increase, the fund at the end of the year aggregating $571,035.35, there being held in the treasury of the company, for investment to the credit of this account, 5000 shares of the preferred stock of the company.

This fund was increased during the year by charging against operating expenses a small percentage in excess of the actual fire insurance premiums paid, the fund at the end of the year aggregating $113,637.51, there being in the treasury of the company for investment to the credit of this fund 1000 shares of the preferred stock of the company, the dividends on which are added to the fund as received.

The policy pursued during the two preceding years has been maintained during the year 1907, 5 per cent of the gross receipts of the company each month having been carried to a depreciation reserve fund to meet extraordinary and non-current outlays for replacements and renewals. The amount credited to this account during the year 1907 was spent upon the property except $5,563.98, which, added to the balance at the beginning of the year 1907, leaves standing to the credit of this account at the end of the year 1907 $183,619.01.

The club-house which was spoken of in the last annual report, located at Grand and Park Avenues, has been completed and has proved to have fulfilled a long-felt want.

In order to encourage the old conductors and motormen to continue in the service of the company, the following rates of pay have been established, effective Jan. 1, 1908: Those who have been continuously in the service of the company for a period of four years will be paid at the rate of 24 cents per hour; for five years or more continuous service, 25 cents per hour. All others will continue to receive 23 cents per hour, the rate which they had been receiving, until the completion of their fourth and fifth years' continuous service, when the higher rates will apply. It is also intended to establish a graded rate of pay for motormen and conductors entering the service of the company on and after Jan. 1, 1908, which we believe will be more equitable than placing new and inexperienced men on the same footing as the trained and experienced men.

COMMISSIONS AND FRANCHISE VALUATIONS

At the meeting of the American Institute of Electrical Engineers held on April 10, Henry Floy presented a paper entitled "The Engineer's Activity in Public Affairs—Public Utility Commissions and Franchise Valuations." Mr. Floy commented upon the comparatively unimportant public part taken by the engineer and the lack of public recognition of his work. The engineer's inconspicuousness was attributed to his keen interest in the purely scientific aspect of the enterprises with which he is connected, his natural hesitancy in pressing his own claims to recognition, his lack, in the past, of a broad general education and his too frequent inability to speak fluently in public. Mr. Floy believed that the commercial importance of the engineer is steadily growing, and he should recognize the claims upon him to take part in public affairs and assume the responsibility more and more laid upon him of leadership. His increasingly closer business relations with public matters and his reputation for integrity give his opinion and influence greater weight in large affairs.

With regard to operation, public utility commissions should restrict their action to general principles; they should not interfere with details, otherwise they will remove the present responsibilities from the shoulders of the directors to their own shoulders, hamper the efficacy of the organizations, still the incentive to work and destroy the reasons for promotion of the employees.

In referring to franchise valuation, Mr. Floy suggested that a franchise can in most cases be valued at one-third of the actual replacement cost of the corporation's assets. For example, if the legal rate of interest is 6 per cent and the investor is unwilling to accept less than 8 per cent, a franchise valuation of one-third of the investment allows him simultaneously to receive 8 per cent on his outlay and accept 6 per cent on the total capitalization.

George S. Coleman, Charles F. Lacombe, L. A. Fergusen, H. L. Doherty, and N. W. Freeman took part in the discussion.

In closing the discussion Mr. Floy said that a commission should protect the interests of the corporation as well as of the public, and if investors are assured of protection they can be interested in a 6 per cent return, although in the past corporations have not been able to obtain money on that basis.

CHICAGO CITY RAILWAY REPORT

The Chicago Railways Company has made its first annual report required by the new ordinance, showing the result of operations for the year ended Jan. 31, 1908. The income account shows as follows:

Gross income	$10,560,571
Expenses	7,392,400
Net	$3,168,171
Interest at 5 per cent on valuation	1,566,159
Surplus	$1,602,012
City of Chicago 55 per cent	881,106
Balance to Chicago City Railways Co., 45%	$720,906

As the reports of the operation of the Chicago Railways property in the past have been submitted under the North Chicago Street Railroad and the West Chicago Street Railroad operations, for years ending Aug. 31, it will be necessary, for comparative purposes, to combine the gross and net of these two companies for the years since 1904 to and including 1907. From 1900 to 1904 operations were reported by the Union Traction Company for years ended June 30. Calculated from the reports, as indicated, the gross and net earnings of the system, since 1900, have been as follows:

Year.	Gross.	Income.†	Op. Ratio.
1908*	$10,560,571	$3,168,171	70.00
1907‡	10,357,064	3,368,645	68.01
1906‡	10,091,968	3,646,113	64.61
1905‡	9,208,529	3,201,567	65.97
1904§	8,590,467	2,618,270	70.00
1903§	8,357,303	3,158,296	62.85
1902§	7,825,119	3,371,759	57.55
1901§	7,289,139	3,291,948	53.33
1900§	7,477,398	3,819,848	49.62

*Year ended January 31.
†Income in each case is the total income before deduction of fixed charges.
‡Years ended August 31.
§Years ended June 30.

As the years 1907 and 1908 above represent five months of the same fiscal year, the change in gross earnings is small, and in the case of the year 1908 the operating ratio is fixed at 70 per cent of gross by the company's ordinance.

This company's report shows a total of $675,703 for the city during the year. The total going to the city from both the City Railway and the Chicago Railways Company is $1,556,809. The 5 per cent on investment, plus the company's 45 per cent, makes a total of $1,788,559 going to stock and bond holders of the City Railway.

The Chicago City Railway Company shows income for the full year ended Jan. 31, 1908, compared with the calendar year ended Dec. 31, 1906, as follows:

	1908.	1906.
Gross	$8,215,196	$7,871,126
Expenses	5,750,637	6,146,304
Net	$2,464,559	$1,724,822
Interest at 5% on valuation	1,236,009	1,620,000
Surplus	$1,228,550	$104,822
City of Chicago, 55%	675,703	.....
Balance to Chicago City Railway	$552,847	.....

The total valuation of the property, as of Jan. 31, 1908, was $29,052,145.

The general balance sheet as of Jan. 31, 1908, follows:

ASSETS.

