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TIMETABLES FOR OUTLYING LINES

Much has been said in the past regarding the desirability of furnishing time cards for electric railway lines upon which the service is infrequent and irregular, and it has been pointed out that the generous distribution of such data is one of the most profitable forms of advertising. Under the circumstances it is somewhat surprising to find that this apparently obvious course should not be followed universally. On two branches of a comparatively large surface system where traffic is light, such time cards have been printed, but possibly from motives of economy so few have been distributed that most people on the routes do not know of their existence. The service is largely that of meeting trains on a suburban railroad. In consequence, the schedules are extremely irregular; so much so, in fact, that the conductors themselves are hardly able to carry them in mind. Neither electric line is sufficiently long to compel its use by possible patrons except in bad weather, and naturally many prospective passengers walk to their destination rather than face a wait of unknown length. The cost of printing enough time cards to provide a dozen for every household on either route would hardly amount to one week's return from the ensuing increase in business from people who seldom use the cars at present, and if a supply was kept at all times in a rack on each car the problem of distribution would be negligible.

SAFETY SHOULD BE FIRST

The safety bureau of the Middle West Utilities Company, which we mentioned in a recent issue, is really in part a continuation and enlargement of a work which was started in a smaller way on some of the subsidiary properties of this new holding organization. Because of the wider scope of its operations it has an opportunity to accomplish much more than merely to carry on the work begun by some of the individual companies. No intelligent efforts to impress the necessity for caution and safety

upon either the public or the employees of a public utility corporation is wasted, but the real problem is to approach this question in a way that is as comprehensive as the possibilities are large. Many companies are now trying to solve that problem. Trainmen are taught rules in order that they may do the right thing under all circumstances. If they are reliable trainmen, they come in time to do as a matter of habit what they ought to do. But new trainmen enter the service and new residents settle in the community so that the teaching of both trainmen and public is a work that, once started, should never be abandoned.

ACTIVITIES OF THE A. E. R. A.

Attention was recently drawn in these pages to the noteworthy growth of the American Electric Railway Association with respect to the mileage represented by its company membership. More important, and also more in the nature of cause than effect, are the increasing activities of the parent and affiliated associations. A comparison of the list of committees of the American Association now and in 1905 shows that these committees have increased in number from twelve to eighteen and the committee membership from fifty-four to 187. The work of the added units is, of course, of more significance than the number of these units. Committees created since 1905 deal with such subjects as electrolysis, federal relations, rates and fares, taxation and welfare work. This list indicates the broadening scope of the association and its adaptation to the changing exigencies of the industry. In the same measure, the accountants', engineering, claims and transportation associations have expanded to cover increasing needs. The total number of all committees has increased in the past eight years from twenty-four to sixty-four and the membership in these committees from 109 to 450. In the same period the number of member companies has gone up from 183 to 400. The individual membership is now 2800. It should be more than this. Personal representation in an association that is doing for the common good the work performed by the A. E. R. A. is a privilege as well as a duty that electric railway men should hasten to discharge for their own good and for the good of the industry as a whole.

EFFECTIVE UNORGANIZED STRIKING

One feature of the Buffalo strike deserves particular attention from managers of electric railways in big cities. This feature is the success of a handful of men in tying up a system the great majority of whose employees are non-union and entirely unorganized. Such a condition too often leads to a feeling of security which the Buffalo and other experiences show to be unwarranted. Under circumstances favorable to their purposes a very small minority of employees can by intimidation make

effective a wholly informal and unreasonable strike call simply by pulling a few crews from their cars and leaving it to the hoodlum element to do the rest. After that, men who would not vote for a strike or willingly join one are kept off the cars partly by fear of violence and partly by the abhorrence of the name of "scab." It is not meant by this to imply that avoidance of labor troubles on electric railways is impossible. But it is pertinent to say—and the Buffalo incident proves it to be true—that the mere fact that the motormen and conductors of a system are not formally organized or have among them only a very few union propagandists is no reason whatever for believing that the property cannot be tied up by a sudden strike. The methods pursued by the Buffalo trouble makers are, in fact, becoming increasingly popular with the Amalgamated for the obvious reason that during the suspension of work it is always possible to enrol hundreds of men who in time of peace would not join the union. That such methods only intensify opposition to organization—opposition of a kind which would not exist to reasonable and responsible trades unionism—is something that the leaders of electric railway men will, it is to be hoped, learn in time.

NUMBERED ROUTE SIGNS

A feature of car operation on the Pacific Coast is the use by many of the companies of numbered route signs. This is due, perhaps, to the fact that most of the Far Western cities, especially in California, are visited annually by a great many strangers. Indeed, it is common in these cities to instruct a stranger who wishes to reach a certain point to take a car with a certain route or destination number, and this avoids the necessity of a much longer explanation. But these signs are equally useful to the regular passengers, who are relieved of the necessity of reading two or three signs on the front or side of the car to learn whether the car which they are about to board is on the route which they wish to take and whether it goes to the end of the route.

The numbered sign in California is always carried on the hood of the car and is illuminated at night by lamps within the sign, but the types of signs employed in the different cities vary somewhat in details. In one city the two sides which are seen from the street are of ground glass, which has a black painted background to allow the numerals to show white by day and illuminated at night. In another city a perforated metal plate is used instead of the glass, and in still another there is ground glass behind the perforated plate. An advantage of both of the latter methods is that when the route of the car is changed metal plates and not glass plates have to be shifted. The perforated metal side is, of course, painted with the numeral so that it is as legible by day as at night.

These signs are not used to the exclusion of all others, but they reduce the number which would otherwise have to be employed to indicate the route, and they are certainly a convenience to the public in identifying different cars. As we have said before in connection with route signs, we believe that most cars in this country are inadequately marked and that many strangers who want to travel only short distances are discouraged from patronizing the street cars for

this reason. Any way of getting additional business is worth looking into, and the success of the California roads with the numbered signs may be worth adoption in some instances elsewhere.

PASSENGER INTERCHANGE

Among the subjects to be considered by the committee on train operation of the Engineering Association is that of the effect of car design upon duration of stops. It would be difficult to find a more interesting subject for consideration or one with more potential value to the electric railways of the larger cities. The complexity of the problem which confronts the committee is unusual. Few records exist in a form which make them directly available, for the reason that no standard basis for establishing the time required for passengers to board and alight has ever been generally accepted. Records of this kind have been made in various cities and have been published in this paper, but the time per passenger varies so greatly that it looks as if the same basis was not used in all cases. There is, in fact, some question as to what constitutes a stop, as in many cases cars only slow down for single passengers, and it is the practice of many alighting passengers to step off the car before it actually comes to rest.

Recently there has appeared a tendency toward the use of the interchange time rather than the straight loading time as a basis for such records. By this method the total duration of all stops which are made to take on or let off passengers in a trip is divided by the total number of passengers boarding the car. This gives an accurate measurement of the time required for passenger interchange for any particular run—or, in other words, the average time required for each passenger to board the car plus the time required for him to alight—thus eliminating the necessity for special consideration of stops where passengers are getting on and off at the same time. Such figures, unfortunately, are not capable of indiscriminate comparison.

Figures obtained on a run where passengers board the car in groups of five or six at different points along the route and alight in similar groups at the same points will naturally be lower than those obtained on runs where all passengers are loaded at one point with prepayment operation and then let off singly along the route. If, however, records are compared only when they cover trips which are made under approximately similar operating conditions, such as the number of stops per mile, the average duration of each stop, the difference between the total number of fares and the maximum load at any one time, and the average number on and off at each stop, the time of passenger interchange gives a reasonably accurate means of expressing operating results. There is, of course, the possibility that of two similar trips one may happen to have interchanges take place at every stop and the other have only boarding passengers who alight together at the end of the line. In this case the latter, while having only one more actual stop, would have considerably more time charged to stops and a consequently higher interchange time in case the trip was not long enough to absorb the difference.

There is ample opportunity for thorough investigation of the matter of a standard method of expressing results.

Even the matter of nomenclature is in need of standardization. Once these points are satisfactorily settled it would seem quite possible, either through the work of the committee or else through that of some independent investigator, to establish a formula which would briefly and satisfactorily explain the chief reasons for the extraordinary discrepancies occurring in existing records of passenger interchange.

"THE VALUE OF VALUATION"

A reader of the *ELECTRIC RAILWAY JOURNAL* takes exception to the opinions expressed in the editorial note on this subject in our issue of March 15, which voiced doubt as to the usefulness of the valuation of interstate railways provided for in the law passed in the closing days of the last session of Congress. As this critic's views may be those of other readers, we welcome the request to state the facts and theories on which was based the statement that the proposed plan will cost more than it will be worth.

First among the reasons for railway valuation, not only as stated by the *ELECTRIC RAILWAY JOURNAL*'s correspondent but by nearly all advocates of the plan finally adopted by Congress, is that "wherever the actual value of such property has been investigated, it has been found that it bears little or no relation to the value of securities on which returns are expected, over-capitalization being the universal, not the occasional, condition, and that the carriers demand to be allowed to make rates that will earn dividends on more than actual investments or values."

The idea that both the value and the investment of the interstate roads are far less than the capitalization is one which is quite generally held but is purely a gratuitous assumption. We believe that if it was possible to determine the investment or to approximate the present fair value of these roads the contrary would be found to be the case. The outstanding securities of all steam roads total \$18,417,132,238. As against these stocks, bonds and notes, it is estimated by experts that a fair valuation of all the roads would aggregate \$20,000,000,000. In individual cases where the investigation has been made an excess of assets over capitalization has been found to be the case. Thus the system of the New York, New Haven & Hartford Railroad, when appraised by the Massachusetts Railroad Commission, was valued at 25 per cent in excess of its capitalization, and in several cases of electric railway companies, notably in that of the Coney Island & Brooklyn Railroad, where the investment for a period of more than forty years was carefully calculated in connection with the Coney Island fare case, not only the investment but the cost of reproduction new were shown to be more in amount than the present aggregate of stocks and bonds. In the States of Washington, Minnesota and Wisconsin, where official state valuations were made some time ago of the steam railroads in the State, both the cost of reproduction and the present value were found to be considerably in excess in each case of the capitalization.

The second claim made by our correspondent is that "ever from the standpoint of the carriers themselves, a valuation will be worth all it will cost. A little experience in valuations will demonstrate to any engineer that railroad officials have only the most vague idea of what their prop-

erty is really worth. When brought face to face with a tabulated inventory they invariably begin by declaring it incomplete and usually find it to be rather liberal. The value of a complete inventory is recognized by all business men. It is only the large corporations that can, by reason of their bulk, afford to be inefficient in the control of income and expense, and every engineer who is or has been in the service of a large corporation can call to mind many cases where they are highly inefficient. No small proportion of this inefficiency is due to the fact that the responsible officials do not have and cannot obtain accurate information regarding the property they control."

We do not deny that an appraisal of the physical property, or all of the property, of a railway, made upon almost any basis, would be of some value "as an inventory" to the companies. But in most cases it is very doubtful whether it would be worth as much as it cost because practically it would be obsolete before it was finished, and unless it included an accurate valuation of all of the property of the company and the cost of establishing its business it would, of course, be of little use for rate-making purposes.

But this raises the question as to what is to be considered the "value" of a railroad. Is it the cost of reproduction new, or the original investment, or some one of the many other bases which have been suggested for this purpose? Are its terminals and rights-of-way to be valued simply as real estate or as railroad property? What is the value of the Pennsylvania Railroad's intrenched position in Pittsburgh or the New York Central's terminal in the heart of New York City? Should that terminal be valued either for rate-making purposes or for taxation at the same amount as though it were the site of twenty-story hotels and office buildings? There are replies so numerous to these questions that up to this time it has been impossible to get a generally accepted definition of valuation, much less valuation itself. Fortunately the importance of reaching definite conclusions on this subject, based upon correct accounting principles, is being realized to a greater extent now than ever before, and we trust that rapid progress will be made in this direction within the next few years.

One provision of the law signed by President Taft on March 1 requires that "the original cost of all lands, rights-of-way and terminals" shall be separately ascertained. Aside from the fact that it will be found impossible to get this information in many cases more than twenty or twenty-five years back, the requirement quoted creates the fear that no appreciation is to be allowed for in the value of railroad property. Every other property owner has so far enjoyed the unquestioned right to increase in the value of his holdings, and so to the extent that railways should be deprived of the same right they would suffer confiscation. The courts would doubtless protect the carriers against this, but the threat embodied in the provision is not calculated to inspire confidence either in the fairness or good intentions of the framers of the law.

These are some of the reasons why the railroad valuation project does not promise to repay the money it will cost. And the more the project is examined the more hopeless appears the prospect that the results will be useful—certainly not until there is some agreement as to what "valuation" means.

New Paint Shop of the Detroit United Railways

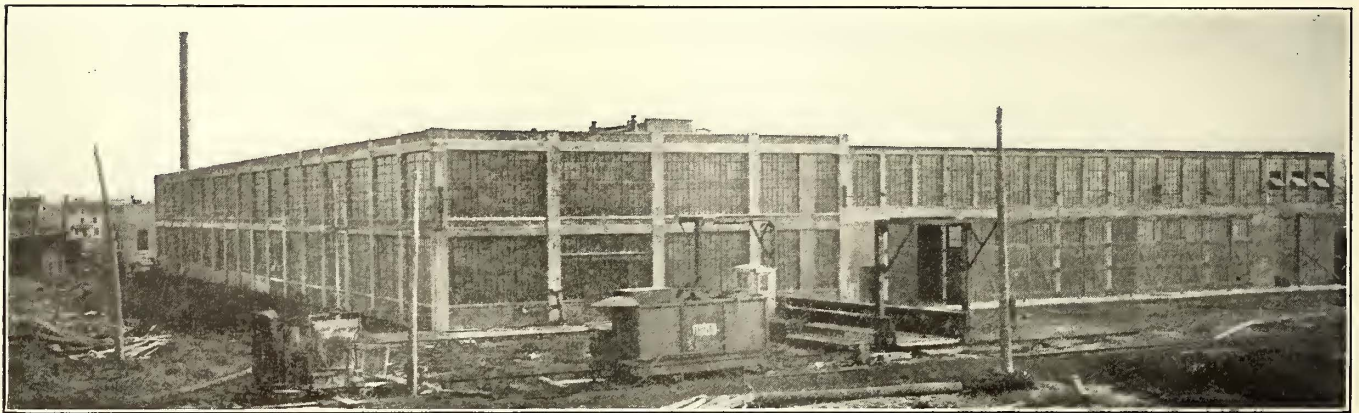
A Paint Shop of Modern Design Has Been Constructed as the First of a Series of Structures Which When Finally Completed and Occupied Will Constitute One of the Largest Repair Shop Layouts in the Country

With the completion of a large paint shop building, the Detroit United Railway has begun the construction of general repair shops which will be among the largest and most substantially built in the country. This property now includes over 777 miles of track and operates more than 2000 cars for city and interurban service, and the demands on the existing shops have increased to such an extent that additional facilities are required to meet them. It has also been found that as the track mileage has grown, the location of the old shops at Monroe and Dequindre Streets, in Detroit, has become more and more disadvantageous. This is due to the fact that the present shops are situated approximately a mile from the center of the business district where property is held at prices too high to warrant its purchase for additional shop facilities. The present location while convenient to the different city and inter-

tention to follow one type of construction in all four buildings. The stock room will be a three-story building and portions of each of the three other shop buildings will be provided with second stories. The heating plant, which has been installed temporarily in a building on the proposed site of the stock room, will be permanently located in the space between the wood and machine shop buildings. A reinforced concrete tunnel leading from the heating plant, of which a portion has already been constructed, will serve to carry both the feed and return mains of the heating system to the four buildings in the group.

TRACK ARRANGEMENT

The arrangement of the buildings has been planned to make movement of equipment through the different departments continuous and in one direction. Cars for general overhauling will be run into the truck shop, the bodies re-



Detroit Paint Shop—General View of Building

urban lines is at the wrong end of the city from an operating standpoint, and at the same time it is not in the vicinity of any important carhouse.

GENERAL LAYOUT

The new shop site is situated in Highland Park, a suburban district approximately 6 miles north of the center of the city. The Woodward Avenue carhouse and storage yards already occupy approximately one-half of the property, which fronts 800 ft. on Woodward Avenue and extends 2616 ft. west, containing about 48 acres. The general repair shops will occupy the west half of the tract, being constructed on both sides of Third Avenue, which crosses the property from south to north.

The double-track line on Woodward Avenue is one of the main trunk lines of the city railway and it is also used by the interurban cars entering Detroit from the towns of Pontiac and Flint. Cross-town lines in the outlying sections of the city tap the Woodward Avenue line, making the new shop site easily accessible for all city lines as well as for the six interurban lines radiating from the city. Direct track connections to the Detroit Terminal Railroad, which handles practically all interchange traffic between the steam roads entering Detroit, were obtained at the time the Woodward Avenue carhouse was completed. Five leads from this steam road connection, included in the proposed repair shop track layout, will make it possible to deliver material direct to any one of the four general repair shop buildings.

As shown on the general layout plan, the group of buildings includes a paint shop, a stock room, a machine and truck shop and a carpenter and wood shop. It is the in-

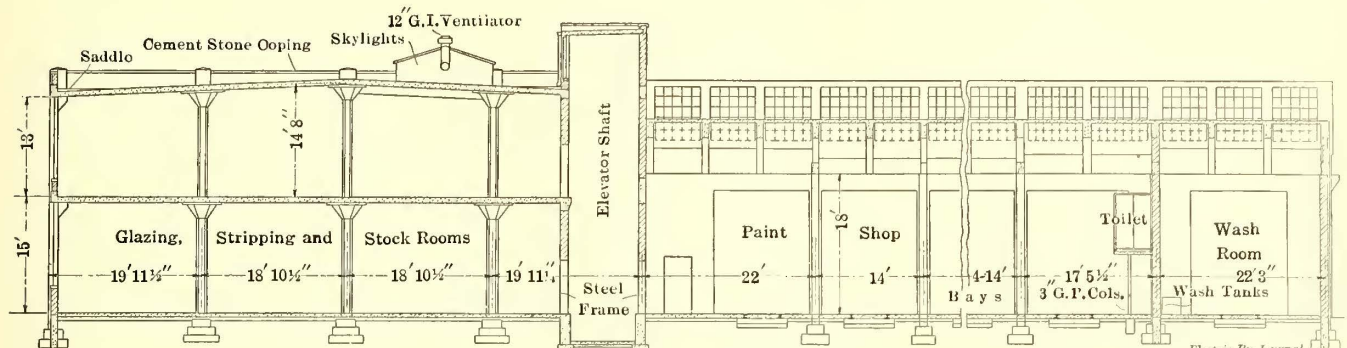
moved, placed on temporary trucks and passed over the transfer table to the carpenter shop. From there they will be moved to the paint shop. In order to provide the maximum area for building purposes it was decided that no tracks should lead directly into any of the buildings, and this will necessitate the installation of six flush transfer tables and runways to replace the customary ladder tracks and the accompanying special work. These transfer tables will be reached from both the east and west by two double tracks, one branching off Woodward Avenue at the south property line and extending west to the interurban line from Detroit to Farmington and the other branching off the Woodward Avenue line at the north edge of the property and extending full length, terminating in the connection to the Detroit Terminal Railroad near the west end of the shop site. Four leads from each of these two double tracks will form approaches to four through tracks which will parallel both sides of each pair of shop buildings. Paralleling each of these through tracks and connected to them by crossovers a second track will serve as an approach to the transfer table. Each transfer table runway will extend approximately 20 ft. beyond the face of the building served by it, thus permitting the table to be set in line with these approach tracks which are stub-ended at the runway. Two Y tracks, one at each end of the center transfer table runways, afford facilities for turning cars when required.

In planning the general shop layout it was necessary to keep both the track approaches and buildings clear of the building line on Third Avenue, which cuts through the property. To meet this condition a 126-ft. aisle was left be-

tween the paint shop and the stock room and between the machine shop and the wood shop. The presence of this thoroughfare made it impossible to have continuous transfer table runways across two buildings, but the number of tracks each table has to serve, as well as the elimination of track special work, was considered to warrant an installation of this character. According to the proposed plans, ten

as the time clock, were installed in the southeast corner of the building, this location being on Third Street, at the end nearest the residence section, from which direction all employees approach the shops. The paint stock room adjoins the wash and locker room, being the next point to which many of the men must go after entering the building.

The cars enter the structure from the north. Just inside



Detroit Paint Shop—Cross-Section of Building

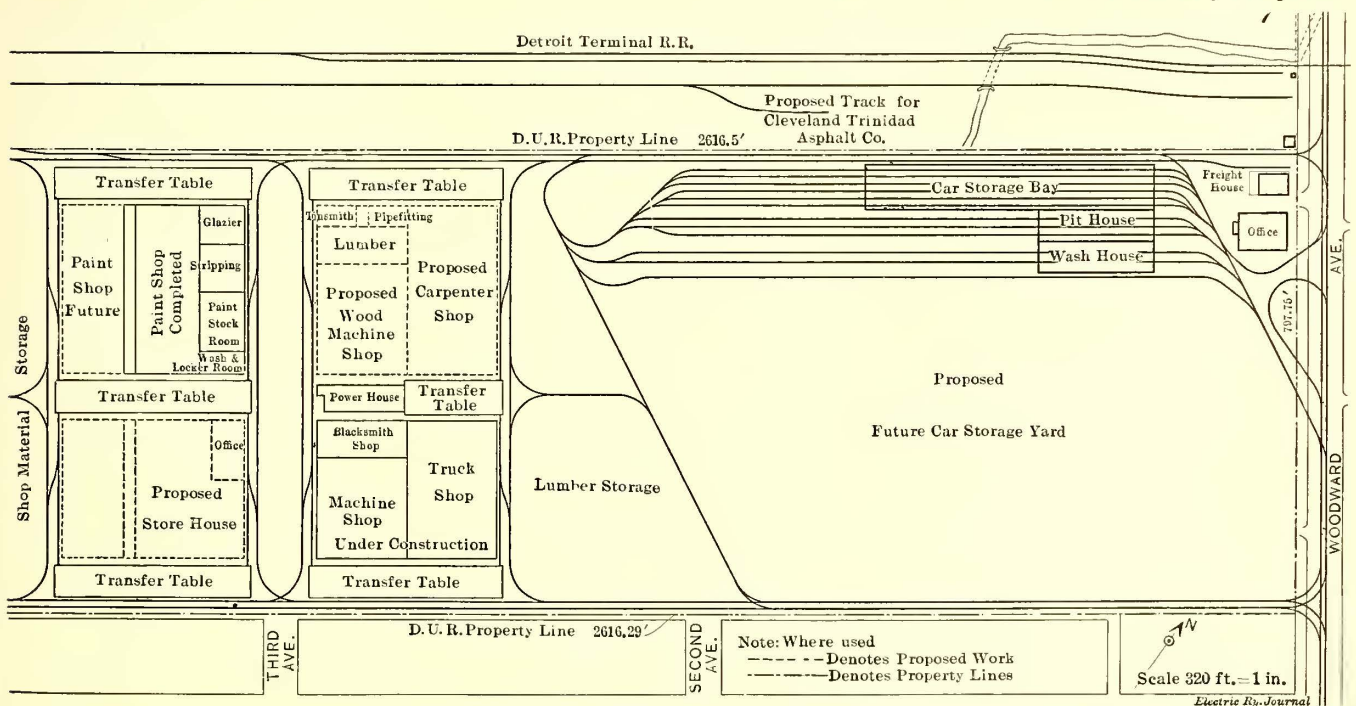
tracks will pass through the truck shop and carpenter shop buildings, while fifteen tracks will pass through the present paint shop and the future addition to it.

PAINT SHOP BUILDING

To avoid the necessity for stopping all repair work in the old shops while moving into the new ones, the company decided to construct the new buildings one at a time. The paint shop was the first one to be completed, and as soon as it was fully equipped the force from the car-painting department of the old Monroe Street shops was moved into it. Although this will result in temporary inconvenience, it was considered more economical to disorganize only one department at a time than to invite the confusion incident to a complete transfer of all departments. Work has now

the entrance they are stripped, the sashes and doors being sent to the glazing room on the ground floor at the left of the north entrance, and thence to the scraping room on the second floor by way of a 2-ton electric elevator. From the scraping room the sashes, doors and other finished material are passed on to the adjoining room on the second floor, where they are varnished and again returned to the stripping room, which also serves for a storage room for finished work.

The manufacture and repair of signs for more than 2000 cars requires a small force of men especially delegated for the work and considerable space for storage of signs as well as that required for manufacturing and repairing. As soon as signs are removed from the cars they are placed



Detroit Paint Shop—Plan of Property

been begun on the machine shop building, which will be the second one of the four shop structures to be completed.

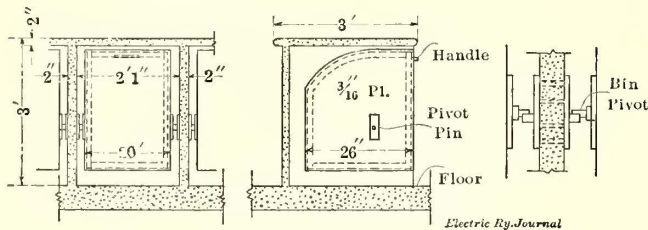
In planning the paint shop building the arrangement received careful consideration with a view to eliminating lost motion, which necessarily requires continuity of movement of material and work through the different departments. Conforming to this plan, the locker and washroom, as well

on the elevator in the stripping room and taken to the sign room, which adjoins the scraping room on the south. This room is large, light and convenient, thus meeting all the requirements of the sign department.

Directly over the wash and locker room on the second floor a spacious, well-lighted room has been provided with benches, tables and drinking fountains for use as a lunch

and lounging room. The ban on smoking in the paint shop is removed so far as this room is concerned. In addition to furnishing a certain amount of comfort for the men during the lunch hour, this room makes it unnecessary for them to spend that hour amid the litter from the cars undergoing repairing.

A car-washing aisle adjoins the general car-painting room



Detroit Paint Shop—Swinging Bins for Paint Stock

on the west. This location carries out the principle of continuous movement through the shop, as soiled car bodies will be run into this department before entering the car-painting department where they are stripped for general painting.

BUILDING CONSTRUCTION DETAILS

The preparation of the general plans, including the general shop layout, building and track facilities and the location and size of the various rooms required by the different departments of a general repair shop, was supervised by the engineering staff of the Detroit United Railway, but the preparation of the detailed plans and specifications, as well as supervision of building construction, was carried out under the direction of the company's architects, Smith, Hinchman & Grylls, of Detroit. In plan the paint shop building is 210 ft. wide by 287 ft. 6 in. long. A second story, 77 ft. x 287 ft. 6 in., over the Third Street side of the building supplies additional floor space, at a minimum cost, for phases of paint shop work which can be done just as economically on the second floor as the ground floor. The design of the building included reinforced concrete columns, floors and roof, with brick partition walls and steel sashes. The latter practically replace the brickwork in the exterior walls. Reinforced concrete girders support the roof and floor between the columns, bricking in being required only to close the wall panels below the sash areas. This style of construction made it unnecessary to provide heavy foundations under the curtain walls, but it did involve substantial construction in the foundation pedestal design.

Both exterior and interior walls are built of common brick, 13 in. thick. All reinforced concrete columns in the exterior walls are of a rectangular section reinforced with $\frac{3}{4}$ -in. round bars vertically and $\frac{5}{16}$ -in. ties at 10-in. centers horizontally. Interior building columns are both round and rectangular. The former were employed where they were exposed and the latter when incased in the partition walls. In either type the reinforcing is approximately $1\frac{1}{2}$ in. from the surface of the column. They are reinforced vertically by $\frac{5}{8}$ -in. round bars and horizontally either by $\frac{5}{16}$ -in. or $\frac{3}{8}$ -in. hooping spaced 3-in. centers. The column height in the two-story section is 14 ft. $2\frac{1}{2}$ in. in the first story exclusive of a $2\frac{1}{2}$ -in. projection of the shear slab capping the column and the 7-in. floor slab. The columns on the second floor supporting the reinforced concrete roof are approximately 14 ft. 8 in. in height.

In designing the columns supporting the saw-tooth roof over the car-painting bay, the size and character of reinforcing received careful consideration. It was not only important to reduce the column section to a minimum to provide for maximum car clearance, but it was necessary to reinforce them heavily to support the dead load coming from the roof. It was finally decided that 13 in. was the minimum diameter consistent with practical design. This

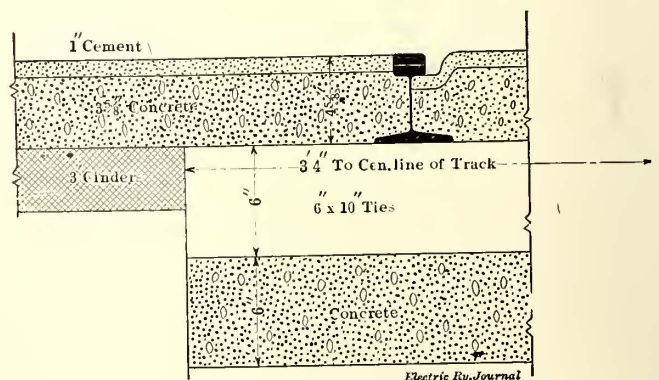
section permitted placing the reinforcing so as to leave a 10-in. core, with reinforcing of six $\frac{5}{8}$ -in. round bars and $\frac{5}{16}$ -in. hooping on 3-in. centers. A clear head room of 18 ft. 3 in. between the finished floor and the underside of the bottom of the roof trusses was allowed.

Preparatory to laying the floors on the ground level, the track forces of the company laid the seven house tracks through the building. These were built with 70-lb. A. S. C. E. rail laid on 6-in. x 10-in. x 7-ft. ties. To assure the permanency of track surface, 6 in. of concrete was laid under the ties and brought up between them to the base of the rail. The floor construction between the tracks, which was made exactly similar to that used throughout the first floor of the building, included 3 in. of cinders, on which was laid $3\frac{3}{8}$ in. of ordinary concrete, covered with a 1-in. sand and cement wearing surface. The flangeways were formed by slightly beveling the floor to meet the underside of the ball of rail.

In designing the second floor and roof in the two-story section of the building, the girderless type of construction was employed. The columns in this section were spaced approximately 16 ft. 9 in. apart longitudinally and 18 ft. 10 in. transversely. The lengths of these spans were materially reduced by flaring the column at the top, giving a circular bearing 4 ft. in diameter to the shear slabs, which are 5 ft. 6 in. square. The floor slabs are 7 in. thick and heavily reinforced around the columns. The roof slab over this section of the building is of a design similar to the floor but 6 in. thick.

Seven tracks on 14-ft. centers pass entirely through the paint shop section of the building. Continuous overhead trolley troughs supported on 6-in. I-beams are embedded in the lower cords of the reinforced concrete roof trusses. A malleable-iron trough of small section supported at the outer end by two cable guys attached to eye-bolts embedded in the concrete building columns projects from each entrance. This trough practically meets the overhead bracket on the end of the transfer table. Swinging doors made it unnecessary to provide any special method of carrying the trolley through the entrance. A complete overhead dry sprinkler system supplied from the city water mains has been installed in every department of the building.

Roof drainage to the shop sewerage system is provided by 4-in. leaders attached to the building columns. Slight hips and valleys on the roof surface were obtained by depositing small quantities of cinder concrete at proper points to carry the water to the 4-in. conductor heads. Floor drainage in the car-washing room was provided by pitching



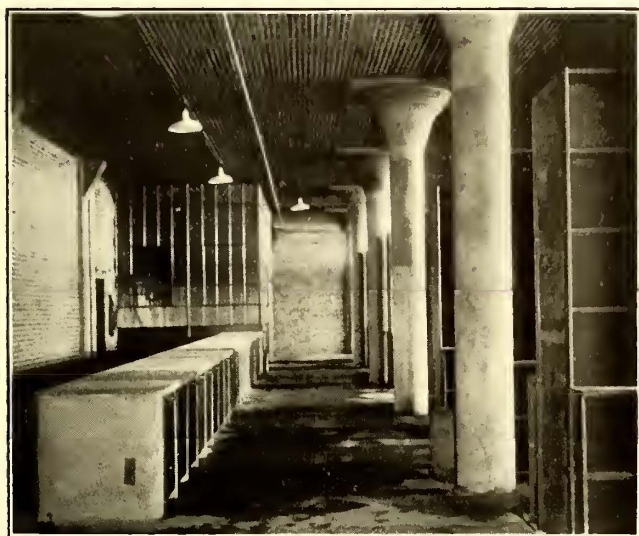
Detroit Paint Shop—Cross-Section of Floor at Tracks

the concrete floors from all directions toward three cesspools. The intake to each cesspool is by way of a perforated cast-iron manhole cover, the top of which is set slightly below the floor level. The design of these cesspools is somewhat similar to an ordinary catch basin, the outlet to the shop drainage system being approximately 2 ft. 10 in. above the floor of the basin.

ILLUMINATION, VENTILATION AND HEATING

To provide for the maximum natural illumination and ventilation in the paint shop and washroom sections of the building, the architects resorted to saw-tooth roof construction. The supporting frame embraces reinforced concrete trusses and girders designed to carry a 40-lb. live load in addition to the dead load. As in the exterior wall

wide and 16 ft. high, are of heavy wood construction. Each door contains a fixed sash in the upper panel and is reinforced by $\frac{1}{2}$ -in. x $3\frac{1}{2}$ -in. wrought-iron strap hinges which extend across its full width. These hinges are securely anchored to the reinforced concrete building columns, which were built with 12-in. channels to form the door jambs. All stairways and landings between the first



Detroit Paint Shop—Concrete Bins and Counter in Paint Stock Room

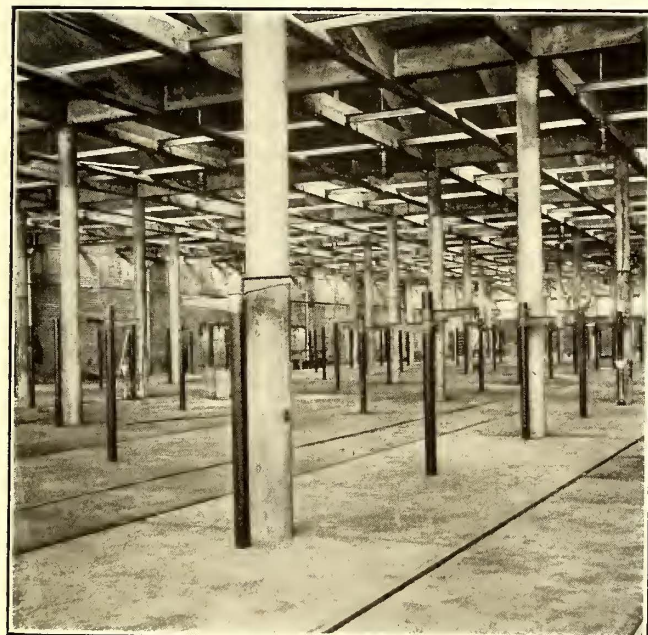


Detroit Paint Shop—Concrete Vats for Washing with Hot Water and Lye

construction, steel sashes provided with pivoted panels constitute the glass area and ventilating features. The roof slab is 3 in. thick reinforced with expanded metal. This type of reinforcing made it unnecessary to use forms in placing the concrete, it being supported at intervals with temporary rafters and the top coating of concrete applied.

and second floors are built of reinforced concrete in wells inclosed with 13-in. brick partitions.

Ventilation for the paint shop and washroom sections is obtained by pivoting a nine-light panel of each steel sash in the saw-tooth roof. These pivoted sashes are operated from the floor level by a continuous operating



Detroit Paint Shop—Interior View Showing Racks for Adjustable Scaffolding



Detroit Paint Shop—Elevated Toilet Rooms Along Building Wall

After the concrete had set the undercoating was put in place by plasterers. This concrete sheathing is covered with a composition roofing coated with tar.

All door and window frames are formed of steel channels anchored to the walls, and except in a few instances all doors conform to underwriters' specifications. The car entrance doors, which inclose openings 12 ft. 6 in.

device. On the ground floor in the two-story section ventilation is obtained in a similar way by pivoting six-light panels of the steel sashes at an elevation above the floor convenient for individual operation. In addition to this method of ventilating and providing natural illumination for the second floor, there are six skylights, each 13 ft. x 17 ft. in section and provided with two 12-in. ventilators.

The heating system is of the direct-radiation type with built-up pipe coils supported on the building walls and on the saw-tooth roof cross-girders in the paint shop and washroom and hung from the ceiling in the two-story section of the building. A hot-water system was also included in the heating plant and the hot water is piped to various points where required. As mentioned before, the feed and return mains from the heating plant enter the paint shop building from a reinforced concrete tunnel, 8 ft. x 10 ft. inside.

Artificial illumination is supplied in the paint shop and washroom by installing one d.c. multiple-series, flaming carbon arc lamp to every 14-ft. x 26-ft. section of floor space. The two-story section of the building, as well as points where individual lighting is required, is artificially illuminated by a liberal installation of tungsten lamps with deep bell shades. All lighting and power circuits are inclosed in pipe conduits attached to the roof trusses and ceilings.

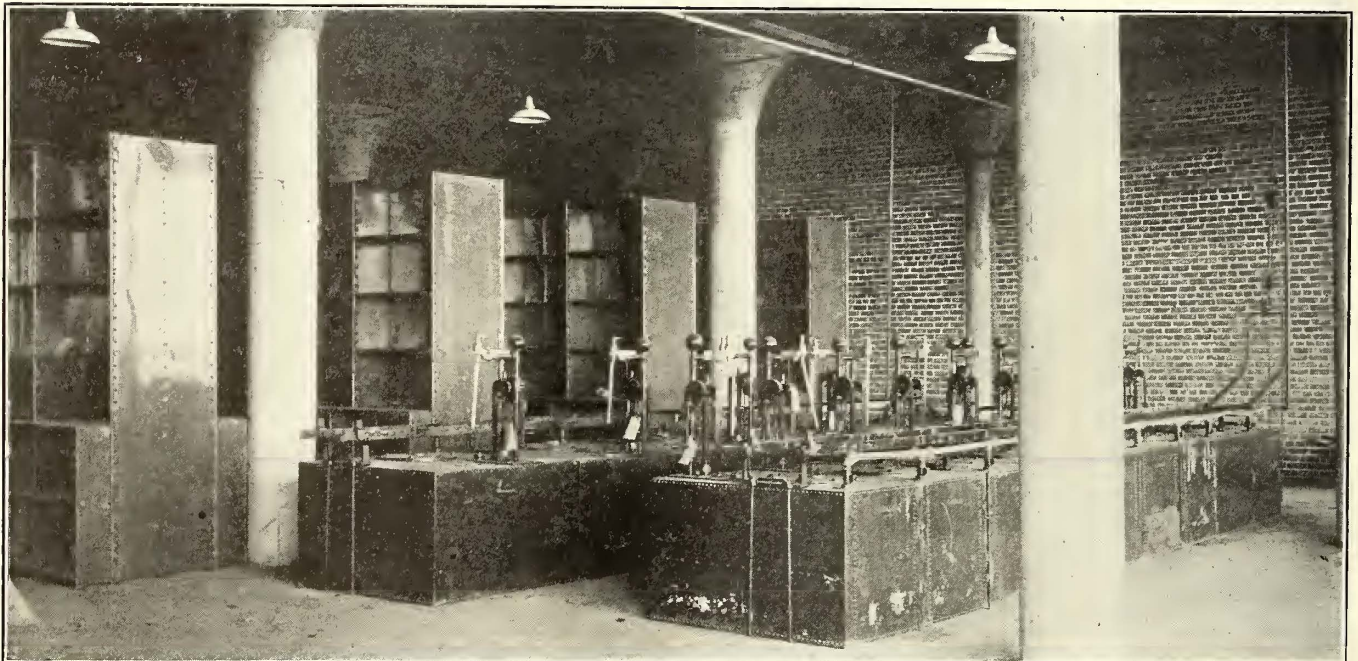
SHOP FACILITIES AND EQUIPMENT

Sanitary drinking fountains are liberally provided throughout the shop, and four toilet rooms of moderate

A reinforced concrete counter has been installed on the paint shop side of the stock room with a complete equipment of tilting bins. These bins are built of 3/16-in. steel plates, and they are 20 in. x 26 in. x 27 in. in size. Each bin is provided with pivot pins which rest in bearings in the reinforced concrete partitions under the counter. These bins are pivoted slightly off center so that they may be tilted easily to remove with a scoop the paint powder which will be stored in them.