Value of property June 30, 1906		$21,000,000
Additions to property value since June 30, 1906		8,052,145
Total value of property		$29,052,145
Divisible profits	$1,228,550	
Less trollyization taxes paid the city of Chicago	3,333	
		1,225,217
Total assets		$30,277,362

LIABILITIES.

Investment		$29,052,145
Profits	$676,703	
Less trolleyization taxes	3,333	
		672,369
Company profits		552,848
		$30,277,362

THE CLEVELAND SITUATION

The disagreement between Mayor Johnson and F. H. Goff on the price of stock of the Cleveland Electric Railway Company was at first thought to mean a final break in the negotiations; in fact, both men indicated that this was the case by what they said afterward. So great is the desire of the people of the city to have this matter settled that pressure was brought to bear to have the negotiations taken up again. The board of directors of the Cleveland Electric Railway Company exhibited a spirit of patience in extending the time for a final report from Mr. Goff to Monday of this week in order that he might take up the matter again if it should be the pleasure of Mayor Johnson to do so.

Mr. Goff, on Friday, asked that his authority be extended, and expressed a willingness again to take up the matter and endeavor to arrive at some more favorable conclusion. He stated, after the meeting, that the real value of the Cleveland Electric Railway stock should be $65 instead of $61.75.

In his review of the negotiations, covering four months, Mr. Goff stated that he had made many mistakes, or at least what seemed to be mistakes to those whom he represented. The agreement to take up the matter on a holding company plan, he said, had been thought a mistake as well as his idea of a municipal ownership plan. The waiver of one-ninth of the difference on the valuation of the property was believed to be another mistake, he said, as well as the waiver of the Woodland Avenue and West Side grants and the claims for money expended for grade crossing and street widening, amounting to $350,000. Mr. Goff also noted several other matters which were thought to be mistaken by others, but which he felt at the time of taking the action were right. He reviewed almost every important matter taken up, showed the concessions made and argued that the value of the franchises of lines lying outside the limits of the city has been misjudged. He further stated that he felt that at least $3 a share should be added to whatever valuation he placed upon the stock representing the inlying portions of the line, and even that would not be enough to cover the portions outside. His summary was an able argument for the valuation he placed on the stock of the old company. Although he has made several concessions since placing his figures at $81, he stated that his final figures represented what he believed a conservative value without any advice from the directors of the Cleveland Electric Railway Company, but from computations made for him by experts in the different kinds of construction and the different properties which make up the system. He said he had employed the advice of the ablest men of the country and upon this he must rely. As the matter of good will had been left to the Mayor, Mr. Goff said that he had counted nothing on that point and expected that any amount thus allowed would be added to his figures.

Following the receipt of a letter from the Cleveland Electric Railway Company extending his authority to act, a meeting was held Saturday at which Mr. Goff explained how he arrived at a valuation of the property and the differences between him and the Mayor. He said that he had arrived at a figure of $72.12 a share as the actual value of the property, and that the $61.75 which he offered at the meeting on March 7 was a compromise, made with the hope of getting somewhere in the neighborhood of what he thought the Mayor would offer, but he felt disappointed when that offer was only $50. At the meeting Saturday he said he would make an offer of $60 even, not because he thought the stock was worth any less, but because he wanted to reach a settlement. He said he wanted people to know that he had done everything he could to reach an agreement, but at the same time he could not give the property away.

In speaking of the matter after the meeting Mr. Goff said he had made his final offer, that he had gone as far as he could go in endeavoring to meet the ideas of the Mayor and that it is now up to him and the City Council to decide. He did not think the directors of the Cleveland Electric Railway Company would be justified in making further sacrifices in an attempt to settle the controversy.

Mr. Goff has said that he does not believe General Meyer is correct that the lease will not be legal because of the fact that the Mayor and City Council have forced the old company to that form of settlement in order to save its properties. He said he believed that the agreement will be legal and that he has the opinions of the best attorneys to that effect.

The meeting Monday morning lasted about three hours, but very little was accomplished beyond expressions in regard to the price offered by Mayor Johnson and Mr. Goff and the rate of fare to be incorporated in the security franchise. Mr. Baker, of the *Plain Dealer*, who proposed the mode of settlement that has been under consideration, made an address in which he stated that the difference in interest under the prices proposed by the two gentlemen would be only $140,000 per year and that they could not afford to allow the negotiations to come to naught on such a comparatively small amount. He said he believed that the people of Cleveland wanted to see a settlement on the side of fair play and that they would not object to an additional amount in the valuation such as this.

O. M. Stafford, another prominent business man of the city, spoke along the same line. He advocated the higher fare in the security franchise and said that the difference in interest, as mentioned by Mr. Baker, would not amount to enough, if the plan proves a success, to overthrow it. In justice to the eight hundred stockholders of the Cleveland Electric Railway and the large system of roads operated, he said he believed $60 a very low price for the stock.

H. R. Newcomb, prominent in banking circles here, argued that the Mayor and Mr. Goff continue their labors until they reached some decision. He said that he believed the people of the city would stand by them in whatever conclusion they made, and that after going so far in the negotiations. neither they nor the public could afford to allow the plan to fall through. He also advocated a good security franchise as a means of making the loans for extensions and improvements valuable and said that he believed the holding company should be allowed such a leeway that the fare might be increased if it was found that the results were not sufficient to meet expenses.

Mayor Johnson declared that he would not raise $50 a share nor reduce the amount. He said he had simply decided upon the offer as fair and right. This seems to leave an opening for a better offer. Mr. Goff talked along about the same lines as he did on Saturday.

OHIO LEGISLATURE

The Schmidt Street Railway bill, providing for the renewal of old franchises to new companies, has been enacted into a law and signed by Governor Harris. This measure provides that where a street car route has been established and the franchise expires, it shall be open to competition and treated as an entirely new route. A City Council may offer new franchises with the provision that the bid of the company offering the lowest fare shall be accepted. Then, on a petition of 15 per cent of the voters, the question shall be submitted to a referendum vote, which shall be final. This law was enacted to do away with the supreme court decision that a new company must secure a majority of the consents of property holders along the line. It had been passed by the senate some time ago without the referendum feature, and last week, when it was taken up in the house, this was added. When sent back to the senate the amendment was promptly ratified, and in a few days the bill was signed by the Governor. Considerable opposition was made in the house by those opposed to what are known as Johnson measures, because this bill was drawn apparently to enable the Mayor of Cleveland to make his point in granting franchises on routes formerly occupied by the Cleveland Electric to the new companies that have been organized to operate in competition with the old company.