In line with the general idea of permanency in all the construction features in this building, four solid concrete washing tanks 2 ft. 2 in. wide, 8 ft. long and 2 ft. 6 in. high were built into the car-washing room. A paint-mixing bench, a wash sink and a lye tank of similar construction were built along the Third Street wall of the paint stock room. A small platform of car height, built along the same wall with a gentle incline at one end, permits the paint and oil stock to be unloaded from a car set on the track outside of the building directly into the paint stock room.

Permanent scaffolding standards and brackets have been installed in the aisles between the tracks in the paint shop.



Detroit Paint Shop—Oil Storage Tanks in Paint Stock Room

size, two on each floor of the two-story section, have been installed. In addition to these, three toilets slightly larger in size have been provided on balconies supported on the partition between the paint shop and washroom.

In planning the new paint shop it was the intention of the company's engineers to equip it so completely that it would be necessary only to move the paint shop force and rolling stock when the transfer was made from the old Monroe Street shop. With this idea in mind a complete equipment of Lyon Metallic Company's steel shelving was installed in the storeroom, as well as an elaborate Bowser oil-tank storage system. The latter installation is complete for paint shop requirements and includes fourteen tanks, nine of 170-gal., four of 280-gal. and one of 550-gal. capacity. It is the intention that the oil storage in the 170-gal. tanks shall include boiled oil, brown shellac, wood alcohol, Murphy japan, light oil, carbon varnish, locomotive black, scraper's oil and Niles engine varnish. The brown shellac tank is fitted with a manually operated agitator. The 280-gal. tanks provide storage for outside and inside varnish, varnish remover and raw oil, and turpentine is stored in the largest tank, which has a capacity of 550 gal.

These brackets consist of 4½-in. standard wrought-iron pipes set 2 ft. 6 in. into the concrete floor. Each pipe is fitted with a pair of pulleys mounted in the casting at its top, over which passes a continuous chain supporting an iron counterweight within the pipe. This arrangement permits the cast-iron runway brackets to be raised and lowered to any elevation without undue effort. A manually operated locking handle fixes the position of the bracket on the pipe standard. Each standard between tracks is fitted with two runway brackets and those on the outside aisles with a single bracket. These permanent scaffolding standards are spaced at 13-ft. 1-in. intervals and the cast runway support is provided with lugs which limit horizontal movement of the runway plank to 12 in.

FLUSH TRANSFER TABLE

Although the flush transfer table is not new in its application to electric railway shops, novel features in the design of the ones purchased for the Detroit United Railway shops warrant a brief description at this time. Primarily these tables were designed for double-end operation, as it was intended that the tracks entering the paint shop building should extend across the table runway and connect into the double-track approaches to the shop site by way of

ladder tracks. After reconsidering the first plan the company's engineers decided that it would be more economical to eliminate track special work, which included a number of crossing frogs in the table runways, by making the table serve in its place.

Essentially the table comprises a pair of shallow-floor, through girders with a flanged wheel at both ends of each girder connected through worm gears and shafting to a 20-hp motor. These girders are 51 ft. long with 12 ft. 6 in. between centers. Compactly built floor beams $8\frac{1}{4}$ in. in depth make the height of the table rail $9\frac{1}{2}$ in. above the track rail at either end. The specifications called for a capacity sufficient to carry a loaded freight car, or approximately 70 tons.

At each end of the table is a structural steel trolley support which carries the trolley wire over the table. This bracket also extends beyond the end of the table so that it practically engages with the channel-iron trolley trough extending out from the building. It also carries the table trolley stand through which the propelling current is obtained. Just outside the girders is a walkway in the center of which a small cab to accommodate the operator has been constructed.

The table is moved by a Westinghouse 7-kw, 20-hp motor, which gives 400 ft. per minute travel loaded or 550 ft. per minute light. An ordinary controller is set up in the cab, and by shifting a level just outside the entrance the motor is thrown off the propelling gears and shafting on to a winch which was included in the equipment. Mounted on vertical bearings at each end of one of the girders are two idler niggerheads which, in combination with the winch and a cable, are used to pull cars onto the table.

The novel features in the design of these tables, which were built under the patents of George P. Nichols & Brother, include mounting the table wheels directly under the ends of the girders. This is done by a special cast bearing set under the girder end, which has been notched out to receive it.

The automatic aprons which are used as approaches to the table from the track rail are designed so that they are always in working position, either for movement of the table or to transfer a car. Each end of the table is equipped with these aprons, but only one is being used. They extend 7 ft.

tables naturally do not require pits, thus their use permits the track rails to be continuous across the runway without interfering with the operation of the table. The weight of each table and its equipment without load is approximately 35 tons.

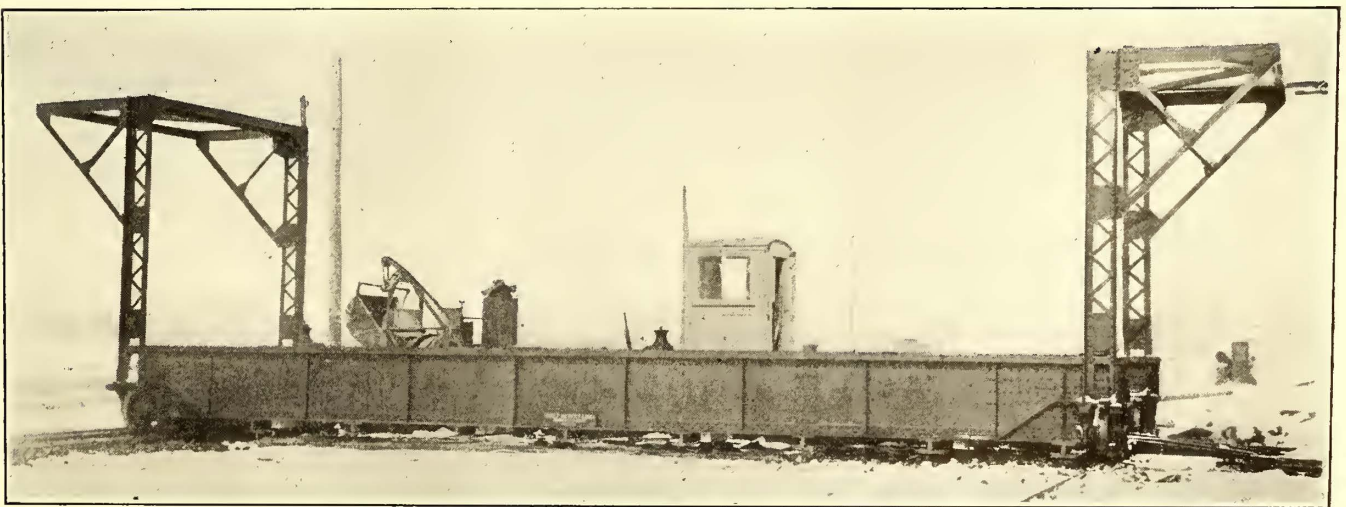
Before any steps were taken to prepare plans and specifications for this general repair shop layout, the engineers of the company, including Sylvester Potter, master



Detroit Paint Shop—Interior View of Employees' Locker and Washroom

mechanic; E. J. Burdick, superintendent of power, and John Kerwin, superintendent of tracks, under the direction of F. W. Brooks, general manager, visited a number of the most important general repair shops in the Central West to study the details of design and arrangement. Requirements of each department of the old shop, both for the present and future, were carefully considered, and as a result the detailed plans embody a number of novelties in equipment and arrangement.

Considerable interest is usually attached to the amount



Detroit Paint Shop—View of Flush Transfer Table

beyond the runway rail, and as a car takes the incline to or from the table the apron is forced down to a continuous bearing on the track rail. After the car has passed over, the apron raises to the normal or clear position. This is accomplished through a simple pair of levers, at the end of which a heavy coil spring is mounted so as to take compression when the load is on the apron. The flush transfer

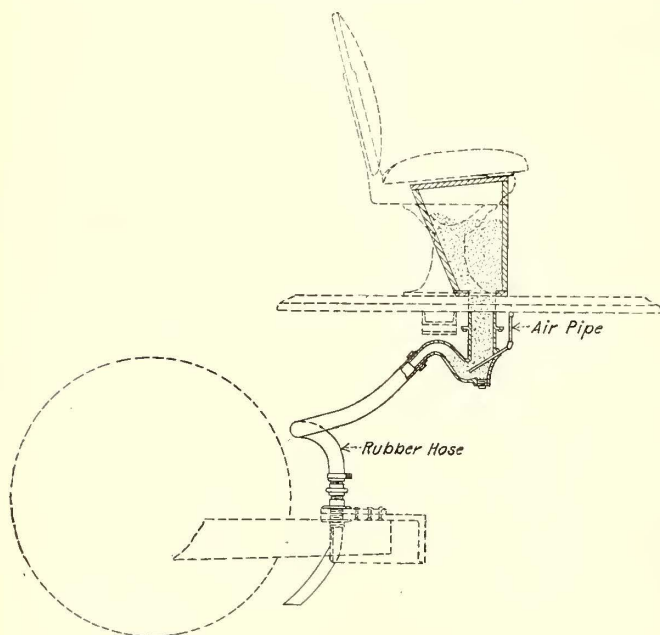
of floor space devoted to the various departments of any shop building as well as to the different departments of a general repair shop taken as a whole. From the detailed building plans completed up to this time by the company's architects, tables have been prepared showing the relative percentage and square feet of floor space devoted to the four shop buildings, as well as that devoted to the various

departments of the paint shop and machine shop buildings. These tables are shown below.

BUILDING AREAS OF NEW SHOPS, DETROIT UNITED RAILWAYS		
PAINT SHOP		
	Floor Space, sq. ft.	Per Cent.
Car washing room	6,325	7.7
Car painting room	31,625	38.5
Wash and locker room	2,695	3.3
Paint stock room	7,700	9.4
Stripper room	6,470	7.8
Glazier room	5,310	6.4
Varnish room	5,310	6.4
Scraper room	6,470	7.8
Sign room	7,700	9.3
Lunch room	2,695	3.4
Total	82,300	100
MACHINE SHOP		
Blacksmith shop	10,920	11.4
Machine shop	25,680	26.8
Truck shop	36,300	38.2
Motor and controller repair shop	22,500	23.6
Total	95,500	100
GENERAL		
Paint shop	82,300	18.35
Stock room	131,835	29.4
Machine shop	95,500	21.3
Carpenter shop	133,000	29.65
Heating plant	6,000	1.30
Total	448,635	100

SIMPLE SANDING DEVICE IN USE AT ROCHESTER

The Rochester (N. Y.) lines of the New York State Railways have equipped a number of their new cars with the simple sanding device shown in the accompanying illustration. A description of these cars was given in the *ELECTRIC RAILWAY JOURNAL* for April 5. Sand boxes are provided under four of the cross seats of each car and an outlet is provided in front of each driving wheel, the car being designed for single-end operation. Each sand box is equipped with an air-tight cover so that sand will not be blown into the car even if the sand pipe should become stopped up. Malleable-iron castings are bolted to the boxes below the floor, their form being like that of a sewer-pipe trap, and



New Sanding Device for Rochester Cars

air is discharged into the sand at the bend of the trap. The sand pipe is carried on the truck frame, and it is connected to the trap by a length of hose. It thus assures the delivery of sand on the rail at the point of contact of the wheel regardless of the alignment of the body with the trucks. The design is due to G. M. Cameron, master mechanic at Rochester.

BUFFALO RAILWAY MEN ON STRIKE

An almost complete suspension of service for four days followed the strike, called Sunday, April 6, of the motormen and conductors of the International Railway Company of Buffalo. Employees of the Buffalo & Lake Erie Traction Company and the Buffalo Southern Railway Company joined the International men by going out on Tuesday and Wednesday. Altogether about 1850 men, most of them motormen and conductors, quit work either as strikers or through fear.

Violence by street mobs quickly began, and in the first three days of the strike 400 cars were more or less damaged by missiles. In most cases the damage consisted only of broken glass. Tuesday night, on the admission of the police authorities that "the situation had got beyond their control," 2200 state troops were ordered out on a call issued by Justice Charles H. Brown of the Supreme Court of the State. The militiamen patrolled the principal streets and were massed at all carhouses, but even with this protection such effort as was made to run cars on Wednesday was unsuccessful. In many places the track was piled high with



Buffalo Strike—Auto-Truck Fitted with Seats and Used for Temporary Bus Service

loads of dirt, bricks, tree stumps and refuse of all kinds. The overhead wires were frequently cut, and for a short time the main supply cables of the Cataract Electric Company were out of service, having been cut between Niagara and Buffalo. This company supplies electrical energy for the operation of the traction lines in Buffalo.

STRIKE PRECEDED ORGANIZATION

An unusual feature of the Buffalo strike is that there was no formal organization among the men, who in fact have not yet received a charter or even a number as a local union of the Amalgamated Association of Street and Electric Railway Employees. The agitation which led to the present troubles was begun about six months ago by a local socialist newspaper publisher who lately induced two Amalgamated organizers to come to Buffalo. The union propaganda was started by resolutions adopted by the Central Federation of Labor asking for a conference with officers of the International. No employees of the company were directly represented in this move, and the company refused to treat with other labor representatives. About twenty-five employees who had been particularly active in their support of the Amalgamated organizers had been discharged up to April 5. These men, aided by less than 100 others, declared the strike and by the usual methods of intimidation induced the majority of motormen and conductors to leave their cars. Inspection of the company's depots showed them to be crowded with new men, many of whom were recognized as participants in the Philadelphia and other more recent strikes.

DEMANDS OF THE MEN

No formal demands were presented to the company, either before or after the strike, but the notice reproduced, which,

ARE YOU IN FAVOR OF THE FOLLOWING :

- 1st. 75 per cent of all runs on the schedules to be known as Earlies and Lates, and to be completed within 11 consecutive hours.
- 2nd. Swing runs to be completed within 13 consecutive hours.
- 3rd. All runs working less than 9 hours to pay 9 hours' time.
- 4th. Time and one-half for all time worked over the daily schedules.
- 5th. A flat rate of wages, 32 cents per hour.
- 6th. The right to have your grievances presented to the company by a committee of your organization.

If so, send in your application and one (1) dollar to W. F. Cattell, 52 W. Eagle St., Buffalo, N. Y.—The American Federation of Labor and the public in general are with you.

Fraternally yours,

W. F. Cattell, Pres. of Organizing Committee.

J. J. Thorpe, 1st Vice-President.

Wm. B. Fitzgerald, Member of General Executive Board.

W. D. Mahon, Int. Pres. Amalgamated Ass'n of Street and Electric Railway Employees of America.

THE COMPANY'S POSITION

President E. G. Connette of the International Railway Company maintained from the beginning of the trouble that he would confer regarding a settlement only with employees. Acting on this policy, he declined to meet the Amalgamated representatives on Tuesday at the request of the Mayor, who, however, has been in constant conference with them, including W. D. Mahon, international president of the Amalgamated, when he reached the city early in the week. Mr. Connette's first statement was issued on Tuesday and said that he would be glad to confer with former employees of the company at any time "after they have returned to work and resumed the regular operation of the cars." To a representative of the *ELECTRIC RAILWAY JOURNAL* Mr. Connette stated that he intended to adhere to this policy in spite of the pressure exerted by city officials, the press, the Chamber of Commerce and other agencies to induce the company to enter into conferences, an agreement or arbitration with the outside forces which had brought on the strike.

To proposals made Thursday through the Mayor for a settlement of the strike on a basis involving the reinstatement of all the men and negotiation by the company with "a committee of our association to take up grievances, requests and complaints," President Connette offered to agree if the proposals were changed so as to provide simply for a committee of employees. This offer was refused by the union representatives.



Buffalo Strike—Militia Entering City for Strike Duty

according to its authors, embodies "what the men would have asked for if they had had a chance," was placed in circulation.

The wages at present paid by the International Railway Company for platform work are: First year, 22 cents; second year, 23 cents; third year, 24 cents; fourth year, 25 cents; fifth year, 26 cents; sixth year, 26½ cents; seventh year, 27 cents; eighth year, 27½ cents; ninth year, 28 cents.

Following the customary practice in disputes of this kind, the Amalgamated representatives assert that when the men reach the higher scales of wages they are unjustly discharged, only to be shortly re-employed as new men or displaced entirely. While disproved by the company's records, this assertion has made a deep impression upon the public mind.

The W. F. Cattell signing the notice above quoted is the socialist leader and publisher who initiated the organization movement among the car men. His authority for using the name of the American Federation of Labor was questioned by labor men in Buffalo whose attention was called to this feature of the notice.

Governor Sulzer has instructed the State Labor Department to conduct a public investigation into the causes of the Buffalo strike.

A correspondent in *Power* remarks that while the regulation of the Diesel oil engine is excellent, his experience does not agree with the popular belief that "any kind of fuel" is good enough to use in it. Usually crude oil was found to hold too much water in suspension, and a small amount of water passing through the atomizer while the engine was under heavy load would cause the speed to vary very appreciably. The distillate known as fuel oil he found to be too thick, especially in the winter, as it would not run of its own accord. The arrangement of the suction valve on the usual Diesel engine governor would not seat itself except by the aid of springs and these did not act quickly enough with the heavy fuel oil to give good results. Kerosene, he said, was good but expensive, and in central Kansas the distillate known as "solar oil" had been found to be the only thoroughly satisfactory fuel. Its use, moreover, gave very low fuel costs.

Report on Traffic Conditions in St. Louis

The St. Louis Public Service Commission Presents an Analysis of Traffic Conditions in the Congested Sections of St. Louis
—It Recommends Certain Increases in Service Within Eight Months and Suggests the Trial of Trail-Car Service

The St. Louis Public Service Commission, composed of Joseph L. Hornsby, chairman, James A. Waterworth and James E. Allison, chief engineer, submitted on Feb. 17 to the Municipal Assembly of St. Louis Volume II of its report on the United Railways of St. Louis. Volume I, dealing with the finances of this railway, was abstracted

past the company and the public have had the benefits of an operating management of marked efficiency. There has in many respects been improvement in the service to the public and in the attitude of the management toward the public. Still, it is too much to expect of any management, however skilled and efficient and however desirous of obtaining the public's good will, that when forced to bend every effort toward making earnings on over-capitalization, it can at the same time give the service to which the public is entitled on the basis of a reasonable return on the actual investment in the service. Therefore, in order to obtain the service to which the public is entitled, it becomes necessary to set up by law the standards of service and to provide for the enforcement of these standards by the proper officials.

PRESENT AND REQUIRED SERVICE

In order to make an intelligent report on the crowd conditions of the service of the United Railways Company of St. Louis, it has been found necessary to make a thorough investigation of the present car service and the extent of crowding existing at different times of the day and night on each of the several lines operated by the company.

The ideal car service is one by which every passenger will obtain a seat, but in a large city with points of great congestion and hours at which great numbers are demanding service at once, it is hardly possible that such an ideal condition can be fully attained, no matter how many cars are operated, as the congested crowds will probably fill

in the ELECTRIC RAILWAY JOURNAL for Feb. 8. The following paragraphs summarize the principal features of Volume II, which relates to traffic conditions and recommendations for improved service:

The congested district of St. Louis has running into it twenty-one different lines of street railway track radiating

TABLE II.—LOAD CONDITIONS, ENTERING AND LEAVING CONGESTED DISTRICT

	6:30 A.M. to 9 A.M.	9 A.M. to 4:30 P.M.	4:30 P.M. to 7 P.M.	7 P.M. to 6:30 A.M.
	Cars Per Cent of Total	Cars Per Cent of Total	Cars Per Cent of Total	Cars Per Cent of Total
Cars observed.....	2,660	4,768	2,831	3,443
Cars with seats for all passengers.....	1,619	4,297	1,827	3,211
Cars with seats all filled and passengers standing.....	1,041	471	1,004	232
Cars with no load (less than six passengers).....	392	159	277	306
Cars with load, but not loaded beyond seating capacity.....	1,227	4,138	1,550	2,905
Eight or less passengers standing in aisle.....	416	393	398	164
Eight to twenty passengers standing in aisle.....	510	75	462	55
Over twenty passengers standing in aisle.....	115	3	144	13

NOTE.—In this table the empty or lightly loaded cars leaving the congested district in the morning and entering it in the evening are taken into account.

into twenty-seven different routes. On account of this fortunate condition, the surface transportation problem of St. Louis does not present the insuperable difficulties met with in some of the other large cities. The limits of the service have not yet been reached and there are possibilities for very great improvement.

While a very decided improvement in the service is feasible

from the standpoint of the capacity of the tracks and possible looping facilities, and from the standpoint of a reasonable return on the actual investment, yet the commission does not wish to belittle the difficulties to be met by the company, and in making its recommendations for an improved service, it recognizes that for a number of years

TABLE III.—LOAD CONDITIONS, CARS OPERATED ON CROSS-TOWN LINES

	6:30 A.M. to 9 A.M.	9 A.M. to 4:30 P.M.	4:30 P.M. to 7 P.M.	7 P.M. to 6:30 A.M.
	Cars Per Cent of Total	Cars Per Cent of Total	Cars Per Cent of Total	Cars Per Cent of Total
Cars observed.....	877	1,874	1,020	1,701
Cars with seats for all passengers.....	682	1,820	732	1,469
Cars with seats all filled and passengers standing.....	195	54	288	232
Cars with no load (less than six passengers).....	95	250	74	249
Cars with load, but not loaded beyond seating capacity.....	587	1,570	658	1,220
Eight or less passengers standing in aisle.....	97	37	118	151
Eight to twenty passengers standing in aisle.....	73	16	116	68
Over twenty passengers standing in aisle.....	25	1	54	13

from the standpoint of the capacity of the tracks and possible looping facilities, and from the standpoint of a reasonable return on the actual investment, yet the commission does not wish to belittle the difficulties to be met by the company, and in making its recommendations for an improved service, it recognizes that for a number of years

a time interval or "headway" between the car and its trailer.

During the course of the investigation into the service the commission's staff made and recorded more than 44,000 observations of the crowd conditions of cars, and also made a large number of observations of the routing at different

points in the city. Tables I to V show in condensed form the present conditions of the service as observed by the commission's inspectors.

In making its observations of the load conditions of the present service, the commission established five grades or classes of load to be recorded.

First—The O class, in which were recorded all cars containing six or less passengers. Second—The S class, in which the cars were well filled as to seating capacity but had no passengers standing in the aisle. Third—The X

gested district in the morning is from 6:30 to 8:30 a. m.

Cars observed in present service.....	1142
Cars required.....	1398
Extra cars required.....	256
Per cent increase required.....	22.4

The most crowded two hours of service leaving the congested district in the evening is from 4:30 to 6:30 p. m.

Cars observed in present service.....	1273
Cars required.....	1527
Extra cars required.....	254
Per cent increase required.....	19.9

TABLE IV.—LOAD CONDITIONS, CARS OPERATED ON ALL LINES

	6:30 A.M. to 9 A.M.	9 A.M. to 4:30 P.M.	4:30 P.M. to 7 P.M.	7 P.M. to 6:30 A.M.
	Cars Per Cent of Total	Cars Per Cent of Total	Cars Per Cent of Total	Cars Per Cent of Total
Cars observed.....	3,537	6,642	3,851	5,144
Cars with seats for all passengers.....	2,301	6,117	2,559	4,680
Cars with seats all filled and passengers standing.....	1,236	525	1,292	464
Cars with no load (less than six passengers).....	487	409	351	555
Cars with load, but not loaded beyond seating capacity.....	1,814	5,708	2,208	4,125
Eight or less passengers standing in aisle.....	513	430	516	315
Eight to twenty passengers standing in aisle.....	583	91	578	123
Over twenty passengers standing in aisle.....	140	4	198	26

class, in which the cars had eight or less passengers standing in the aisle. Fourth—The XX class, in which there were from eight to twenty people standing in the aisle. Fifth—The XXX class, in which there were more than twenty people standing in the aisle.

The commission then determined, by a series of observations and the application of averages, that making due allowance for persons voluntarily standing on the platforms, the average of involuntary standing passengers for class X was five persons, for class XX was fifteen persons and for class XXX was thirty-five persons. Having thus arrived at the number of passengers to be considered as involuntary standing passengers, the commission calculated the number of cars in each half-hour or hour period necessary to accommodate these standing passengers, allowing fifty passengers to each extra car required.

This requirement of an extra car for each fifty standing passengers seems to approach very closely to the standard of seats for all passengers, but an ordinance requiring extra cars on this basis differs materially from one requiring seats for all passengers, in that it does not place upon the company the responsibility of furnishing seats to passengers who board cars already filled when seats are obtainable in cars closely following.

TABLE V.—LOAD CONDITIONS, CARS OPERATED ON ALL LINES FOR TWENTY-FOUR HOURS

	Cars	Per Cent of Total (Record from maximum load points only)
Cars observed.....	19,174	81.6
Cars with seats for all passengers.....	15,657	81.6
Cars with seats all filled, and passengers standing.....	3,517	18.4
Cars with no load (less than six passengers).....	1,802	9.3
Cars with load, but not loaded beyond seating capacity.....	13,855	72.3
Eight or less passengers standing in aisle.....	1,774	9.3
Eight to twenty passengers standing in aisle.....	1,375	7.2
Over twenty passengers standing in aisle.....	368	1.9

A condensed statement of the present and required service is shown, as follows:

From the footing of Tables 17 to 19 (not reproduced) it is seen that:

The most crowded half hour of service entering the congested district in the morning is from 7:30 to 8 a. m.

Cars observed in present service.....	365
Cars required.....	461
Extra cars required.....	96
Per cent increase required.....	26.3

The most crowded half hour of service leaving the congested district in the evening is from 5:30 to 6 p. m.

Cars observed in present service.....	381
Cars required.....	495
Extra cars required.....	114
Per cent increase required.....	29.9

The most crowded two hours of service entering the con-

TWENTY-FOUR-HOUR SERVICE WEEK DAYS	Present Service	Required Service
Cars entering congested district.....	6825	7422
Cars passing observation points (both ways) on lines not entering the congested district.....	3741	3896

TWENTY-FOUR-HOUR SERVICE SUNDAYS AND HOLIDAYS	Present Service	Required Service
Cars entering congested district.....	4823	5025
Cars passing observation points (both ways) on lines not entering the congested district.....	3828	3913

CAPACITY OF TRACKS

The question of the capacity of the tracks of the United Railways Company, especially in what may be called the looping district bounded by Clark Avenue, Twelfth Street and Franklin Avenue, becomes an important one in connection with any requirement of additional car service. Observations showed that the maximum number of cars entering or leaving this congested district in any half hour was 381 cars, leaving between 5:30 p. m. and 6 p. m., and the highest number in the required service is 495 between 5:30 p. m. and 6 p. m. These two figures show that under the required service there will be an increase of approximately 114 cars operating in the looping district in the half hour of maximum service, or an increase of 30 per cent over the maximum half hour of the present service.

That this extra requirement is not an impossibility is shown by the fact that only every third car leaving or entering the district is required to have a trailer attached during the maximum half hour. Within the maximum half hour no line (with one or two negligible exceptions) will be required to have more than one trailer for every two cars now operated. The unknown factors which will enter on account of the use of trailers and the factor of interference from and interference with ordinary vehicle traffic make a detailed prearranged plan inadvisable, if not impossible. It may be necessary, however, for the city to grant freely any reasonable privileges for new looping facilities within the looping district which may be asked for by the company, and it is recommended by the commission that such privilege be granted without other conditions than will guard against an extension of already existing franchises in their present form.

COST OF ADDED SERVICE

Having the extra car service needed to establish the desired standard, there remains one important question to be determined, viz., whether or not the city can require said service and leave the company a reasonable return upon the investment in the service of the public.

From the data embodied in Tables 1 to 24 (not reproduced), the engineers of the commission have calculated the number of car miles necessary in addition to the present service in order to give the required service. It was found that in order to give the required service the company will have to add to its present operation approximately 3,276,264

car miles per year. The company's books show an average cost of operation over its whole system, including depreciation as charged on its books, of 18.25 cents per mile. The commission estimates that this cost per car mile as per the books should be slightly higher for the city than for the county, and places that figure deductible from the books for city operation at 18.45 cents per car mile. By its correction of operating expenses in the items of taxes and depreciation, the commission increases the cost of operation over book cost 8.6 per cent, which would make an average cost of operation within the city of 20 cents per car mile. In this estimate of cost per car mile there enter from the books of the company a number of items of general overhead expense, such as salaries of general officers, legal expense, certain reserve funds, etc., which would not in all probability be increased in proportion to the added car service. Nevertheless, the commission prefers to leave these items (about 2 cents per car mile) as a part of its estimate to offset the fact that in attempting to operate a greater number of cars in the morning and evening congested periods the company will find difficulty in obtaining a sufficient number of conductors and motormen as "trippers" at regular wages to operate the extra cars.

The operating cost of 20 cents per mile is calculated upon the basis of cars operating with their own motors and carrying a crew of two men, but in recommending the car service to be required the commission believes that it will be not only possible but very desirable to operate at least half of the added service by means of trailers, in which case the operating charges will be diminished by the wages of a motorman or 2.4 cents per car mile, making the estimated cost of operating trailers 17.6 cents per car mile.

If we assume that at least one-half of the 3,276,264 added car miles necessary to give the required car service will be from trailers (it will probably be a greater proportion), we have the total yearly extra cost to be:

1,638,132 added car miles at 20 cents.....	\$327,626.40
1,638,132 added car miles at 17.6 cents.....	288,311.23
	<hr/> \$615,937.63

It will be necessary also to add to the investment the cost of equipment to provide for the increased car service, and a return on this investment must be taken into account. The commission estimates the total number of extra cars needed will be 330. If one-half of these cars are assumed to be trailers and one-half to be the highest type cars of the present equipment, we will have an extra investment of:

165 motor cars at \$6,500.....	\$1,072,500
165 trailer cars at \$3,500*.....	577,500
Extra loops.....	150,000
	<hr/> Total extra investment.....\$1,800,000
Investment charges at 6 per cent.....	\$108,000
Taxes, 2.22 on 60 per cent.....	23,976
	<hr/> \$131,976

*Note.—\$3,500 is estimated to include cost of extra equipment necessary in the motor car to which trailer is attached.

The depreciation charges and insurance on the added investment are provided for in the car-mile cost.

Adding the estimated cost of operation of the required added car service (\$615,937.63) to the added annual taxes and investment charge (\$131,976) gives the total estimated annual additional expense of \$747,913.63, to furnish a service approximating the track capacity and of a standard of comfort beyond that of any large city. The commission believes that this estimate is high, but even if it is not, it has been shown in Volume I of this report that \$1,069,480.59 per year can be required in extra service from the company without depriving it of a reasonable return upon its real investment in the service of the public. The margin of more than \$300,000 here shown makes it safe for the city to require the added service here recommended without risk of doing the company an injustice.

FRANCHISE AND REGULATION

Under the present form of franchise the city has practically no power to enforce any regulatory ordinance until

after years of litigation, if the company chooses to contest the measure in the courts. However, the city can, with perfect justice, obtain efficient control and prompt obedience to all fair and reasonable regulation by a change in the franchises which would substitute for the right of absolute repeal, and the consequent confiscation, a right of transferable option on the property at a fair valuation. With such an option the city could at any time, when it is dissatisfied with the service, transfer the ownership of the property to a new owner, who would be required to reimburse the present owner for the fair value of the property. Such a provision would not only tend to produce prompt obedience to fair and reasonable regulation, but it would also tend automatically to limit regulation to what is fair and reasonable, for should the city enact unreasonable ordinances it would then find that no other set of investors would be willing to pay the fair value of the property and continue to operate it.

FORM OF ORDINANCE

In concluding its report, the commission submits a form of ordinance which does not attempt to specify the exact headways of cars or rigidly define routings and other matters subject to frequent variation but which simply fixes the amount of service to be given each day, and makes it incumbent upon the company to submit for the approval of supervising officials the details of operation of the cars required by law, giving the supervising officials power to order such changes in the schedules and routes submitted as they may think best for the service of the public. The power is also given to said officials to require a standard of maintenance of track and cars, and to require that the cars be kept well painted and clean.

The draft of ordinance as recommended fixes the time of the going into effect of Sections 1 and 2 at eight months from its enactment. In this draft the duties of supervision and enforcement are placed upon the Public Service Commission. The services specified are those referred to as "required" in the condensed statement hereinbefore printed.

APPENDIX

The report is accompanied by an appendix which contains the thirty-nine diagrams and twenty-seven tables upon which the recommendations made by the commission were based.

ANSWER OF COMPANY

An abstract of the reply of the United Railways to this report is published in the news columns of this issue on page 688.

CARS WITH 57-VOLT TUNGSTEN LAMPS

The Colorado Springs & Interurban Railway is equipping all of its cars with 57-volt, 25-watt tungsten lamps similar to those used in lighting steam railroad cars. Ten of these lamps are used in series, and as they have a thicker filament than the ordinary 100-volt tungsten lamps the company believes that they will have a much longer life than these. Already more than 1000 hours have been had from lamps which the company has been using in the two or three cars which have been equipped in this way, and no lamps as yet have burned out or broken. The only objection to the plan is that if one filament should break ten lamps would go out. The company provides for this by carrying in the car an extra lamp, which can quickly be inserted in place of the burned-out lamp, and also by having one circuit of five carbon lamps on the car. Two of these carbon lamps are inside of the car, two are under the hood of the rear platform and over the step so that they light the entrance, and one is in the front destination sign. Owing to this position of the carbon lamps the difference in the color of the illumination between them and the tungsten lamps is not conspicuous in the car. In the tungsten circuit there are also two lamps above the step so that this portion of the car is well lighted.

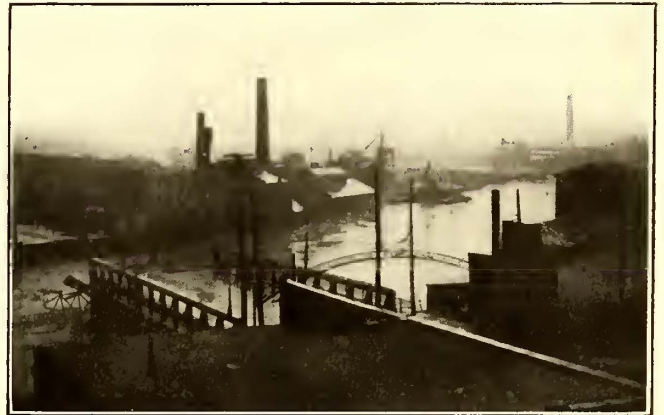
Additional Reports from the Recent Floods

A Number of Reports Have Been Received from Electric Railways Which Were Not Included in the Accounts of the Recent Floods in Indiana and Ohio Published in Last Week's Issue—These Reports Are Given, Together with Descriptions of Conditions in the Cities of Cincinnati and Dayton

In the last issue of the *ELECTRIC RAILWAY JOURNAL* an account was given of the disastrous floods occurring in the Middle West two weeks ago. At that time it was impossible, owing to the difficulties of communication, to obtain advices from all of the electric railways which were affected by the high water, and reports from several of these properties appear below.

Late reports indicate that the electric railways in general were decidedly fortunate in suffering no greater dam-

present it is impossible to get the coal en route for Dayton into the city. The loss is estimated at not more than \$10,000, as the tracks in the city were not damaged to any great extent. A reasonable amount of warning enabled the company to get its cars off the streets and into the carhouse, where the highest point reached by the flood was only 18 in. above floor level. However, the water rose to a height of 10 ft. in the power house, shutting down the boilers and washing away the coal. The generator floor,



The Recent Floods—Interurban Car and Street Railway Bridge in Columbus

age than that which has actually occurred, as the flood was without exception the worst in the history of the States of Ohio and Indiana. Conditions in the cities which, like Dayton and Columbus, suffered heavy damage are by no means normal as yet, and, indeed, it is likely that several weeks will go by before the destruction wrought by the high water is sufficiently repaired to permit the majority of the inhabitants to pursue their usual occupations. In all cases, however, it would appear that the electric railways throughout the flooded district have by extraordinary efforts succeeded

being about 10 ft. above ground level, escaped serious damage.