The Senate has passed the Lamb bill giving the Street Railway Commission the control of grade crossings. Under it the commission may decide as to the kind of safety equipment necessary, and a provision is made for hearings at which the corporations may present their side of the question in the case of all rulings. The bill affects interurban as well as steam roads.

Stealing the apparatus used in the movement of railroad or interurban trains or cars, or purchasing the same, when it is known that it was stolen, is made a special offense in the bill of Representative Frank Miller, which was passed by the House of Representatives a few days ago. The maximum penalty on conviction is five years, and the minimum is six months in the county jail.

It is estimated that between 30,000 and 40,000 fewer passengers are using the Third Avenue line in New York since the transfers were curtailed by order of the court.

PLAN TO FINANCE WESTINGHOUSE COMPANY

A new plan for terminating the receivership of the Westinghouse Electric & Manufacturing Company and financing the company has been devised by the Committee of Merchandise Creditors and approved by the directors, which does away with the issue of mortgage bonds and reduces the amount of assenting stock to which stockholders must subscribe from $7,000,000 to $6,000,000.

Under the new plan $10,000,000 of stock will be issued, but of this amount $4,000,000 will be taken care of by the merchandise creditors. The original reorganization committee, of which James N. Jarvie is chairman, has approved the plan, and in the confident belief that subscriptions to the entire $10,000,000 of new stock at par will be forthcoming by June 1, the Jarvie committee has extended the time for depositing obligations and claims to May 15.

In order to facilitate the work of obtaining subscriptions, a stockholders' committee has been formed, to co-operate with the other committees. The composition of the stockholders' committee is as follows: Charles Francis Adams, Boston; Charles J. Canda, New York; Alvin W. Krech, New York; George W. Guthrie, Mayor of Pittsburg, and George T. Oliver, Pittsburg.

SECURING SUBWAYS IN NEW YORK

The Public Service Commission for the First District of New York has planned and had approved by the Board of Estimate and Apportionment routes for two new subways to cost $82,000,000 in the aggregate, has perfected plans for one of them, the Brooklyn Fourth Avenue line, and is now advertising for bids for its construction. It has also laid out new routes and perfected plans and obtained $850,000 from the Board of Estimate and Apportionment for changing the crossover at Ninety-sixth Street in the present subway, whereby it will be possible to operate 33⅓ per cent. more trains, according to the estimates of the Interborough Rapid Transit Company. It is estimated that at least $15,000,000 will be required to build the Brooklyn road. The contracts are to be let for six different sections, and under the recent ruling of the Corporation Counsel, one or more sections may be undertaken at once, according to the amount of money which the Board of Estimate will be able to devote to the project.

The commission has modified the plans for the Manhattan end of the Brooklyn subway loop, which is to connect the Brooklyn, Williamsburg and Manhattan bridges by a four-track subway so that trains coming from Brooklyn may pass through this loop and back over another bridge without switching on the Manhattan side. The contracts for this work were let by the old Rapid Transit Commission, but by the changes made by the Public Service Commission, the subway will be enlarged and many heavy grades avoided. Early in its consideration of the problem the commission decided that the dimensions of the present subway should be enlarged so as to admit the operation of ordinary railroad coaches through these tunnels, and accordingly in the bridge loop as well as in the Fourth Avenue plans, calculations have been based upon this idea. All future subways, therefore, will have at least one foot more clearance between roof and ties than the present subway.

The commission has also approved a route for an East Side subway in Manhattan and the Bronx beginning at the Battery and running up Greenwich and Vesey Streets and Broadway to Tenth Street, thence to Irving Place and Lexington Avenue, and out Lexington Avenue to the Harlem River. Passing under the Harlem, this route divides in the Bronx into two branches, one going out eastward to Westchester and Pelham Bay Park by way of Southern Boulevard and Westchester Avenue, and the other going to the north west through Gerard and Jerome Avenues to Woodlawn Cemetery.

It has also laid out the route for the first crosstown subway in Canal Street, which will connect with the Broadway-Lexington Avenue subway and stretch practically from river to river. The approval of the Board of Estimate and Apportionment has been obtained for both of these projects, and the commission's engineers are now engaged in preparing the plans, which will be submitted to the Board of Estimate early in the summer. If the city is able to finance the undertaking, it is expected that advertising for bidders for the Broadway-Lexington Avenue and Canal Street subways should begin July 1. The cost of the combined work is estimated at $67,000,000.

INDIANA RAILROAD REPORT

The Railroad Commissioners of Indiana, in presenting their second report to the Governor, say the reports filed by the carriers show that they have had a prosperous year. The reports are not so made that the business of the carrier in Indiana can be successfully separated from the entire business of the carriers which operate in two or more States. An account is given of interurban mileage in the State. This being the first report, it is defective in some particulars, and the commissioners are not able to make comparisons with former years. Interurban lines are building very rapidly throughout the State, there now being several lines in process of construction which are not included in the report.

The General Assembly of 1907 made it the duty of all carriers in Indiana to afford facilities for interchange of traffic at junction points and for the receiving, forwarding and delivering of passengers and property, and to transfer, deliver and accept without delay or discrimination, and promptly forward all freight or cars, loaded or empty, and destined to any point on its lines or any connecting line. It also made it the duty of the railroads to establish proper physical connections at junction points for the interchange of such traffic, unless relieved from so doing by the Railroad Commission.

A number of cases of this kind have come to the attention of the commission and the two most important are discussed at length—the cases of the Commercial Club of Richmond and the Commercial Club of Marion, Ind. In these cases the commission refused to relieve the railroads from their statutory duty, but issued affirmative orders requiring them to perform such duty. The commission believes that, as a general proposition, where two railroads enter the same town or city, and conditions are such that physical connection and interchange of traffic between said roads are at all practicable, such connection and interchange should be required.