The Dayton, Covington & Piqua Traction Company did much in relieving the situation at Dayton, and after making temporary repairs to bridges and at washouts some of its cars reached Dayton with two carloads of boats and several carloads of provisions, clothing, etc. These cars were the first to enter Dayton, either steam or electric, and much relief was given to the flood sufferers, as there was no food or clothing to be had. As this line was the only inlet



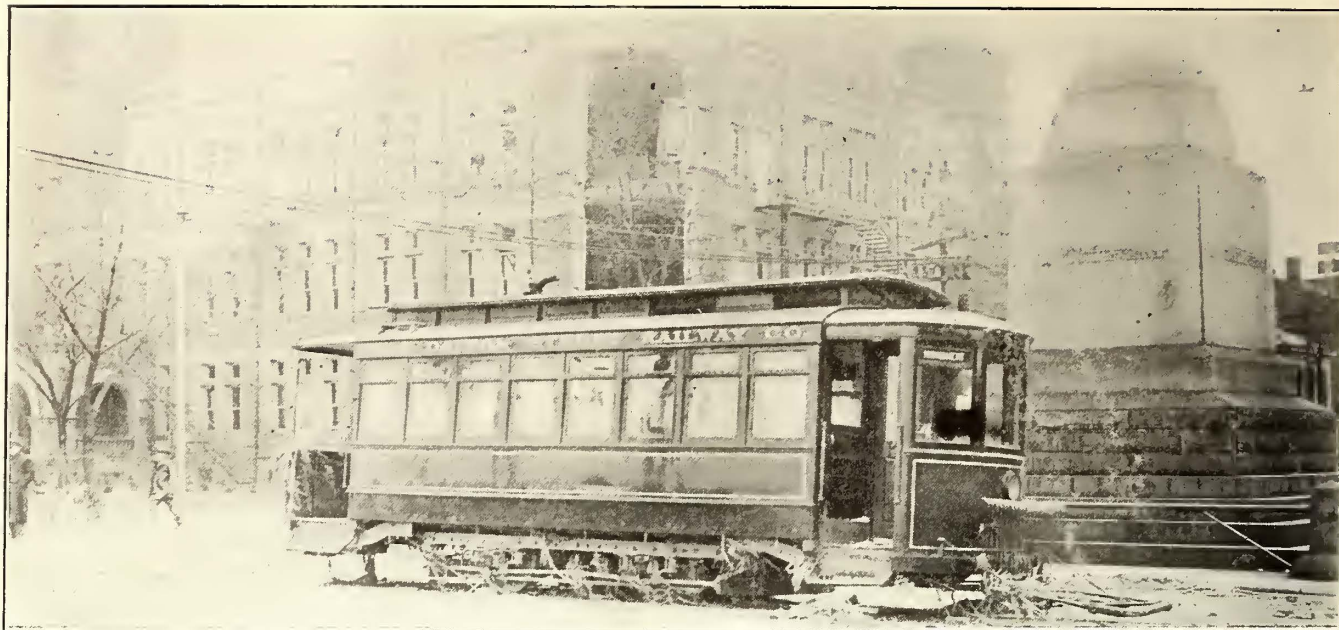
The Recent Floods—Parts of Railway Wreckage in or Near Columbus

in resuming service, and in many cases cars are even being operated on their regular schedules.

CONDITIONS IN OHIO

At Dayton the People's Railway reported that it had lost but two cars and that only one generator was damaged by water. Fifty to sixty poles were thrown down and destroyed. The company states that if it had coal it would be ready for service at any time, but the coal which was in the bunkers at the power house was washed away. At

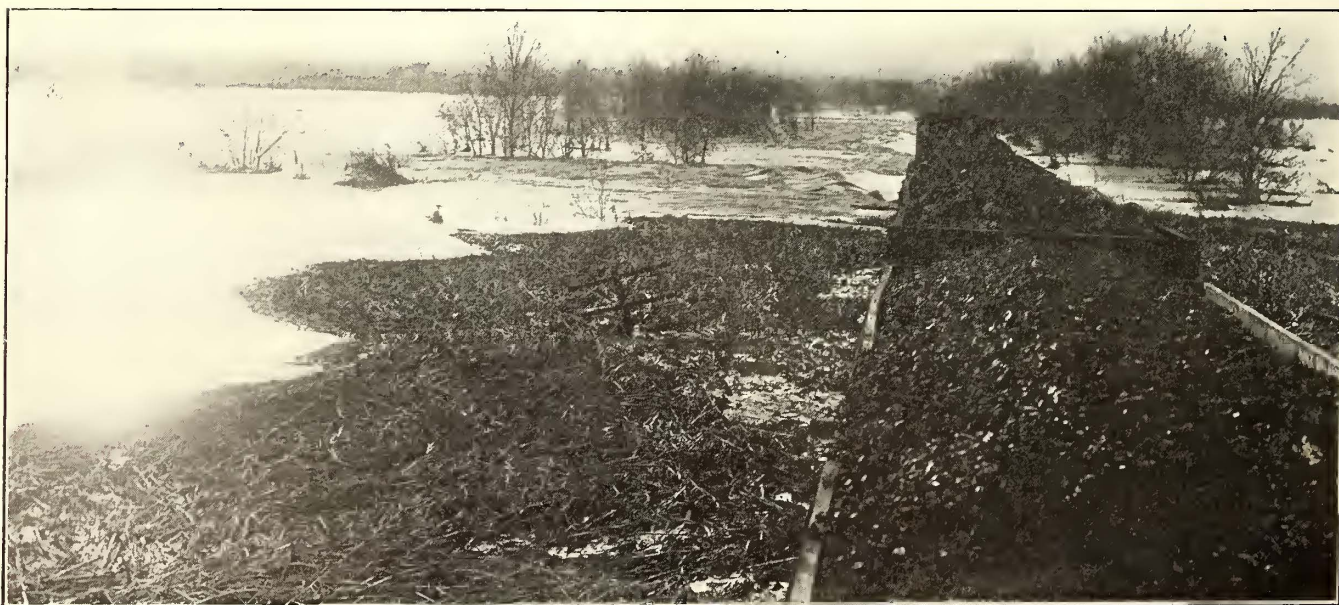
or outlet, the work of T. J. Brennan, general superintendent, together with the assistance of the farmers and residents of West Milton, was greatly appreciated. More than 100 people volunteered their services, and with flat cars and work trains the wreckage was taken out to make possible a regular schedule into the city of Dayton from all points. In addition to this, boats were taken from Overlook Park, which is operated by the Dayton, Covington & Piqua Traction Company, and used in rescue work in Dayton.



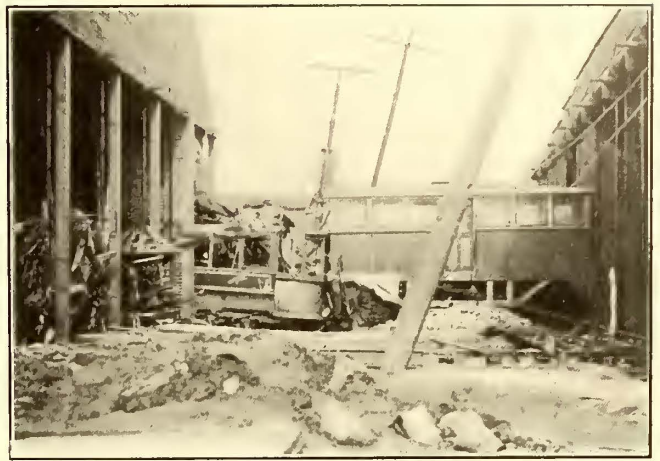
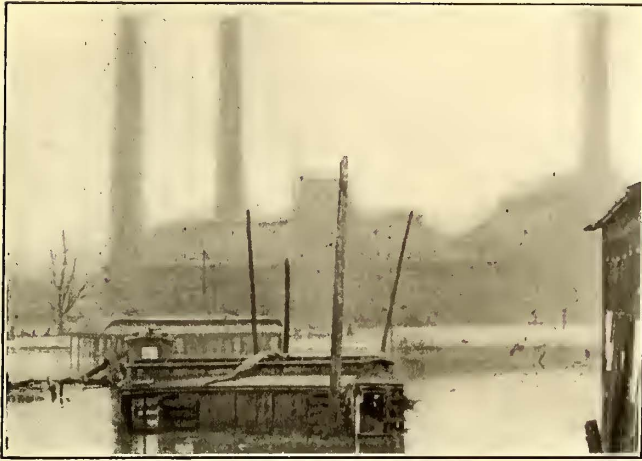
View in Dayton After the Flood, Showing Break in Walls of High School Building



View Near Clinton, Ind., Showing Interurban Tracks Turned Completely Over



Terre Haute, Indianapolis & Eastern Tracks Under Water Alongside of Steam Railroad Trestle



Scenes Near Municipal Lighting Plant and in the West Broad Street Carhouse at Columbus, Ohio



Ruins of Bridge and Scene at Joint Station of Union Traction Company and C. & O. Ry. at Peru, Ind.



Inundated Section of Anderson, Ind., Between Power House and Freight House of Union Traction Company



Freight House and Washed-Out Street and Track of Union Traction Company at Anderson, Ind.

Hourly service was maintained from the flood district, and several hundred people were carried out along the line to safety. Carloads of potatoes, bread, cornmeal and cooked food were sent daily into the city as well as relief cars to take care of the flood victims. Provision and relief trains are still running into Dayton and Piqua in addition to the regular schedule of passenger trains.

At Cincinnati the Cincinnati Traction Company has not suffered much loss from the recent floods except the loss in earnings and the increase in expenses due to the cutting off of some lines by the high water. In that city there were no such conditions as existed in cities in the upper Miami Valley, where bridges, tracks and structures were swept away. A number of the city lines were cut in two, some of them in several places, by the rise in the Ohio River and its tributaries, but the water did not reach the power houses. Aside from the necessity for making connections by boats, high-water cars, temporary bridges and other means between the disconnected portions of the lines the company has kept operating, all things considered, very satisfactorily. The high-water cars referred to are somewhat of a novelty, although they have been in use at Cincinnati for some years, as the bodies, together with the electrical equipment, are raised some 4 ft. or 5 ft. above

REPORTS FROM WESTERN INDIANA

Further reports regarding the Terre Haute, Indianapolis & Eastern Traction Company state that the interurban tracks and trolley poles in the vicinity of Clinton, Ind., were completely demolished for a distance of about 1½ miles. One of the illustrations on page 680 shows the site of the interurban track to the left and parallel to the Chicago & Eastern Illinois railroad track, the cars on it appearing above the water. At the time this picture was taken a wooden trestle several hundred feet long was submerged and a terrific current from the right passed over the Chicago & Eastern Illinois tracks and carried the stringers, ties and rails from the interurban trestle a considerable distance downstream. The reason that the steam railroad trestle was not carried away was that the piers were incased in concrete for quite a depth into the earth. The depth of water is indicated by the top of the telegraph pole which appears just above the driftwood at the left of the cars.

Further north from this point the rails, still fastened to the ties, were twisted into a complete spiral and washed off from the right-of-way. Another illustration shows a view of the overturned tracks and trolley poles in this locality after the water had partially receded.

To avoid lengthy delay in traffic while waiting for the



The Recent Floods—High Water at Lafayette, Ind., and Remains of Wild-Cat Trestle on the Fort Wayne & Northern Indiana Traction Company's Lines

the trucks, chained gears connecting the motors with the axles.

The Ohio Traction Company, which operates the Mill Creek Valley lines, has in no way been injured or reached by the flood except at its extreme northern end in Hamilton, Ohio. From Glendale to Hamilton this line was utilized exclusively in the transportation of food and supplies to Hamilton, which was badly damaged by the flood. This line was the only means of access to the city for a period of almost a week, and as many as eighteen and twenty carloads of foodstuffs and supplies were transported by it daily during that time, the supplies being shipped by the Mayor's citizens' relief committee. The Ohio Traction Company should not be confounded with the Ohio Electric Railway Company, which also operates an interurban line, of which a part extends between Hamilton and Cincinnati.

The Columbus, Marion & Bucyrus Railroad Company reports from Marion, Ohio, that it has been much more fortunate than its neighbors. The loss on account of the flood will not exceed \$6,000, the most serious trouble being the loss of a 72-ft. steel bridge, one end of which dropped into the river. This the company is now engaged in restoring to the proper level on cribbing, preparatory to the construction of a new abutment. There is no difficulty in securing men for the extra work along the company's lines, but bridge timbers are decidedly scarce. As the mills were generally located in the lowlands, the high water carried off logs and practically everything else, and the company has been compelled to secure heavy material from a distance and to depend on the uncertain deliveries on the steam road.

waters to recede, T. F. Grover, general manager of the Terre Haute division of this company, ordered a pontoon foot bridge to be built over the submerged section of the Clinton line, and passengers were carried to this point on the cars, unloaded and allowed to walk the remaining distance over the most direct route to Clinton. Through schedules on nearly all lines were, however, restored on April 8.

At Vincennes, Ind., the Vincennes Traction Company was obliged to discontinue the operation of one line for a part of one day, but otherwise the company was not affected by the flood.

On account of the rapid rise of water, service was discontinued by the Muncie & Portland Traction Company at dark on March 24. When it was apparent that the flooding of the power plant, shops and carhouse at Portland, Ind., was imminent, the cars were run to a high hill just west of the buildings of the company. Five minutes after this was done, the water reached the grates and put out the fires in the power plant. The water reached a height of 40 in. or 50 in. in the boiler room, but did not get to the engine room. It was 15 in. or 20 in. high in the carhouse and 18 in. high in the shop. However, no damage was done in the shops as everything possible had been removed from the floor. Operation was suspended entirely for two days and then four trains were placed in service between Portland and Albany, where the bridge had been damaged so that it could not be used for several days. About 2500 ft. of track was washed out and poles fell near Albany for a distance of 3000 ft., but the wires were not broken and the overhead work was ready for service without much delay.

Regular operation has been resumed. The damage to property is estimated at \$10,000, exclusive of the loss due to interruption of the service.

REPORTS FROM NORTHERN INDIANA

It was supposed that conditions on the Fort Wayne & Northern Indiana Traction Company would be serious at many points, as one of the interurban lines of this company extends through the valley of the Wabash River, but later accounts show that less trouble developed than was anticipated. There were two small washouts between Fort Wayne and Bluffton, but full operation on this line was resumed on March 29. It had been discontinued from March 25. The track from Fort Wayne to Huntington was not affected except at the Fort Wayne city line, where, however, the back-water did not cause damage. From Huntington to Logansport about 35 miles of track were under water. The depth of the water varied, but it reached as much as 8 ft. in some places. The only real damage done was that gravel ballast was washed out in a great many places, and the company has been replacing that with stone ballast. At some points where there was stone ballast no washouts occurred. Operation was suspended on this line on March 24, but on March 31 operation was resumed between Huntington and Wabash. The following day it was extended to Peru and the day after that it was extended on to Logansport. At Logansport the city service was discontinued from March 24 to March 29 on account of power trouble. The power plant at Lafayette was unable to furnish all the power required at Logansport and the power could not be transmitted from Fort Wayne. There was 8 ft. of water in the joint interurban station at Logansport.

At Logansport two spans of 124 ft. each of the bridge over the Wabash River went out. This left a space between Lafayette and Logansport where no service could be given and where no cars were available for service. The Wabash Railroad took an interurban car for the company to a point where there was a connection between the tracks of the two companies, and that was placed in service on March 28.

Just south of Lafayette the company lost 380 ft. of trestle over Wild Cat Creek. The flood swept the piling out, but all the bents were saved. The Lafayette Engineering Company has been driving piles, and it was expected on April 4 that this trestle would be in operation by the end of a week, permitting operation of the entire interurban line except over the bridge at Lafayette.

About 12,000 ties were distributed along the line, but it is estimated that not over 2000 of these were lost. At the Lafayette power plant the company lost coal bunkers and about thirty carloads of coal. The water reached the floor of the power house. The gas company and electric lighting plant at Lafayette were compelled to discontinue operation and the plant of the Fort Wayne & Northern Indiana Traction Company handled the entire load. City service was discontinued at Lafayette for only half a day. At Fort Wayne about forty men were kept working in twelve-hour shifts to protect the plant. They remained at the power house continually and food was sent to them by boat.

Service between Lafayette and West Lafayette has been discontinued as a pier of the joint county and interurban bridge went out and the bridge was no longer safe for operation. On the levee at West Lafayette about 1400 ft. of fill was washed out, but that has been restored so that operation can be resumed on both sides of the river and a ferry will be established until the question of improvement of bridge conditions is decided.

W. H. Fledderjohann, president Fort Wayne & Springfield Railway, estimates the loss of that company at \$20,000. This does not include the loss due to the suspension of traffic for the greater part of two weeks. The water in the St. Mary's River at Decatur, Ind., rose to a height 6 ft. above anything ever known before and flooded the property of the company at this point. Trouble began after midnight on the night of March 24, when the water reached

the boiler room in the power plant and put the fires out. As no power could be secured, the cars could not be moved from the carhouse. Three motor passenger cars, one motor freight car and the carhouse and shops had 3 ft. of water in them. The water did not go down for two days, and as soon as the equipment could be cleaned fires were built under the motors and they were dried out by this emergency method.

Partial operation was resumed at the end of about twelve days and full operation in a little over two weeks. The water did not damage the engine room at the power plant, as a pump was kept in operation in order to protect the equipment, which is surrounded by a concrete wall. A bridge over the St. Mary's River at Decatur was protected from damage by logs and debris by the employees, who organized to guard it. About half a mile of track north of Decatur was washed out by the water and there were one or two washouts of less importance. The Westinghouse Electric & Manufacturing Company sent two men to assist in the work of drying out the motors, and the employees of the company worked in twelve-hour shifts until this was completed.

The Marion, Bluffton & Eastern Traction Company had the abutments of a one-span 50-ft. bridge at Liberty Center washed out, but when these are repaired the bridge can be replaced. There was a short interruption to service on account of the flooding of the power plant of the Marion Light & Heating Company, from which power is purchased. An account of the experiences of the power plant was published in the *ELECTRIC RAILWAY JOURNAL* for last week.

The Chicago, South Bend & Northern Indiana Railway Company had a frame iron-clad carhouse, approximately 200 ft. x 250 ft. in size, blown down, and this damaged to a greater or less extent some fifteen cars which were stored there and also put out of commission a substation which was operated in one end of the carhouse. In addition to this six or eight shelter sheds were blown over and completely destroyed and a temporary end of the carhouse at Laporte was blown down. The company was not, however, affected by the high water.

After a hearing on April 9, the Railroad Commission of Indiana announced that it would employ an engineer to make a survey of the Wabash River at Peru to ascertain the needs of the river with respect to bridges. The expenses of making this survey will be borne jointly by the city of Peru, the Union Traction Company of Indiana and probably the Chesapeake & Ohio Railroad.

CONDITIONS AT LOUISVILLE

The Louisville Railway Company took precautions to protect its power plant from high water and thus prevented serious damage. The water in the Ohio River at Louisville on the highest day during the flood, April 2, was 1½ ft. below the high mark of 1884. Ample warning of the expected rise in the river had been received, however, so that preparations were made for meeting the emergency. This condition was due to the fact that floods are expected each spring in the Ohio River and Mississippi River cities, whereas with the companies in the northern and central parts of Ohio and Indiana the conditions that developed were without precedent.

The basement of the power plants at Campbell and Finser Streets, Louisville, is 6 ft. below the stage reached by the water in the river. The boiler room, however, is about 2 ft. 4 in. above the high point reached by the water, while the engine room is about 3 ft. above it. A brick wall was built around the condensers in the basement and drain pumps were operated continuously. Plans had been made to build a dike around the entire plant should that be necessary. When the water reached its high point in Louisville the operation of some lines was discontinued and some of the other lines were re-routed temporarily, as the city sewers were unable to carry off the large amounts of surface water which collected.

A NEW TYPE OF ELECTRIC LOCOMOTIVE.

The New York Central & Hudson River Railroad recently placed in service an electric locomotive of novel form, and as a result of an exhaustive series of tests upon it a contract has been awarded the General Electric Company for nine additional locomotives of the same design. The electric locomotives at present in service in the New York Terminal weigh approximately 115 tons, and while the new locomotive is considerably lighter, as it weighs but 100 tons, it is much more powerful, being provided with ample forced-air ventilation and designed with a view to continuous high-speed service. All the weight is carried on motor-driven axles, while the original locomotives have but 70 tons weight on the driving wheels. The new engines will exert sufficient tractive effort to haul a train weighing 1000 tons at 60 m.p.h. In regular service they have a capacity for developing 1400 hp continuously and can develop as high as 5000 hp for short periods.

The original New York Central electric locomotives had guiding wheels in the form of a pony truck with 28,000 lb. on the axle. There were four driving wheels, each carrying the armature of a direct-current, bipolar, gearless motor. To improve the riding qualities a bogie truck having two axles was substituted for the pony truck. A further

per cent greater than before and affording approximately 25 per cent higher speed.

In general, the locomotive may be described as having an articulated frame with bogie guiding tracks at each end. The cab containing the engineer's compartment and that for the operating mechanism is supported between the two parts of the frame on the center pins. Each section is equipped with two two-axle trucks having a driving motor mounted on each axle. These cannot be distinguished as main driving or leading trucks, since all the axles are driving axles, but they are termed for clearness rigid trucks and swivel trucks respectively.

The rigid truck is built up of heavy steel castings, the side frames being of a truss pattern with heavy top and bottom members and pedestal tie bars. The end frames and center cross frames are steel castings securely bolted to the side frames and supporting the magnet poles. The magnetic circuit of each truck consists of the armatures mounted on the axles, the magnet poles carried on the end frames, the side frames and an additional magnet bar forming a path in parallel with the side frames. The whole weight of the truck is carried on semi-elliptic and coil springs resting on the journal boxes and equalized together.

The main frame or backbone of the locomotive is a box girder built of 10-in. channels with $\frac{1}{4}$ -in. top and bottom



High-Speed Locomotive—General View Showing Arrangement of Cab and Trucks

development in a subsequent type was made by increasing the distance between the guiding trucks and the rigid wheelbase. The riding qualities were improved, but at a loss in mechanical efficiency; for about 40 tons of surplus weight had been added and were being carried by the bogie trucks for the sole purpose of guiding the locomotive. The addition of motors to the bogie trucks and the elimination of this ineffective weight was the next step, so that every pound of the locomotive weight would be instrumental in producing adhesion and tractive effort. A still greater separation of the fixed wheelbase and the guiding trucks has now been introduced in the new type, and this has lengthened the machine so as to necessitate constructing the running gear in two halves with a spring-connected articulated joint between the frames.

At the present time the New York Central & Hudson River Railroad is operating forty-seven electric locomotives in the New York Terminal service. Of these, thirty-five were built in 1906 and twelve in 1908. They are all of the 115-ton 4-8-4 type and each is equipped with four GE-84 bipolar, gearless motors. The new locomotive also has the bipolar gearless design, but it is equipped with eight GE-89 motors and is of the 4-4-4-4 type. Each of the motors has approximately three-fourths the capacity of the GE-84 motor used on the previous engines, making the aggregate capacity of the locomotive approximately 50

plates. It is approximately 10 in. deep by 36 in. in width and 22 ft. in length. The frame is bolted to the top member of the rigid truck and extends forward over the center plate of the leading truck and backward to the heavy hinge which connects the two halves of the frame. The main frame carries in its top plate the center pin which supports the weight of the operating cab. All these center pins are hollow and serve as air passages, the main box girder frame acting as a distributing reservoir for the air delivered from the blower in the upper cab through the upper center pins and conducting it to the eight motors below.

The construction of the swivel or leading truck is similar to that of the rigid truck, except that it carries a center pin and is connected to the main frame through this center pin instead of being bolted rigidly to it.

This type of design affords a long flexible wheelbase with eight axles but restricts the length of any rigid portion to not more than 6 ft. 6 in. All the axles are equipped with motors, but the magnetic circuit for each truck or pair of motors is self-contained and relates only to the two axles in that truck.

The cab, carried on the two center pins as stated, has its weight distributed between the two halves of the locomotive frame. It is the box type 35 ft. in length and 10 ft. wide. The interior is divided into three sections. A motor-man's compartment is located at either end and contains

the motorman's seat, controller, air brake, valves, bell and whistle rope handles and such parts of the control apparatus as have to be within reach of the operating engineer. In the central section of the cab are the air compressors, blowers, contactors and rheostats, grouped so that they are conveniently accessible for inspection and repair and separated from the direct reach or attention of the operating engineer. The advantage of this arrangement is that it removes from the sight of the engineer running apparatus which might serve to distract his attention from the actual work of handling the locomotive and which can be inspected and attended to by his assistant. This general type of construction leaves a fairly long platform on either end of the locomotive. Access to the cab is obtained through doors opening onto the platform.

The principal dimensions of the locomotive are shown in the accompanying line cut, the extreme over-all width being 10 ft. The total weight is 200,000 lb. and the weight per axle is 25,000 lb., of which 6395 lb. is dead weight.

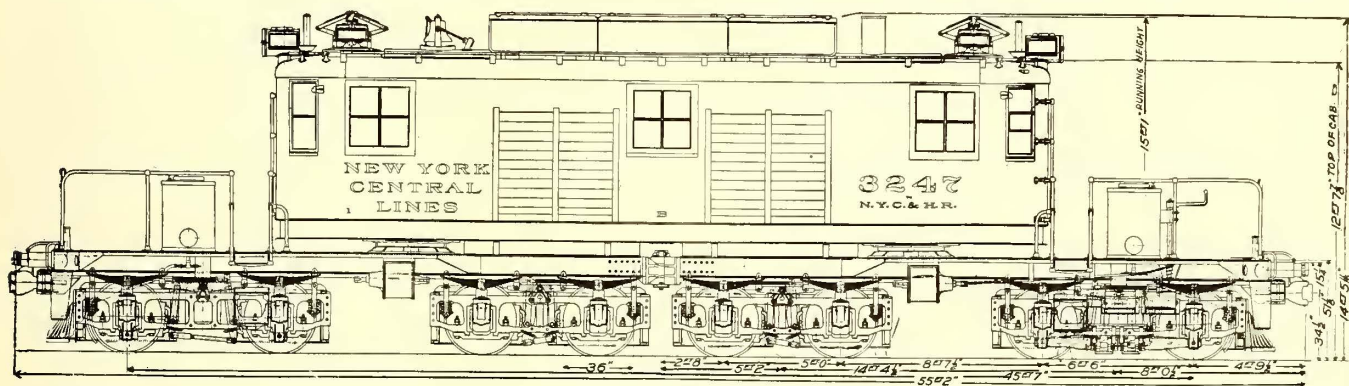
There are four independent magnetic circuits in the locomotive corresponding to the four trucks. The magnetic flux path on each truck passes in series through the fields and armature of one motor, through the center transom and the fields and armature of the second motor to the end frame and then returns to the starting point through the two side frames and a reinforcing magnet bar lying parallel with the frames.

The motor is practically inclosed, and the field coils are waterproofed and armored. Each field coil is wound in a

General Electric type M. The external regulating resistance, divided into four parts, is directly connected, each part to a pair of motors permanently grouped in parallel. The pairs of motors with their respective resistances are connected all in series on the first point of the controller. The resistance is varied through eight points on the controller and finally short-circuited on the ninth or running point. The pairs are then operated similarly in series-parallel with all resistance cut out on the seventeenth point. Finally all the pairs are connected in parallel, with the twenty-fourth step a running point. This provides a control with nine steps for series, eight steps for series-parallel and seven steps for parallel.

The transition between series and series-parallel is effected without opening the motor-circuit, and there is no appreciable reduction in tractive effort during the change. The smooth transition between points, both rheostatic and transitional, permits motor operation close to the slipping point of the wheels. The locomotive weight on the drivers is so proportioned that the motors operate safely up to the slipping point, which serves as a limit to prevent overloading. The transition between all four pairs of motors in series to series-parallel is accomplished by short-circuiting two of the pairs of motors during the instant of transfer. The transition between series-parallel and parallel is effected by means of the standard bridge method.

The motor cut-out switches are connected so that any pair of motors may be cut out of circuit. The locomotive will operate when a pair of motors is cut out with two groupings



High-Speed Locomotive—Elevation Showing General Dimensions

brass shell, the windings being in two decks of flat-ribbon copper laid side by side. The outside turn is covered with insulation, and an armor of sheet steel is clamped over it, filling the space between the sides of the shell in such a way as to protect the windings from water or mechanical injury. End shields are provided for each motor, which render it dust-tight and as nearly water-tight as is possible in any motor designed with necessary outlets for forced ventilation.

Each motor at its one-hour rating has a capacity of 325 amp on 600 volts, or a continuous rating of 260 amp on 600 volts under forced ventilation. For the complete equipment of eight motors this corresponds to a capacity of 13,500 lb. tractive effort at 54 miles per hour for the one-hour rating and 10,000 lb. tractive effort at 60 m.p.h. continuously.

Electrically the motors are connected permanently in parallel in pairs, and the pairs can be connected in three combinations: viz., series, series-parallel and parallel. They are insulated for 1200 volts, so that if at any future time it should be desired to operate the locomotive on 1200 volts, the permanent connections for the four pairs of motors could be changed from parallel to series and the same speeds and control combinations as on 600 volts could then be obtained.

The control equipment on the locomotive is the Sprague-

of the motors, the first with two pairs of motors in series and the second with three pairs of motors in parallel. An ammeter is located at each engineer's position and records the current in the circuit of one pair of motors. The ammeter and air gages are illuminated by a gage light connected in the headlight circuit, so that the headlight switch simultaneously turns on the headlight and the gage light at the same end of the locomotive.

Current is collected by eight underrunning third-rail shoes, or by two overhead trolleys when on gaps in the third-rail. The overhead trolleys are the pantograph type and are pneumatically operated. They can be put into service from either engineer's position by a foot-operated valve. The trolley is designed for intermittent use and is therefore arranged to be held in a raised position only while the valve is held open by the engineer's foot.

The blower set provided for ventilating the driving motors is located in the central compartment. It has a capacity of 24,000 cu. ft. of air per minute and is driven by a series-wound motor of the railway type. The air compressor is the CP-26 type. It is a two-stage motor-driven compressor with a piston displacement of 100 cu. ft. of air per minute when pumping against a tank pressure of 135 lb. per square inch. The air is taken from the interior of the central compartment through a screen, which prevents the entrance of particles of dust.

BAKED ENAMEL FOR PAINTING STEEL CARS

At a meeting of the American Society of Mechanical Engineers in New York on April 8 the general subject of the design of steel passenger cars for steam railroads was discussed. Among the papers presented was one by C. D. Young, who included a description of the process of baked enamel painting which has just been introduced at the Altoona shops of the Pennsylvania Railroad.

The process is similar to that introduced some time ago on the Hudson & Manhattan Railroad and described in the *ELECTRIC RAILWAY JOURNAL* for Jan. 25, 1913, except that on the Pennsylvania Railroad both the exteriors and interiors of the cars are baked. In addition, steam heat is used instead of electric heat, as in the case of the Hudson & Manhattan process. In part, Mr. Young's paper is as follows:

Artificial driers and gums are used with air-drying paints to hasten the time of drying and hardening of the various coats and to permit the necessary rubbing. These ingredients continue the hardening action for a long time so that the paints and varnish increase in hardness and brittleness,



Baked Enamel Painting—Interior View of Kiln

becoming susceptible to cracking and chipping. This action is heightened by the excessive expansion and contraction of the steel surfaces as compared with wood, as the linear expansion of steel is more than twice that of wood, and consequently the use of more elastic coatings than formerly used for wooden cars seems necessary.

This fact has been borne out in a recent investigation where it was noticed that when some of the equipment had been in service about four months the interiors of the cars were showing varnish cracks and checks. Some 400 cars were carefully examined, special attention being paid to choose cars built by various manufacturers, where different makes of surfacers and varnishes had been employed.

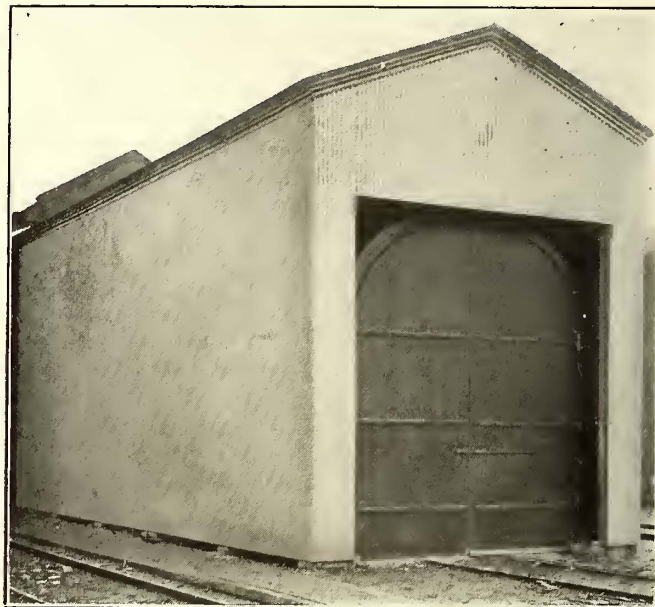
The result showed that the exteriors, including the sides, ends and vestibules, were in fair condition. There were a few exceptions to this, but they amounted to less than 6 per cent of the total which had serious varnish and surface cracks. Interiors were found generally to be in a poor condition. About 80 per cent of the equipment examined had the varnish checked through to the surface. Some of these conditions developed after four to eight months' service, indicating that either an entirely new system of painting would be necessary to overcome these troubles or that a more elastic paint would have to

be used for interior finishing under the present existing practice of painting steel.

To obtain data indicating what should be done to meet the conditions, preliminary experiments were made by painting a number of panels and baking them in a heated oven. Repeated experiments along this line indicated that artificial driers could almost, if not entirely, be eliminated in the paint formulas and that more elastic materials could be used without the aid of artificial oxidizing agents. It was also observed that the elastic varnish used on the exterior of the cars could, under this system, be used to advantage on the interior, and by the aid of the heat of the oven they could be dried to the desired hardness, permitting the rubbing with oil and pumice to get the "flat finish."

The outcome of the experiments indicated that it would be desirable to extend the experimental panels to a full-size car and therefore a proper baking oven was planned that would accommodate one of the largest existing steel passenger cars for the purpose of baking each coat as applied to the exterior and interior surfaces.

This oven, as designed and built by the Pennsylvania



Baked Enamel Painting—Exterior View of Kiln

Railroad Company at its Altoona shops, is 90 ft. 3 in. long, 13 ft. wide and 15 ft. high. The framework of the structure is made up of 3-in. I-beams for the sides, spaced 5-ft. centers. The roof framing is made of the same sections and is curved to conform closely to the contour of the car roof. Each end of the oven has two large doors which can be readily opened and closed for the baking operation. The oven is lined on the inside with $\frac{1}{8}$ -in. steel plate and on the outside with galvanized iron of 22 gage. The 3-in. space is filled with magnesia lagging, thus effecting the needed insulation. The doors are insulated in a similar manner.

Along the walls of the interior of the oven are placed sixteen rows of $1\frac{1}{2}$ -in. steam pipes, and along the floor, close to the walls, are arranged manifold castings with small lengths of pipe tapped into them at right angles. By this means over 2000 sq. ft. of heating surface is provided. A steam pressure of approximately 100 lb. to the square inch is used, thus making it possible to get an oven temperature of over 250 deg. Fahr. Rectangular openings, made adjustable, are provided on the sides near the floor line, allowing the necessary admission of air for circulation. Four 8-in. Globe ventilators are spaced at equal distances in the roof, likewise provided with dampers to regulate the size of the opening. By this means of ventilation,

fresh air, which is required for the proper drying of paint, is obtained and the egress of the volatile matter present is provided for. Automatic ventilation and steam regulation have not at the present time been applied, but these have been considered advisable if the result of the experiment seems to warrant a more extended application of the practice.

A track is placed on the floor of the oven and connected at each end of the oven with other tracks leading into the regular paint shop, where the different coats of paint are applied to the car before each baking operation.

The outline of the work of painting a car is briefly as follows: First, a priming coat is given to the exterior and interior of the car, which is then moved into the oven and baked for three hours. The temperature at the start is about 160 deg., but rapidly rises at about 1 deg. per minute until a temperature of 250 deg. is reached, requiring about one and one-half to two hours. The oven is held at this temperature until the lapse of three hours, when the car is withdrawn and allowed to cool sufficiently to work upon, after which the surfaces are glazed and depressions and uneven places puttied. The car then receives its first coat of surfacer, is returned to the oven for three hours, and is baked and removed for additional coats, which vary from two to three in number as the needs of the case require.

After the last coat of surfacer has been applied and baked, the outside surface of the body of the car is rubbed down with emery cloth and oil to produce a flat and smooth surface. The various color coats used, such as tuscan red on the outside, pale green, bronze and bronze green on the inside, are then put on. Two coats of each color are required to get standard shades. Each coat of color is likewise baked.

The car then receives the required lettering, striping, etc., after which the outside and inside surfaces get three coats of a high-grade finishing varnish especially adapted for the baking process. Each coat of varnish is baked at a temperature from 120 deg. Fahr. at the start to 150 deg. Fahr., which is maintained until the expiration of three hours. The interior surfaces of the car are then rubbed with pumice and oil, giving the "flat-finish" effect desired, thus completing the painting of the car.

All of the work done by the baking process of painting for steam railroad coaches can be accomplished in six to eight days, thus effecting a saving in time of about ten days as compared with the standard or present air-drying system. Further, the paints and varnishes have been worked up so that they are especially adapted for this baking process, having greater elasticity. Exact formulas for the various mixtures are well defined, so that uniformity in material is expected, thus giving greater durability, better appearance and longer life for the paint work.

The checks and cracking previously found will be considerably lessened, if not almost removed. By oven painting the work is done under more uniform conditions, which at the present time are so hard to control. It enables the surfaces of the car to be heated uniformly and dried thoroughly, thus removing any objectionable moisture before the first priming coat is applied, which is a very desirable feature of the new method.

A considerable saving will be effected by the shorter time that cars will be held out of service when undergoing repairs and repainting in the shops. It is expected that dirt, soot, etc., will not adhere or embed themselves so readily and that the general appearance of the car will be improved by the baking method.

This oven was placed in service the early part of this year and the results of the complete car at this time seem to justify the experiment. They seem to indicate that the results obtained from a small panel can be duplicated in the full-size passenger equipment car and that, if this is the case, this method of painting can be used not only to ad-

vantage for the painting of steel passenger cars but for the painting of any other full-size steel structure of a similar character where protection and finish are desired.

The all-important point in the painting of iron or steel surfaces is first to have the surfaces thoroughly cleaned and rendered free from scale and rust, as this is as important as the painting itself. To accomplish this sand-blasting, where possible, is resorted to, supplemented by the use of wire brushes and emery cloth in the more obscure places and the more uneven surfaces. The sand-blasting, however, is confined largely to the outside surfaces and the latter practices to the inside portion of the car.

Iron and steel, while not presenting to the eye the same porous condition as wood, are full of finely divided pores, and the same atmospheric influences which enter the pores of wood and cause it to decay are ever ready to attack the unpainted surfaces of iron and steel; in fact, the metal surfaces more readily combine with the oxygen and moisture of the air, forming rust. Therefore, immediately after the sand-blasting and cleaning of the surfaces should come the application of the first or primary coat, as this is the most important one from the preservative standpoint.

FINAL HEARINGS ON NINE-HOURS-IN-ELEVEN BILLS

In the April 5 issue of the *ELECTRIC RAILWAY JOURNAL*, page 640, an abstract was given of the testimony of Vice-president C.S. Sergeant of the Boston Elevated Railway Company upon the proposed bills limiting a day's work of motormen and conductors on Massachusetts street railways to nine hours' service performed in eleven consecutive hours, the measures being before the Legislature at the present session. Among the other opponents of these bills is the Massachusetts Street Railway Association, representing substantially all the companies in the State outside the Boston Elevated. Among the officials who appeared last week before the legislative committee on street railways, which has the matter in charge, was Robert S. Goff, president of the Massachusetts association and vice-president and general manager of the Bay State Street Railway. Prof. Albert S. Richey, of the Worcester Polytechnic Institute, who has been employed by the company for the past three years as a transportation expert, with special work in the field of schedule making, also appeared before the committee and discussed the probable effect of the proposed legislation upon the Bay State system, which now includes nearly 1000 miles of track in eastern Massachusetts and its borders.