The law provides that in special cases where it is practical and the same may be accomplished without endangering equipment, the commission may require steam and interurban or suburban railroads to interchange cars, carload shipments, less than carload shipments, and passenger traffic, and for that purpose may require construction of physical connections at junction points and the construction of switch and sidetrack connections as provided in the act. But one formal hearing has been held under this provision of the statute. The Farmland Stone Company filed a petition with the commission, asking that the Chicago, Cleveland, Cincinnati & St. Louis Railway Company be required to deliver coal to the Indiana Union Traction Company for delivery to the plant of the stone company at Maxville on the traction company's line, and about three miles from any steam railroad. The commission, after hearing the case, concluded that it came within the provision of the statute, and an order was issued requiring the Chicago, Cleveland, Cincinnati & St. Louis Railway Company to deliver coal to the Indiana Union Traction Company for delivery on the switch of the Farmland Stone Company at Maxville. A suit was brought by the Chicago, Cleveland, Cincinnati & St. Louis Railway Company to set aside this order of the commission and is now pending in the Superior Court of Marion County.

In regard to the interchange of traffic, the report says:

"The subject of interchange of traffic between these two classes of carriers is one that seems to have received but little attention from the railroad commissions of the country. In many of the states the commissions do not have jurisdiction over electric railways and in the states where they have jurisdiction there seems to be no requirement for an interchange of traffic between steam and electric railroads. By direction of the commission, the secretary corresponded with a number of commissioners on this subject and found that the matter had never been considered by the commissions. This is an important matter and should have further consideration by the next General Assembly. The question as to whether or not it is practicable for general interchange of business between these two classes of carriers is one which we do not undertake to decide at this time, but we are of the opinion that there are cases, like the one mentioned above, where it is practicable for these carriers to interchange business and that in these cases it should be required, and the law should be so amended, if necessary, as positively to require this duty when ordered by the commission."

The chief inspector, A. Shane, submits a report of his examinations of electric railway properties.

THE NEW HAVEN WILL ELECTRIFY OUT OF BOSTON—SINGLE-PHASE A SUCCESS

Vice-president Byrnes, of the New York, New Haven & Hartford Railroad, predicted Wednesday, April 8, that the suburban lines within a 20-mile radius of Boston would be electrified within five or six years if his company was permitted to control the Boston & Maine. He was speaking before the Boston Fruit and Produce Exchange. Mr. Byrnes said that this system had proved a success in New York, and would be introduced on the lines running into the South Station in Boston. He hoped that it would extend to the North Station as well, that depending on the action of the people of Massachusetts regarding the so-called merger. Another prediction made by Mr. Byrnes was that if the New Haven Company was forced to sell its Boston & Maine stock holdings, the control of that system would pass to interests outside of New England. Mr. Byrnes is quoted as follows:

"If this thing is allowed to go through, your suburban territory will be electrified and you will be able to come into Boston and pass from one depot to the other by means of a tunnel. It has been said that our electrical experiments in New York have not been a success. They have been a success, and we are going to adopt the same system on the New Haven suburban service here just as fast as it can be done. And we will do the same thing on the other side of the city if we are permitted. The thing that I want you to help us to do is not to control the Boston & Maine. I am willing to let that rest if I can have your confidence and your help in trying to build up Boston and Massachusetts."

OHIO ELECTRIC RAILWAY SECURES PERMANENT INJUNCTION IN RAIL CASE

The temporary injunction granted the Ohio Electric Railway, preventing the city of Columbus from tearing up the company's tracks in East Mound Street preparatory to improving the street, was practically made permanent last Monday in a decision rendered by Judge C. M. Rogers, of the Common Pleas Court of Franklin County. There is now no recourse for the city except to wait for a hearing of the case on its merits.

The trouble is the outgrowth of the grooved-rail fight in Columbus. Several months ago the City of Columbus decided that only grooved rails should be laid in the improved streets, and the City Council passed an ordinance providing that only such grooved rails as the Board of Public Service approves can be laid. The board at that time had approved but two types of rail, neither of which had been laid or tested anywhere in the United States. Since the approval of the rails the Ohio Electric Railway Company has steadfastly refused to abide by the order and relay any of its T-rail track with the prescribed rails, although notified repeatedly that the city wished to improve certain streets and that it should relay its track accordingly.

The controversy came to a head about two weeks ago, when, after a 30-day notice, the city proceeded to tear up the tracks of the company in East Mound Street. Before the company could get out an injunction several blocks of track had been pulled up and thrown over to one side of the street. The company was given permission to relay the track, and now it will probably institute a damage suit against the city for interrupting the company's traffic and destroying its property.

Judge Rogers in his decision did not attempt to pass on the merits of the case and refused to dissolve the injunction, on the ground that such action would result in a repetition of the acts of the city officials in destroying the tracks and interfering with the conduct of the company's business as well as with the public in the carriage of freight, passengers and United States mails. The staying of the city's hand until the question is finally determined will occasion comparatively little injury to the city.

In an open letter from the company to the citizens of Columbus, signed by W. Kesley Schoepf, president of the company, the claim is made that the tracks were exactly in accord with the franchise, and that blame for the delay is chargeable to City Solicitor Marshall, who should have resorted to the courts instead of tearing up the tracks. Misrepresentation and injustice on the part of the city are charged, and the company claims that it has been ready from the start to do its part in improvement.

STRIKES AT CHESTER AND PENSACOLA

Two rather serious strikes have been declared. One at Pensacola, Fla., and the other at Chester, Pa. In both cases the police have had to be called upon to protect the company's property, and at Pensacola the State militia had to be called out before cars could finally be operated. For nine days at Pensacola not a car was run out of the barns, but on April 14 the Pensacola Electric Company began to operate under the protection of the troops. It is reported that the cars will continue to be operated throughout the day under the protection of the troops, but for the present, at least, no attempt will be made to give service at night.