Both of these officials showed that it would be impossible to supply the crews for taking care of both peaks of traffic without the employment of a large number of extra men for short periods only. This would mean that these extra men as well as the regular men would work short periods and the plan would reduce the total number of men who could have a full day's work. Similar testimony in regard to their respective roads was presented by Henry C. Page, general manager Worcester Consolidated Street Railway; Elton S. Wilde, vice-president Union Street Railway, and other street railway officials. Final arguments of counsel were heard on April 8 and were presented for the Boston Elevated Railway by Arthur A. Ballantine and for the Massachusetts Street Railway Association by Bentley W. Warren.

The Mississippi River Power Company, Keokuk, Ia., announces that the water-power plant now nearing completion in the Mississippi River at Keokuk will be turned over to the operating department in June of this year. Already the water has been raised 12 ft. behind the dam, while the power house building itself is practically completed. Three units are now in place, and one of the exciters is ready for operation.

News of Electric Railways

Provision of the Maine Utility Bill

The bill passed by the recent Maine Legislature creating a public utilities commission and signed by the Governor of that State abolishes the present Railroad Commission and vests authority over the railroads in the new commission. The authority of the commission extends to street railways, electric railways, railroads, express companies, gas companies, electric light and power companies, telephone companies, water companies and other public utilities, and these companies are defined in the act, which goes into effect on July 1, 1913. The commission is to consist of three members to be appointed by the Governor with the advice and consent of the Council. One of the members is to be designated as chairman. The salary of the chairman is to be \$5,000 a year, and the salary of each of the other members \$4,500 a year. The salaries of the assistant clerk and other employees are fixed by the measure. The first chairman is to hold office for seven years and the other members are to hold office for five and three years respectively. Each of the members thereafter appointed is to hold office for seven years.

All corporations which come under the jurisdiction of the act are to furnish such information as may be desired by the commission to carry on its work or are to give their reasons for failure to supply such information. The commission is authorized to require the production of books, records, etc., and to subpoena witnesses. Every public utility is to render to the commission in prescribed form accounts of all business transacted. The commission is empowered to prescribe the form in which books, accounts, papers and records are to be kept. Such accounts are to be closed annually on June 30 and the balance sheet, together with such other information as the commission may prescribe, verified by an officer of each company, is to be furnished to the commission on or before Sept. 1 following. All items are to be allocated to the separate accounts in the manner prescribed by the commission.

Schedules, rates, tolls and charges are to be filed with the commission and the rates, tolls and charges which were in force on Jan. 1, 1913, are to be the rates, tolls and charges in force when the new act goes into effect. Such schedules as the commission may order are to be printed and open to the public. Changes in rates are not to be made except upon ten days' notice to the commission and all the schedules are to be printed and open to the public. There is to be no unreasonable preference or rebate. No franchise or permit is to be granted to any person, association or corporation to operate a utility in any city or town where a similar utility exists except the commission deems the second utility a public convenience and necessity.

Accidents are to be reported to the commission, which is to conduct an investigation and to make such recommendations as in its judgment may seem reasonable. The commission is empowered to ascertain the physical valuation of public utility property. All issues of stocks, bonds and notes by public utilities must be authorized by the commission. Section 37 of the act says that "no public utility shall declare any stock, bond or scrip dividend or divide the proceeds of the sale of its own or any other stock, bond or scrip among stockholders without the consent of the commission." The utilities are prohibited from selling, leasing or mortgaging their property without an order from the commission and are not to acquire the stock of other companies without permission.

The commission is empowered to order physical connections between different lines and also the joint use of facilities and equipment. The details are set forth at length in regard to the procedure in connection with complaints brought before the commission. Full and complete records are to be kept of all proceedings before the commission. The burden of proof is to be on the party adverse to the commission or seeking to set aside any order of the commission. Penalties are fixed for the failure or refusal of public utilities or their officers to obey orders of the commission or to refuse to allow the commission to investigate their affairs. Every failure to obey an order is to be

considered a distinct offense. Penalties are provided for misappropriation of proceeds of the sale of stock, bonds, etc. Appeal to the courts is provided on questions of law which may be raised.

Statement of United Railways, St. Louis, to Public

In an advertisement which was published recently in the daily newspapers of St. Louis, Mo., the United Railways of that city dealt at considerable length with the recommendations accompanying the final report of the Public Service Commission of St. Louis upon the company, published on pages 676-678 of this issue. This report contained the draft of an ordinance so to increase the rush-hour service as to provide a seat for every passenger. The commission recommended the installation within the next eight months of 165 motor cars, 165 trail cars and extra loops at a total cost of \$1,800,000. The company said that many important items had been omitted from the cost as estimated by the commission and that additional power plants, substations, feeders, carhouses and shops costing \$1,750,000 more would be needed. The company concluded its statement to the public in part as follows:

"The amount to be raised and expended is \$3,550,000. The present mortgage debt of the United Railways is in round numbers \$59,000,000. This mortgage debt has been legally issued, is outstanding in the hands of the investing public, and must be recognized by the company. Any indebtedness now created by the company must be subject to this mortgage debt. The Public Service Commission has reported the value of the property of the company to be only (in round figures) \$38,000,000, or \$21,000,000 less than the mortgage debt. Whom could the commission find that would lend to a company so insolvent as it reports this one to be the \$3,550,000 at 6 per cent with or without security? This shows the inconsistency of the report and recommendation of the commission.

"This company does not concede the correctness of the commission's valuation of its property. Nevertheless, the valuation of the commission has impaired the credit of the company and depreciated its securities in the hands of investors. It is idle to say now that the company is overcapitalized. It has issued its securities and they are now in the hands of the public. It must pay or repudiate its obligations. If it repudiates them all the consequences of insolvency must follow. Every attack upon the company, every unjust or unfair criticism, every impracticable suggestion or operation or exaction, makes its task more difficult.

"The mill tax has been a great impediment to progress. No person or corporation in Missouri pays as much in special and general taxes as the United Railways, the taxes of which, apart from the mill tax, amounted in 1912 to \$652,222, or about \$2,000 per day.

"The public generally does not understand the mill tax, and in consequence misjudges the company for resisting the collection of the tax. The company feels that this tax is unjust and illegal. It has been so advised by its own counsel and by other eminent lawyers. Our general counsel requested the city counsel to participate in a joint motion to advance the mill tax cases in the Supreme Court and that court has upon such joint request advanced the cases and set them for hearing next October. It would be useless and improper to discuss these cases further. We beg, however, to call attention to the fact that a special committee of the Council and House more than two years ago, after a thorough investigation of this matter, recommended a compromise. The committee did not begin its investigation with any bias in favor of the company.

"The condition of the company is heritage of the present management. It is bound to deal with conditions as they are, and while rendering to the public a fair and reasonable service the management cannot overlook the fact that it must also manage for those who have their money invested in the securities of the company."

The members of the Public Service Commission, J. L. Hornsby, James A. Waterworth and James C. Allison, issued a statement dealing with the subjects discussed by

the company in its advertisement. This statement the members of the commission concluded as follows:

"The commission feels certain after most careful examination and consideration of the subject that in its recommendations for additional service it has suggested nothing that is not easily within the power, physically and financially, of the company to provide from the approximately \$12,000,000 gross revenue which it is collecting annually from the people of this city, and still leave a fair return to the company on its investment in the service of the public."

Recommendations in Regard to Service in Rochester

The report filed with the Public Service Commission of the Second District of New York by Charles R. Barnes, electric railroad inspector of the commission, who has been investigating street railway conditions in Rochester, is concluded with the following recommendations affecting the New York State Railways, Rochester lines:

1. That it immediately order thirty cars.
2. That it equip fifty-eight cars of 355 to 449 series with air brakes within one year.
3. That it report to this commission what means it will employ to reduce the number of delays to cars caused by power failure.
4. That it run twenty-four additional trips between the hours of 6.30 a. m. and 9 a. m. and thirty-one additional trips between the hours of 5 p. m. and 6.30 p. m. on lines specified.
5. That it run six additional trips in the morning and five additional trips at night at the times and on lines specified.
6. That after the service has been increased in compliance with recommendations Nos. 4 and 5 any material reduction made in it, except those to conform to ordinary fluctuations in travel, shall be reported to this commission.
7. That it reduce the headway on the Blossom Road, Arnett and Clifford and North Goodman and Emerson lines to less than fifteen minutes between 6 a. m. and 8 p. m. and notify this commission to what extent such headways have been reduced.
8. That it enforce a rule requiring passengers to leave cars, except P-A-Y-E, in the business section by the front end. Co-operation of the public in this matter is asked.
9. That it adopt the method of trailer operation experimentally on some of the heavy carrying lines.
10. That it cause all cars to be equipped with side route signs.
11. That it enforce its rule requiring conductors to announce streets.
12. That it double-track the designated single-track portion of the lines mentioned under the heading "Single-Track Lines."
13. That it cause the switches from Plymouth Avenue to Allen Street, South Clinton to Monroe Avenue, Central Avenue to Joseph Avenue, Caledonia Avenue to Bronson Avenue and East Main to North Goodman to be operated by switchmen during the evening rush hours until such time as they are replaced by automatic switches.
14. That it rearrange the passenger stops in the business section as suggested under the heading "Passenger Stops."
15. That it notify this commission within three months what it proposes to do to furnish relief to the Lake Avenue local travel and the Kodak Park travel, as is shown necessary under heading "New Trackage Cross-town Routes and Changes in Routes," which might make it unnecessary for this commission to recommend the connection of the Dewey Avenue and Lake Avenue tracks at or near the Ridge Road.
16. That within six months it notify this commission what action has been taken by it in the matter of relocation of the Park Avenue route west of Alexander Street.
17. That it provide a suitable terminal for interurban cars, property located on private property. That it notify this commission within thirty days what steps have been taken to accomplish this result.
18. That it move the northbound track in front of the State Street carhouse 2 ft. to the east for the purpose of reducing the delays to car movement now caused by the

movement of cars in and out of this carhouse. That it notify this commission within thirty days what progress has been made in the accomplishment of the result mentioned.

19. That it cause checks of local riders to be made at various intervals, Saturday afternoons, Sundays and holidays during the summer season on Lake Avenue, St. Paul Street, South Avenue, Plymouth Avenue and Portland Avenue; that it furnish during the summer adequate service for the local travel on these lines and that the result of checks made with the service run be furnished this commission.

20. That it use its best endeavors to bring about the construction of tracks through Clarissa Street. That within three months it report to this commission what has been done in compliance with this recommendation.

Mr. Barnes says in the report:

"In this report a fair and impartial discussion of transportation conditions has been attempted. Commendation has been given the company where warranted and criticism made where justified. Defects in the system have been pointed out with recommendations for improvements, compliance with which will cost the company large amounts of money. It is believed that all of the expenditures suggested are necessary and when made Rochester will have a street car system equal to any other in this country."

Railroad Crossing Controversy in Illinois Settled

It may be of interest to review briefly the history of the railroad crossing controversy arising from the application by the Illinois Traction System for a grade crossing with the Illinois Central Railroad and the Chicago & Alton Railroad at Lincoln, Ill. Acting on this application, which was made in 1907, the Illinois Railroad & Warehouse Commission after several hearings ordered a separation of grade at this point. The local authorities at Lincoln, Ill., were very much interested in the result of hearings, and immediately following the order of the commission, which was specific as to the height the steam roads were to be elevated to allow the electric railway to build under them, they questioned the commission's jurisdiction within the corporate limits of the city.

The objection raised by the city authorities was due wholly to topographical conditions. The Illinois Traction System paralleled the Chicago & Alton Railroad on a public street approximately 150 ft. away, and if the grade separation had been carried out according to the order of the commission it would have been necessary to depress a portion of this street to provide an approach to the electric railway under crossing. To depress the street was undesirable, as its grade was already some 4 ft. below the top rail on the steam railroad and surface drainage at the existing elevation was a problem. Existing street crossings on the steam railroad were also considered dangerous, as several limited trains passed through the city without stopping, and buildings occupied both sides of this street, obstructing the view until the steam road right-of-way was reached. Local authorities also questioned the order, as they believed that the crossing between the two steam roads already protected by an interlocker was safe and could very easily be enlarged to include similar protection for the electric railway.

After considerable delay, the Railroad Commission decided to grant the electric railway temporary crossings with both steam roads, until such time as the question of jurisdiction had been settled by the court. Neither the commission nor the city authorities took the question at issue to the court, and the steam railroads refused to consider elevating their tracks any more than had already been ordered by the commission. As a result, nothing was done to relieve the situation until December, 1912, when a change in the organization of one of the steam railroads brought with it a change in policy as to grade separations. After several conferences between the engineers of the Illinois Traction System and the steam railroads satisfactory arrangements were made allowing the grade crossing and the enlargement of the interlocking plant to provide additional protection. This agreement was submitted to the Railroad & Warehouse Commission and was approved by it.

Comparative Statistics of Illinois Roads for Year

The following is a statement of the mileage of surface and elevated electric railways owned in the State of Illinois by such companies as reported to the Railroad and Warehouse Commission for the fiscal year ended June 30, 1912:

Classification	Miles Owned
Main line and branch.....	1449.20
Second, third, fourth and additional main tracks.....	208.47
Industrial tracks	34.24
Yard tracks and sidings	121.41
Total	1813.32

The following is a comparison of the mileage of surface and elevated electric railways in the State of Illinois, ending with the fiscal years as of June 30, 1911 and 1912, respectively:

Year	Main Line and Branches	Additional Main Tracks	Industrial Tracks	Yard Tracks and Sidings	Total
1912	1449.20	208.47	34.24	121.41	1813.32
1911	1441.47	206.41	33.56	121.20	1802.64
Total increase	7.73	2.06	.68	.21	10.68

The mileage not reported to the commission in 1912 that has been previously included follows: 12.89 miles of the Chicago Southern Traction sold to the Chicago City Railway, 6.50 miles of the Freeport Railway, Light & Power Company, and 1.75 miles of the Murphysboro Electric, Light, Heat & Power Company, which are organized under the general incorporation act and do not come under the jurisdiction of the commission.

The following is a comparison of the capitalization of surface and elevated electric railway companies, representing the entire mileage of such companies as reported to the commission, ending with the fiscal years as of June 30, 1911 and 1912, respectively:

Year	Capital Stock	Funded Debt	Total
1912	\$130,671,580	\$144,274,001	\$274,945,581
1911	129,541,120	137,072,737	266,613,857
Total increase.....	\$1,130,460	\$7,201,264	\$8,331,724

The following statistics are gathered from the income accounts and a comparison is made with the fiscal years as of June 30, 1911 and 1912, respectively:

Classification	1911	1912
Operating revenue.....	\$20,586,694	\$21,227,138
Operating expenses	12,624,208	12,395,438
Net operating revenues.....	\$7,962,486	\$8,831,700
Miscellaneous income	1,464,514	1,616,165
Gross income less operating expenses.....	\$9,427,000	\$10,447,865
Deductions from income	7,679,957	8,472,172
Net income.....	\$1,747,043	\$1,975,693

The following is a comparison of dividends paid ending with the fiscal years as of June 30, 1911 and 1912, respectively:

Name of Company	1911	1912	Per Cent on Common Stock	Per Cent on Preferred Stock
Aurora, Elgin & Chicago R. R.	\$279,000	\$279,000	3	6
Bloomington, Decatur & Champaign R. R.	14,596	26,250	..	5
Coal Belt Electric Ry.	6,214	15,000	5	..
East St. Louis & Suburban Ry..	201,483	144,375	3 1/4	..
Kankakee Electric Ry.	3,480	1,700	11 1/2	..
Kankakee & Western Electric..	261,237	370,084	4 1/2	..
Metropolitan West Side El. Ry.	3,260	6,520	20	..
North Kankakee Electric Light & Ry.	200,000	98,888	2	..
Northwestern Elevated R. R. .	73,000	100,000	2 1/2	..
Rockford & Interurban Ry.	20,000	10,000	2	..
Rock Island Southern R. R.	24,166	50,000	5	..
St. Louis Electric Terminal Ry.	83,162	113,750	5	..
St. Louis, Springfield & Peoria R. R.	230,203	422,020	4 1/2	..
South Side Elevated R. R.	455,000	455,000	..	5
Terre Haute, Indianapolis & Eastern Traction	13,000	15,000	3	6
Terre Haute & Western Ry.	2,400	6	..	..
White Hall Ry. ....	..	..	..	..
Total	\$1,867,801	\$2,109,987		

The mileage traffic and miscellaneous statistics for the years ended June 30, 1911 and 1912, follow:

Classification	1911	1912
Passenger car mileage.....	73,241,728	74,285,717
Freight, mail and express car mileage.....	3,990,943	3,546,438
Total car mileage	77,232,671	77,832,155
Fare passengers carried	239,490,181	243,768,649
Transfer passengers carried	6,014,744	6,165,383
Total passengers carried	245,504,925	249,934,032
Passenger revenue	\$15,467,008	\$15,703,136

Average fare, revenue passengers (cents).....	6.45	6.44
Average fare, all passengers, including transfer passengers (cents)	6.30	6.28
Operating revenue per car mile (cents).....	22.58	22.97
Operating expenses per car mile (cents).....	13.82	13.27

The equipment in use is classified by the commission as follows:

Passenger cars:	1911	1912
Closed cars	2,309	2,403
Open cars	188	161
Combined cars, closed and open	23	44
Total	2,520	2,608
Other cars:		
Freight	1,848	1,965
Express	163	164
Baggage .....	..	6
Combination	2	71
Work	144	175
Snow plows	20	15
Sweepers	15	12
Miscellaneous	104	94
Locomotives (electric)	22	20
Locomotives (steam)	2	9
Total all cars and locomotives.....	4,840	5,139

Injunction Sought to Prevent Municipal Ownership Amendment Vote

The Circuit Court of Wayne County, Mich., denied the petition of George H. Barbour, Fred T. Moran and Charles Ducharme, taxpayers of Detroit, for an injunction against the city election officials to prevent them from putting the municipal ownership amendment to a vote on April 8. The court explained that the matter could not receive proper consideration, because of lack of time to present it to the Supreme Court, and that the question can be taken up later if the constitutionality of the movement is in doubt. It is not fair, the court said, to attempt to render a decision in such a brief time.

Corporation Counsel Lawson represented the city. He claimed that the Verdier law is constitutional and presented the journal of the Legislature to show that the amendments had been concurred in by more votes than were necessary for adoption.

Hinton E. Spaulding represented the taxpayers who brought the suit. He asserted that the Verdier law is not constitutional, because it did not remain in the House of Representatives the five days required before being put to a vote and also because the Senate did not have printed copies of the amendments for the proper length of time before the vote was taken on them. He also believes that the provision for extending the bond limit is unconstitutional. Attorney Allen Frazer presented an argument for the city and Attorney A. C. Angell closed for the plaintiffs.

Mayor Marx has been campaigning in favor of the municipal ownership principle incorporated in the proposed charter amendments. However, if the suggestions of the Circuit Court should be followed, the law under which these amendments are drafted will be tested and nothing can be done until a final decision is reached.

Corporation Attorney Lawson and Special Counsel Lucking have gone to Washington to prepare a motion to be presented to the United States Supreme Court, asking for the dismissal of the case in which the Detroit United Railway seeks to prevent the city from ousting it from Fort Street, under the decision rendered by the Michigan Supreme Court. They will argue that no federal question is involved in the case.

The average daily deficit of the municipal bus line for the first thirty days has been \$60. The administration has decided to continue the line for thirty days more.