The cause of the trouble in Chester is said to have been a reduction of 10 per cent in wages of the employees of the Chester Traction Company. The company hired new men as soon as the strike was declared, and prepared immediately to operate its cars. The result was that the lawless element did everything in its power to impede traffic. Not succeeding in discouraging the new men resort was had to violence, and on April 14 the conditions became so bad that every saloon in the town was ordered closed by the police after 8 o'clock, and 100 additional men were sworn in to guard the company's property. The company has all the men it needs properly to man its cars, and at a conference between the Mayor and the managers of the company on April 14 it was decided to start cars from the barns Wednesday, April 15, under the protection of the police. If the police are unable to cope with the situation it has been decided to call on the State at once for aid. President John A. Rig, of the company, which is controlled by the Interstate Railways Company, is in charge of the affairs of the company.

FT. WAYNE & SPRINGFIELD EARNINGS

The Ft. Wayne & Springfield Railway Company, of Decatur, Ind., reports earnings as follows for the year:

First six months' gross revenue	$19,734.79
Second six months' gross revenue	22,353.16
Total for the year	42,087.95
First six months' operating expenses	9,150.01
Second six months' operating expenses	10,744.15
Gross operating expenses for the year	19,894.16
First twelve months, total	42,087.95
First twelve months' operating expense	19,894.16
First twelve months, net	22,193.79
Fixed charges for the year	9,875.00
Total amount for dividend for the year	$12,318.79

In presenting the report this statement was made:

This report does not show the receipts of the express for November, December and January, which we cannot approximate.

The report shows a healthy increase in business. The company continued the three-hour service up to and including November, or until business commenced to decline on account of the season, yet the increased service shows an increase in the number of passengers hauled, evening up the winter months with the summer months, yet hardly in keeping with the increased gain of the operating end. Considering the change of time, which the company was compelled to adopt, and which interfered with the service of the company by confusing the traveling public, the results are quite satisfactory.

The freight business is in a healthy condition, but does not show a large revenue. With the average from Feb. 1, 1907, to Jan. 31, 1908, it will show a very fair increase. Tariff arrangements have been made with all the principal traction lines in Ohio and Indiana, making the company's burdens much lighter in affording shipping facilities for its patrons.

Summing up the year, the road commenced to operate in February, and experienced one of the worst spring seasons interurban roads have ever suffered as regards to wet weather. The company was ballasting the entire summer season, allowing only a three-hour service. Then came the financial stringency and finally the necessity for changing the time, brought about by the arbitrary ruling of the Board of Public Works of Ft. Wayne.

B. R. T. EARNINGS FOR SIX MONTHS

In its application to list $1,595,000 additional 4 per cent bonds the Brooklyn Rapid Transit reported gross earnings for the six months ended Dec. 31 last of $10,399,571. If earnings continue at the same rate for the second half of the year the gross earnings will amount to about $20,800,000, an increase over 1907 of about $1,300,000, or 7.3 per cent. After deducting operating expenses and fixed charges the surplus at the close of the first six months was $1,564,000, which amount equals approximately 3 per cent on the $45,836,000 stock outstanding.

An interesting feature about the six months' figures is that they are 84 per cent as large as the total gross for the entire year 1903, and the half year surplus of $1,564,000 is nearly $600,000 in excess of the total surplus for that year. For the six months the operating ratio was 57.1 per cent as compared with 59.1 per cent for the 12 months ended June 30 last.

The six months' earnings compare as follows with the preceding five years:

Fiscal Year.	Gross.	Surplus.	% Earned.
1908*	$10,399,571	$1,563,909	3.0
1907	19,381,587	2,444,662	5.4
1906	18,473,328	2,742,953	6.0
1905	16,333,444	1,603,218	3.5
1904	14,738,709	1,308,907	3.0
1903	13,280,321	964,878	2.1

*Six months.

The growth of Brooklyn Rapid Transit's earnings is more rapid on the elevated lines than on the surface lines, which fact is due to some extent to the abuse of the transfer privilege. The percentage of transfer passengers to revenue passengers with the Brooklyn Rapid Transit was 55.6 per cent of the total as against 51.7 per cent for the New York City for the fiscal year 1907 and the gross average fare per passenger was only 3.17 cents for the former company as against an average of 3.29 cents for the latter. For the entire Brooklyn Rapid Transit system the cost per passenger for the year 1906 was 3.43 cents and for 1907, 3.30 cents. As it cost more to carry passengers on the surface than on the elevated lines the reduction in the cost may be attributed to operations on the elevated.

Gross earnings on the elevated have increased in five years 117 per cent, while the surface gross has increased but 25 per cent, viz.:

	1907.	1902.	Increase.	P. C.
Elevated	$1,120,899	$3,272,036	$3,842,863	117
Surface	11,323,084	9,049,229	2,273,855	25

MEETING OF CONNECTICUT RAILWAY & LIGHTING COMPANY

Stockholders of the Connecticut Railway & Lighting Company at their annual meeting April 9 elected the following directors for the coming year: Walton Clark of Philadelphia, W. T. Hincks of Bridgeport, Lewis Lillie of Philadelphia, Randal Morgan of Philadelphia, A. W. Paige of Bridgeport, H. G. Runkle of Plainfield, N. J., Charles G. Sanford of Bridgeport, A. O. Shepardson of Bridgeport, R. A. C. Smith of New York, M. J. Warner of Branford, and A. M. Young of Branford.

Secretary G. S. Philer read the statement of the company for nine months from July 1, 1907, to March 1, 1908. The principal items of interest follow:

Total income	$778,737.07
Total expense	514,419.86
Net profit	264,317.84
Profit and loss to June 30, 1907	239,791.55
Profit and loss to March 31, 1908	254,091.79

ASSETS.

For construction and equipment	$31,878,800.00
Total assets	33,899,207.07

LIABILITIES.

Common stock	$8,977,200.00
Preferred stock	8,142,900.00
Total funded debt	13,465,704.00

Following are the officers elected by the directors of the company: A. M. Young, of Branford, president; R. A. C. Smith, of New York, first vice-president; Randal Morgan, of Philadelphia, second vice-president; Lewis Lillie, of Philadelphia, treasurer; James Ball, of Bridgeport, assistant treasurer; W. F. Douthirt, secretary; G. S. Philer, assistant secretary.

Last year H. G. Runkle was first vice-president, W. H. Marshall, of Philadelphia, was secretary, and E. W. Poole, of Bridgeport, was assistant secretary and assistant treasurer. The choice of A. M. Young as president was a re-election. There was considerable change in the directorate. Last year the directorate was as follows: P. S. Babcock, New York; W. T. Hincks, Bridgeport; E. L. Judson, New York; H. L. Merry, New York; A. W. Paige, Bridgeport; E. W. Poole, Bridgeport; H. G. Runkle, New York; R. A. C. Smith, New York; Louis N. Van Keuren, Waterbury, Conn.; M. J. Warner, Branford, Conn.; Alden M. Young, Branford.

A NEW INTERURBAN MAGAZINE

The Indiana Union Traction Company has begun the publication of a small monthly magazine, the first issue of which, dated April, has just appeared. It bears the title "The I. U. T. System Magazine," and is intended for "those who use, or who should use, the interurban lines for business or pleasure purposes." The initial number contains descriptions of the Telegraph Signal Company's installation of train order signals on the Indiana Union Traction lines, the new army post, Fort Benjamin Harrison, just outside of Indianapolis, Mound's Park, near Anderson, the new car repair shops of the company at Anderson, a short story and a list of events of the month. This gives in brief form the theater programs, baseball schedules, meetings and conventions scheduled for the month in each of the cities and towns reached by the lines of the company. Five pages in the back are devoted to complete timetables of all divisions, together with a map showing all connecting interurban lines in Indiana and Ohio. The magazine is printed on good paper and is tastefully illustrated with halftone engravings. It carries eight pages of advertising of hotels, merchants and others. E. C. Van Valkenburgh is editor and manager.

PROGRAM OF THE IOWA CONVENTION

The program of the fifth annual convention of the Iowa Street and Interurban Railway Association, to be held at Des Moines, Iowa, on Thursday and Friday, April 23 and 24, has just been published.

The meetings will be held at the Savery Hotel and that on Thursday morning will be called to order at 10 a. m. There will be an address of welcome by Mayor A. J. Mathes, of Des Moines, with response by C. E. Walters, of Toledo. The address of the president and report of the secretary and treasurer will follow. A paper will then be presented on "Reinforced Concrete in Electric Railway Construction," by N. M. Stark, of Des Moines.

At the afternoon session the program includes a paper on "Depreciation," by Daniel Royse, of Chicago, and one on "Claims—Methods of Handling Same by Electric Railways," by Arthur W. Gross, of Omaha.

The Friday morning session will be opened by a general discussion on "Advertising by Electric Railways," which will be followed by a paper on "Handling Fares on Interurban Railways," by P. P. Crafts, of Clinton. In the afternoon C. L. Wight, of Des Moines, will present a paper on "The Interstate Commerce Commission—Statistics and Accounts." This will be followed by an executive session. The report of the nominating committee and the election of officers for the ensuing year will complete the program of the convention.

STREET RAILWAY PATENTS

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

UNITED STATES PATENTS ISSUED APRIL 7, 1908.

883,701. Switching Device; James A. Duffy and Oscar Irwin, Pittsburg, Pa. App. filed Jan. 19, 1904. An electric track switch of the type in which the motorman may cause a selective operation by the action of his controller. Has semaphore signal features to indicate the positions of the switch point.

883,836. Device for Preventing the Creeping of Railway Rails; Josef Schuller, Gratz, Austria-Hungary. App. filed June

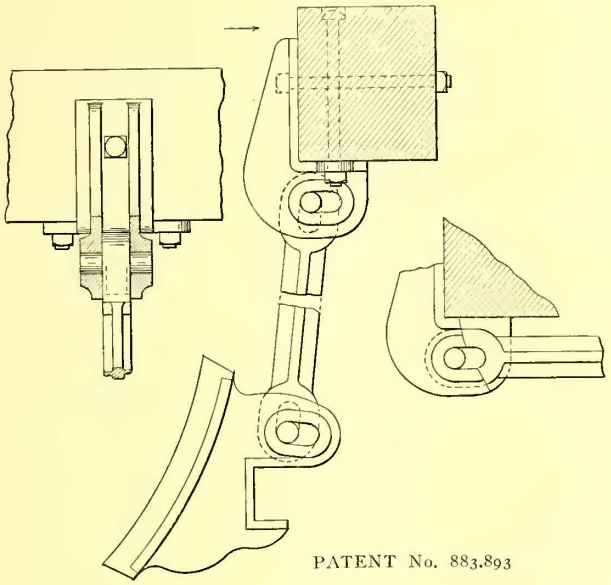
10, 1907. A plurality of clamps extends beneath the rail and alternately engages the base thereof from opposite sides adjacent the tie. Means whereby any longitudinal movement of the rail toward the tie will act to force the clamps into closer engagement with the rail.

883,893. Hinge-Joint; Isaac L. Kiser, St. Charles, Mo. App. filed May 22, 1907. A hinge-joint for brake shoe hangers having a hinge-pin which will remain permanently locked in position for a normal or prevailing relation assumed by the hinge members coupled thereby, but can be instantly removed when the parts are swung to a position corresponding to that at which the parts are originally assembled.

883,964. Signaling System for Electric Railways; Harry N. Latey, New York, N. Y. App. filed Jan. 19, 1904. A signaling system actuated automatically whenever the potential in a section shall have fallen to a predetermined point, thereby warning the operators of trains approaching the section of its condition.

884,000. Brake Beam; William H. Woodcock, N. Y. App. filed June 24, 1907. Comprises a web having a rib arranged lengthwise on the central part of one side thereof, flanges arranged lengthwise at opposite edges thereof and projecting in a direction opposite to the rib, and brake heads each having two lugs which are secured to opposite sides of the rib and bear against the web.

884,006. Switch Point Lock; George B. Blevins, Little Rock, Ark. App. filed Oct. 1, 1907. A switch point lock for street railways of that type in which the switch point is ordinarily moved by a hand lever or bar within its containing frog. Patentee has a link connection from the switch point extending into an inclosed casing containing a lever having a roller, and a spring bar with a protuberance which co-operates with said roller. The action between the parts is such as to keep the switch point impelled to either extreme position into which it may be thrown. The spring and roller arrangement insures a yielding free action which is substantially proof against wear or dirt and corrosion.



PATENT No. 883,893

884,007. Train Control for Electric Accumulator Locomotives; Otto Böhm, Berlin, Germany. App. filed Aug. 6, 1907. Means whereby the control of any number of locomotives coupled together can be effected from a single controller. Each car has a motor and a battery, and the controllers of locomotives which have no drivers are all set to full speed.

884,074. Attachment for Trolley Pole Clamps; Curtis W. Clark and Charles E. Yingling, Eaton, Ind. App. filed Jan. 13, 1906. Has a pair of clamping plates adapted to surround a trolley pole, and a supplemental plate operatively connected to said clamping plates and provided with means for producing a clamping movement between said two plates.

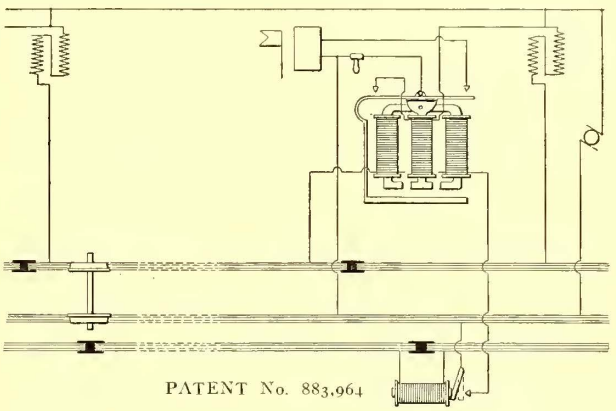
884,129. Electric Signal; Arthur J. Cleveland and Frank S. Brown, Minneapolis, Kas. App. filed March 18, 1907. A special trolley conductor adjacent the track rail and which is engaged by a shoe depressable by a lever in the locomotive cab.

884,132. Combined Tie and Rail Fastening; Robert T. Cummings, Maysville, Ky. App. filed Oct. 14, 1907. The tie comprises wooden blocks spaced apart by a metallic frame which engages opposite sides of the blocks and has means for attaching the rails to the blocks.

884,158. System of Automatic Block Signaling for Electric Railways; Winthrop K. Howe, Buffalo, N. Y. App. filed Sept. 28, 1906. Has an alternating current generator and separate means connected therewith to produce a difference of potential across the rails and a continuity current along the rails of a block section.

884,170. Third Rail Electric Railway System; Charles Kozesnik. App. filed Dec. 17, 1907. The third rail has insulated sections which are energized during the passage of a train by switches which are actuated magnetically.

884,194. Street Railway Switch; Peter McGrath, Denver, Colo. App. filed July 11, 1907. Consists of two pairs of de-



PATENT No. 883,964

pressible members in the roadbed, one pair of which control a switch to the right of the main line and the other pair a switch to the left. When a member is depressed by means of mechanism on the car, a disk is rotated which actuates the switch through suitable levers.

884,224. Railway Signal; John S. Sims, Longbeach, Cal. App. filed May 22, 1907. Mechanical features of a semaphore signal having an oscillating arm moved through a rack and pinion connection with the armature of an electromagnet. Circuits are shown adapted to illuminate a signal lamp.

884,268. Rail Joint; Stefan Enderle, Allegheny, Pa. App. filed Aug. 31, 1907. The fish plates are adapted to lock in grooves in the top of the rail base and in the under side of the tread of the rail.

884,345. Controller; Emmett W. Stull, Norwood, O. App. filed Oct. 26, 1907. Provides two blow-out magnets, the pole pieces of which form bearings for the controller shaft.

PERSONAL MENTION

MR. M. R. GRIFFIN has resigned from the mechanical and electrical department of the St. Louis Railways Company.

MR. J. F. SCOTT, superintendent of construction of the Chicago & Milwaukee Electric Railroad at Highwood, Ill., has resigned.

MR. JOHN M. HALDENWANG, for 15 years the superintendent of the Southern District of the Brooklyn City Railroad, is dead. He was 71 years old.

MR. J. M. WOLFF, who has been connected with the Chambersburg, Greencastle & Waynesboro Street Railway Company for the past four years, has resigned his position as general manager, to take effect April 15.

MR. H. C. OSBORNE, of Toronto, has been elected vice-president of the Chicago & Milwaukee Electric Railroad, Chicago, Ill., succeeding Mr. Gordon Ramsay, resigned. Mr. W. O. Kilman, heretofore treasurer of the company, has resigned.

MR. CHARLES A. MURPHEY, for many years a well-known New York lawyer, a former president of the Brooklyn

Heights Improvement Company, and one of the promoters of the Key West Electric Lighting & Railway Company, is dead.

MR. A. L. WHIPPLE, who for a long time was connected with the Curtain Supply Company, of Chicago, has severed his connection with the Telharmonic Securities Company, of New York, and plans to re-engage in the railway supply field.

MR. J. BOYLE PRICE has resigned as purchasing agent of the St. Louis Railways Company to accept the position of vice-president of the J. O. Chenowath Dyeing & Cleaning Company, of St. Louis. Mr. Price had been connected with the St. Louis system for 14 years.

MR. WALTER H. HORTON, superintendent of the Rutland Railway, Light & Power Company, of Rutland, Vt., has resigned to become assistant superintendent of the Atlantic Gulf & Pacific Construction Company, of New York City. Mr. Horton has been connected with the Rutland property since 1902.

MR. LEWIS R. POMEROY, who for a number of years has been a special representative of the General Electric Company in the railroad field, has accepted a position with the Safety Car Heating & Lighting Company, as assistant to the president. Mr. Pomeroy will have his office at the general offices of the company in New York.

MR. T. M. CHILDS, of Schenectady, N. Y., has been appointed master mechanic of the Washington, Baltimore & Annapolis Electric Railway, Baltimore, Md., succeeding Mr. Henry Donovan, resigned. Mr. Childs has been connected with the General Electric Company and during the construction of the Washington, Baltimore & Annapolis line had charge of the installation of the single-phase motor equipment of the cars.

MR. J. F. COLLINS, the retiring manager of railways of the Toledo Railways & Lighting Company, who has been appointed general manager of the Bay City Traction & Electric Company, of Bay City, Mich., was recently presented, as a token of the love and esteem of every attaché of the company, with a magnificent 2-karat diamond ring and a gold Elks' charm. The presentation was made in the corridor of the office building in the presence of the officials and 500 employees of the company. The presentation address was made by Mr. Thomas McMahon, assistant superintendent.

MR. ALBERT K. HISCOCK died at his home in Syracuse Tuesday, April 7. Mr. Hiscock was president of the State Bank, of Syracuse, until illness required him to relinquish the office. He was vice-president of the Trust & Deposit Company, of Onondaga, and treasurer of the Auburn & Syracuse, Rochester, Syracuse & Eastern, Syracuse, Lake Shore & Northern, and Syracuse & South Bay railroads, and a managing director in the Auburn & Northern Company, Oswego Traction Company, Monroe County Belt Line, and the Skaneateles Lake Transportation Company. Mr. Hiscock was graduated from Cornell in 1882, and was admitted to the bar in 1884.

MR. W. G. MELOON, whose retirement as general manager of the Atlantic Shore Line Railway, at Portsmouth, N. H., was announced in the Street Railway Journal for March 7, was presented on March 31 with a handsome gold watch, a gift from the employees of the railway of which Mr. Meloon had been general manager for 11 years. Mr. and Mrs. Meloon also were presented with a purse containing a considerable sum in gold, this being a gift from personal friends in Portsmouth and vicinity. As previously announced, Mr. Meloon expects to leave shortly to take a position with one of the southern or western properties of A. H. Bickmore & Company, the owners of the road which he is leaving.

MR. S. E. WOLFF, vice-president and general manager of the Saginaw-Bay City Railway & Light Company, of Saginaw, Mich., which controls the various street railway and lighting companies in Saginaw and Bay City, has resigned to become connected with Hodenpyl, Walbridge & Company, of New York, owners of these properties. Mr. Walbridge formerly was manager of the Jackson Gas Company, Jackson, Mich., resigning in December, 1905, to become assistant general manager of the Saginaw-Bay City companies. Early in 1906 he was elected vice-president and general manager of the combined companies. He will be succeeded by Mr. J. F. Collins, whose resignation as general manager of the railway department of the Toledo Railways & Light Company, of Toledo, O., was noted in the last issue of the Street Railway Journal.

MR. HENRY DONOVAN has resigned as master mechanic of the Washington, Baltimore & Annapolis Electric Railway Company, with which he has been connected during the construction of the line. Mr. Donovan went to the Washington, Baltimore & Annapolis Company from the New Jersey & Hudson River Railway & Ferry Company, of Edgewater, N. J., with which he was master mechanic for more than two years. Previous to this connection, Mr. Donovan was associated with the mechanical department of the Manhattan Elevated and the Interborough Rapid Transit Railway Companies for over five years, first in charge of the Manhattan car wiring and car equipment inspection, then on similar work on the Interborough, followed by work in New York in connection with the air brakes and instruction car. Mr. Donovan commenced his railway work on the Brooklyn Rapid Transit Company, from which he went to the Manhattan Elevated in New York.

MR. JOHN B. OLMSTED, of Buffalo, has been nominated to the Senate by Governor Hughes as a member of the Public Service Commission in the Second District, in place of Mr. Charles H. Keep, of Buffalo, who recently resigned to accept the presidency of the Knickerbocker Trust Company, of New York. Mr. Olmsted was born in Leroy, Genesee County, in 1854. After being graduated from Harvard University, he studied for two years in Heidelberg University. He was admitted to the bar in 1879, and has been attorney for the Buffalo-Pittsburg Company since 1885. Mr. Olmsted, after serving as a member of the Civil Service Commission of Buffalo, became treasurer of the Buffalo Civil Service Reform Association, which office he now holds. He is president of the Twenty-Third Ward Good Government Club of Buffalo, and has been president of the Garfield and Arthur Club of Leroy; dean of the Saturn Club of Buffalo; president of the Liberal Club, of Buffalo; president of the Harvard Association of Western New York, vice-president of the Buffalo Municipal League, and is a member of the council of the University of Buffalo. His term of office will expire Feb. 1, 1912.

MR. HOWARD FRANKLIN GRANT, in relinquishing the duties of general manager of the Seattle Electric Company, of Seattle, Wash., to his former assistant, Mr. Edward Potter, assumes no new duties. Mr. Grant went to Seattle for Stone & Webster, of Boston, in 1903, as general manager of the Seattle Company. In 1906 he added to these duties those of district manager for all the Stone & Webster properties in the Puget Sound district. Now he simply gives all his time to the growing demands of this latter position, the details at Seattle devolving upon Mr. Potter. As district manager, Mr. Grant has general charge of railway and lighting properties with a combined capitalization of about $35,000,000 and gross earnings of about $6,500,000, serving a population of 425,000. The companies are the Seattle Electric Company, the Puget Sound Electric Railway, an interurban company operating also the Tacoma Railway & Power Company; the Whatcomb County Railway & Light Company; the Puget Sound Power Company, and the Puget Sound International Railway & Power Company, which operates the Everett Railway, Light & Water Company. The cities covered are Seattle, Tacoma, Bellingham and Everett. Mr. Grant began railroading at the age of 19 years as a watchman for the Eastern Railroad at Portsmouth, N. H., the city nearest his native town of York, Me. After three years he was promoted to take charge of the company's kyanizing plant at that point. The following year he became a clerk in the maintenance of way department, rising shortly to be chief clerk. After the Eastern Railroad and the Boston & Maine Railroad were consolidated, he was chief clerk in the department of engineering and maintenance of way for the combined system. In 1903 he left the Boston & Maine to be secretary to Vice-President and General Manager Charles S. Sergeant, of the West End Street Railway in Boston. His duties gradually became those of an executive officer rather than of a secretary, and while Mr. Sergeant was absent in Europe about 1901 Mr. Grant attended to the general management in his place. Ten years with the Boston company carried him over into the period of the Boston Elevated Railway Company's operation of the West End Street Railway as a leased property. Mr. Grant has preserved his eastern interests to some extent in the Far West, and in 1906 was an officer of the Boston Club, an organization of New England people in Seattle.