An ordinance has been introduced in the City Council giving the company the right to build a single track on Manchester Avenue from the plant of the Ford Automobile Company to the present terminus of Hamilton Street, a single track from Victor and Oakland to Manchester and a double track on John R. Street under a day-to-day agreement. The company asked this right in order to accommodate the 15,000 people employed in the Ford plant and at the same time relieve congestion in the downtown section. It is said that additions will be built to the plant that will necessitate the employment of 6000 additional people within a short time.

Wisconsin Tax Assessment

The final assessments made by the State Tax Commission of Wisconsin on the property of the electric railway, light, heat and power companies total \$51,590,000, as compared with \$47,365,000 a year ago, and the total tax is an increase over 1912 of \$85,307. The total tax revenue, \$610,435, is divided between the State and the municipalities in which the utilities operate at the ratio of 15 to 85, the amount going to the State being \$91,565, while the towns, villages and cities get \$518,870. The assessments of the principal electric railways follow:

	Assessment	Tax Revenue
Ashland Light, Power & Street Railway.....	\$450,000	\$5,324.60
Bay Shore Street Railway.....	20,000	236.65
Beloit Traction Company.....	220,000	2,603.14
Chicago & Milwaukee Electric Railway.....	200,000	2,366.49
Chicago & Wisconsin Valley Railway.....	25,000	295.81
Chippewa Valley Railway, Light & Power Company	2,300,000	27,214.61
Duluth Street Railway.....	1,150,000	13,607.30
Eastern Wisconsin Railway & Light Company....	1,300,000	15,382.17
Grand Rapids Street Railroad.....	100,000	1,183.24
Ironwood & Bessemer Railway & Light Company..	125,000	1,479.06
Janesville Traction Company.....	50,000	591.62
Kenosha Electric Railway.....	400,000	4,732.98
LaCrosse City Railway.....	20,000	236.65
La Crosse & Onalaska Railway.....	540,000	6,389.52
Manitowoc & Northern Traction Company.....	110,000	1,301.57
Menominee & Marinette Light & Traction Company.	310,000	3,668.06
Merrill Railway & Lighting Company.....	165,000	1,952.30
Milwaukee Electric Railway & Light Company....	27,500,000	325,392.02
Milwaukee Light, Heat & Traction Company....	7,500,000	88,743.28
Milwaukee Northern Railway.....	1,600,000	18,931.90
Rockford & Interurban Railway.....	300,000	3,549.73
Sheboygan Railway & Electric Company.....	950,000	11,240.82
South Wisconsin Railway.....	1,000,000	11,832.44
Waupaca Electric Light & Railway Company....	80,000	946.60
Wausau Street Railroad.....	775,000	9,170.14
Wisconsin Electric Railway.....	650,000	7,691.09
Wisconsin Public Service Company.....	1,900,000	22,481.63
Wisconsin Traction, Light, Heat & Power Company	1,850,000	21,896.61
Totals	\$51,590,000	\$610,435.43

Pittsburgh-Wheeling Electric Railway

This paper has learned from an authoritative source that the West Penn Traction & Water Power Company has no plans for connecting its lines with the Wheeling properties which are controlled by the West Penn, as mentioned in the issue of this paper of March 22. The information published in the previous note was based upon reports in the local newspapers, and the statements therein contained are found to be erroneous.

Proposed Compromise Agreement for Joint Use of Tracks in San Francisco

The Board of Supervisors and the Mayor of San Francisco, Cal., have issued a statement in part as follows, setting forth reasons why the electors should approve at the special election on April 22, 1913, the proposed compromise agreement for the joint use of the lower Market Street tracks by the United Railroads and the Municipal Railway:

"By the proposed compromise litigation is terminated and the cars of the Municipal Railway obtain immediate access to that great source of revenue, the ferry terminal.

"The inhabitants of the territory served by the Sutter Street Railway system get the advantage of a direct service to the ferry. It must be kept in mind that the municipal government is something more than a corporation controlling a publicly owned street railway competing with the United Railroads. The municipal government must consider the needs of every district, including the districts not yet served by the municipal railway.

"The agreement provides expressly that it is without prejudice to the general powers of the municipality to regulate street railways, and that it shall not be construed to validate any rights, privileges or franchises of the United Railroads or the Sutter Street Railway that have become invalid."

Development Plans in Montreal

The Montreal (Que.) Tramways has drawn up plans which, if agreed to by the Council, will result in the expenditure of between \$8,000,000 and \$10,000,000 by the company. The directors are prepared to enter into a new contract with the city, provided the company obtains new

routes. E. A. Robert, the president, makes eleven suggestions, which include double-tracking and the building of subways under the Lachine Canal. He says the company is prepared to discuss the opening up of Vitre Street, extend the Guy and Beaver Hall line, straighten Guy Street, open up Sherbrooke Street, extend the Beaver Hall line to St. Lawrence Boulevard, grant new routes to the north side of the city, extend the Papineau Avenue line, open up William Street, construct subways under the Grand Trunk Railway at various points and open up Decarie Avenue, Notre Dame de Grace, to the back of the mountain. Duncan McDonald, former manager of the company, has suggested the construction of a subway and the opening of seven new routes.

Members of the A. S. M. E. to Visit Europe

About 200 mechanical engineers of the United States will go to Europe this summer to attend the fifty-fourth annual meeting of the Verein Deutscher Ingenieure in Leipzig and to inspect the educational and industrial establishments of Germany. The party will sail on June 10 on the Hamburg-American Line S.S. *Victoria Luise*. The official party will consist of 200 members of the American Society of Mechanical Engineers, accompanied by 100 ladies. On arriving in Hamburg on June 21 the shipyards will be visited. The party will then proceed next day by special train to Leipzig. Here the King of Saxony will welcome the visitors and the Verein Deutscher Ingenieure will tender an official reception at which the president of the American Society of Mechanical Engineers, Dr. W. F. M. Goss, dean of the College of Engineering of the University of Illinois, will make the principal address. The party will leave on June 25 for a tour of industrial Germany, visiting Dresden, Berlin, Cologne, Düsseldorf, Frankfurt, Heidelberg and Munich.

Denver Bus Ordinance Vetoed.—Mayor Arnold of Denver, Col., has vetoed a second time the ordinance permitting the Denver Motor Bus Company to operate omnibuses on certain streets and alleys of Denver.

Portland Fender Ordinance Extended.—The Council of Portland, Ore., has passed an ordinance granting the Portland Railway, Light & Power Company an extension of time until July 31 in which to equip its cars with fenders.

Franchise Extension Ordinance Passed in Shreveport.—The proposal to extend the various franchises of the Shreveport (La.) Traction Company so that all of them will expire in 1954 was carried at the recent referendum.

Boston Chamber of Commerce Adopts Railroad Report.—The Boston Chamber of Commerce has adopted the report of its directors with regard to the New England railroad situation. The recommendations contained in the report were referred to briefly in the *ELECTRIC RAILWAY JOURNAL* of April 5, 1913, page 650.

Suit Brought in Ohio Supreme Court to Oust Company.—Herbert C. Pontius, prosecuting attorney of Stark County, has brought suit in the Supreme Court to oust the Northern Ohio Traction & Light Company, Akron, Ohio, from its franchise between Canton and Massillon on the ground that it has not complied with the requirements of the grant given by the county. The suit was brought under the Wise law, recently enacted.

Extension of Toronto Civic Line.—Under the authority received by Commissioner Harris, the Works Department of Toronto, Ont., plans to proceed with the extension of the civic railway and is preparing to call for tenders for equipment and arranging to purchase sites for the carhouses, etc. The station for stepping down the hydroelectric power will be located in the carhouse or at the West Toronto station. The contract has been let for building the bridge over St. Clair Avenue.

Preliminary Report on Traffic in Winnipeg.—R. M. Fenstel, who is connected with the Railroad Commission of Wisconsin, has submitted a preliminary report to the Public Utilities Commission of Manitoba on street railway traffic in Winnipeg. He stated that recommendations in regard to the general character of the service furnished by the Winnipeg Electric Railway can be made only after

an exhaustive study of all the conditions, but that special problems can be considered before a general study is made.

Decision of Lower Court in Baltimore Paving Suit.—Judge Bond in the City Court has decided that the United Railways & Electric Company, Baltimore, Md., should pay the cost of repaving the streets between the car tracks and 2 ft. either side of its lines. The case will be carried to the Court of Appeals. A director of the company is reported to have said: "The company's counsel has little doubt of winning the case before the Court of Appeals. The suit before Judge Bond was a friendly one brought with the idea of getting the question before the April term of the Court of Appeals. The language of the act is very doubtful."

Southern New England Railroad Offered to Rhode Island.—President Chamberlin of the Grand Trunk Railway has offered to turn over to Rhode Island the Southern New England Railway as it stands on condition that the State shall complete the road and operate it in one of two ways. The alternatives are set forth as follows: "If the State desires to operate the railroad we will grant running rights on reasonable terms over the New London Northern from Palmer to Brattleboro, Vt., so as to make the line sufficiently long to constitute an operating division, and we will also make a traffic agreement between the Central Vermont and the State-owned railroad for a division of through rates on a mileage basis, with a reasonable additional allowance for terminal charges. Or the Central Vermont will lease the State-owned railroad for a rental equivalent to 5 per cent interest on the actual cost to the State of completing the whole line." Mr. Chamberlin says almost \$2,500,000 has been expended on the line, and its completion will require several millions more than was originally estimated.

First Construction Under Dual Contracts.—The first actual construction work under the contracts for the dual system of rapid transit in New York began during the week in the Centre Street loop subway, which is to be operated by the New York Municipal Railway Corporation. Under direction of the commission the company began the work of equipping two tracks in this subway for temporary operation until it can be completed and all four tracks put into operation. The temporary operation will consist in running the Brooklyn elevated trains now coming over the Williamsburg Bridge into this subway and down to the City Hall. At present these trains stop at the Manhattan end of the Williamsburg Bridge, where they are turned back to Brooklyn and the passengers have to transfer to other lines to get down town in Manhattan. As soon as the two tracks in the loop subway are properly equipped these trains will continue through the loop, making stops at stations at the Bowery, Canal Street and Chambers Street. The head wall separating the subway from the Williamsburg Bridge has been broken through and the bridge tracks have been connected with new tracks just laid in the subway. The work of track-laying is proceeding rapidly, and it is expected to have two tracks of the loop ready for operation by July 1, 1913.

LEGISLATION AFFECTING ELECTRIC RAILWAYS

COLORADO

The conference committee of the Colorado Legislature has reported back to both the House and the Senate on the subject of the proposed public utilities bill, restoring the terms of the California law practically intact by the elimination of the House amendments from the Wisconsin law, particularly those relating to municipal ownership and indeterminate franchises. Both branches have concurred in the action of the conference committee and the bill is now before the Governor for signature.

ILLINOIS

Governor Dunne was reported at work on April 4 on the final draft of the proposed public utility bill for Illinois. Only one commission is provided for, although the Governor was understood at first to favor a separate commission for Chicago. Whenever the people desire to vote to decide to pass under or withdraw from the provisions of the act, the council is to be required to submit the question to a

referendum, upon petition of 10 per cent of the voters. The measure is made to apply to all steam railroads, electric railways, street railways and other transportation lines, gas companies, electric light, heat and power companies, etc. Should it be decided to abolish the Railroad & Warehouse Commission, the number of members for the new commission will be fixed at five persons. The commissioners are to be appointed by the Governor. Their salaries are fixed tentatively at \$10,000 a year. A secretary is provided for at a salary of \$5,000 per annum and an attorney at \$6,000 per annum.

Representative George C. Hilton, Chicago, has introduced a bill in the House which fixes 5 cents as the maximum fare for any steam, electric or other railroad operating in and through municipalities. The measure is aimed at the steam roads of Chicago which handle suburban business.

NEW JERSEY

The bill of Senator Gaunt to permit electric railways to carry freight under regulations by the Board of Public Utility Commissioners without concurrence by municipal authorities has been killed in the House, where it was introduced by Mr. Kates. The House has also voted against the bill to permit electric railways to appeal to the Board of Public Utility Commissioners in cases where franchises are refused such companies by municipalities. The Assembly has passed the franchise tax act.

NEW YORK

Governor Sulzer has signed the bill changing the name of the Interstate Bridge Commission to the New York State Bridge and Tunnel Commission. This bill provides that the commission, co-operating with the New Jersey State Commission, shall consider the subject of additional tunnel communication between the city of New York and the State of New Jersey.

The franchise committee of the Board of Estimate held a hearing recently in New York City on the bill which has been introduced at Albany to extend its powers with regard to the right to issue franchises for bus lines. The Electric Coach Corporation, which is backed by George W. Loft, and in which E. P. Hulse and Charles Bergh are interested, has offered to establish new bus lines at a 5-cent fare if the bill is passed and the city gives it a franchise. President Shonts, representing the New York Railways, protested against the establishment of any more bus lines. He said additional bus lines would materially cut down the profits of the surface railways. A hearing was held at Albany on April 9 on the bill. M. B. Hoffman, representing the Brooklyn Rapid Transit Company, protested against the passage of the measure.

PENNSYLVANIA

Attempts to fix a date for the adjournment of the General Assembly have thus far resulted in failure. Although the General Assembly has been in session three months only two of the measures called for in the Republican state platform have been passed, one providing for direct election of United States Senators and one for the reorganization of the auditor general's department. The Governor signed the latter bill on April 9. Progressive measures that have not been passed as yet by either body include the public utilities bill and bills for taxation of corporations for local purposes and for the equal assessment and collection of all State taxes on corporations. It is believed that a public utilities measure will be favorably reported from committee in the House within the next ten days. As amended the measure will provide for seven commissioners to serve ten years.

Among new bills introduced in the House is one by Representative Dickinson providing in effect for a board of conciliation or arbitration to be appointed by the public service commission, which board shall have power to adjust labor disputes affecting public service corporations. The bill provides strict penalties for any street railway employee who goes on strike before the board has passed upon the merits of the controversy. The bill is a companion bill to the public utilities measure and is modeled after the Canadian law.

The bill permitting the licensing of dining, club and café cars on railroads for the sale of liquor was defeated in

the House on April 8 by a vote of 111 to 75. One of the chief arguments against the bill was that it would not place the railroads in a very consistent light before the public if they were to sell liquor to their patrons on such cars while at the same time they enforced the rules against their employees drinking either on or off duty.

The House has passed the bill creating a bureau of utilities in second-class cities. The bill prohibiting trespassing upon railroad engines, cars, rights-of-way or other railway property under penalty of a fine of \$25 or thirty days' imprisonment has been sent back to committee.

The bill providing a commission form of government for third-class cities of the State has passed the Senate. This bill will give cities of this class more power over public service corporations. The Senate has also passed finally the three measures paving the way for the construction of subways in Philadelphia. Among the measures reported from committee of the House favorably were the Magee bills enabling second-class cities to acquire, construct or lease street railways or other utilities. The House has referred back to committee the Carter bill prohibiting the appointment of railroad employees as conductors, flagmen or engineers without at least eighteen months' service in subordinate positions.

PROGRAMS OF ASSOCIATION MEETINGS

Arkansas Association of Public Utility Operators

The date of the meeting of the Arkansas Association of Public Utility Operators has been changed from May 13, 14 and 15, as formerly announced, to May 5, 6 and 7, bringing the sessions one week earlier than at first scheduled. The meeting will be held at Little Rock.

Iowa Street & Interurban Railway Association

The following program of papers has been announced for the meeting of the Iowa Street & Interurban Railway Association which is to be held at Waterloo, Ia., April 24, 25 and 26, 1913, inclusive:

Paper, "Is the Expenditure of Money on Amusement Parks to Stimulate Traffic on City Lines Justifiable?" by E. W. Walker, general manager and purchasing agent of the Union Electric Company, Dubuque, Ia.

Paper, "Interurban Terminals," by F. J. Hanlon, secretary and general manager of the Mason City & Clear Lake Railroad, Mason City, Ia.

Paper, "Modern Methods of Reducing Generating Costs," by D. W. Gilbert, superintendent of power stations of the Omaha & Council Bluffs Street Railway, Omaha, Neb.

Paper, "Effective Shop Equipment for Maintenance of Equipment," by G. A. Mills, electrical engineer of the Waterloo, Cedar Falls & Northern Railway, Waterloo, Ia.

Paper, "Successful Methods of Preventing Accidents," by Arthur G. Rippey, claim attorney of the Des Moines City Railway and the Inter Urban Railway, Des Moines, Ia.

Southwestern Electrical & Gas Association

The ninth annual convention of the Southwestern Electrical & Gas Association will be held at Galveston, Tex., on May 21, 22, 23 and 24—a four-day meeting instead of three days, as heretofore, as the association has so increased in scope and numbers as to necessitate more time for its proceedings. In addition it has been found necessary to have sessions for the gas members and the accountants which will parallel the regular sessions on subjects not of interest to those in attendance at the gas and accounting sessions. One full session will be given up, as heretofore, to the supply men. This will be followed, in the evening, with a rejuvenation of the Sons of Jove, at which the national deities will preside. Two special cars have been reserved from St. Louis to Dallas, from which point it is expected to make a solid convention train to Galveston. The program in detail will be published later. Full information as to railroad rates and routes, hotel accommodation, exhibits, etc., may be obtained by addressing H. S. Cooper, 405 Slaughter Building, Dallas, Tex., secretary.

Financial and Corporate

Stock and Money Markets

April 9, 1913.

Advances were made in many issues in the early trading on the New York Stock Exchange to-day despite the fact that the market was called upon to sustain influences of a disturbing character such as the announcement of the new issue of \$45,000,000 of Pennsylvania stock and the disapproval of the Union Pacific dissolution plan by Attorney General McReynolds. Brooklyn Rapid Transit was in demand, advancing to 92½. Interborough-Metropolitan moved up half a point to 60¾. A small gain was also made in Third Avenue. Rates in the money market to-day were: Call, 3½ @ 3¾ per cent; sixty days to six months, 4½ @ 5 per cent.

The Philadelphia market to-day was broad but not very active. There was little demand for bonds.

The Chicago market was both narrow and dull, but there was a slight improvement in the demand for bonds.

In the Boston market the railroad issues were dealt in sparingly. The demand for bonds was light.

The Baltimore market was extremely dull except for United Railway issues. The demand for bonds was good.

Quotations of traction and manufacturing securities as compared with last week follow:

	April 2	April 9
American Brake Shoe & Foundry (common)	90½	93¼
American Brake Shoe & Foundry (preferred)	130	132½
American Cities Company (common)	42	38¾
American Cities Company (preferred)	73½	70
American Light & Traction Company (common)	400	400
American Light & Traction Company (preferred)	107	107
American Railways Company	38½	38½
Aurora, Elgin & Chicago Railroad (common)	43½	42½
Aurora, Elgin & Chicago Railroad (preferred)	85	85
Boston Elevated Railway	106½	105½
Boston Suburban Electric Companies (common)	7½	7½
Boston Suburban Electric Companies (preferred)	*66	a66
Boston & Worcester Electric Companies (common)	7¼	7½
Boston & Worcester Electric Companies (preferred)	43	43
Brooklyn Rapid Transit Company	91	91½
Capital Traction Company, Washington	121	122½
Chicago City Railways	150	*150
Chicago Elevated Railways (common)	26	*26
Chicago Elevated Railways (preferred)	88	*88
Chicago Railways, ptcptg., ctf. 1.	85	*85
Chicago Railways, ptcptg., ctf. 2.	21½	*21½
Chicago Railways, ptcptg., ctf. 3.	6½	*6½
Chicago Railways, ptcptg., ctf. 4.	3½	*3½
Cincinnati Street Railway	111	111
Cleveland, Southwestern & Columbus Ry. (common) ..	*5½	5½
Cleveland, Southwestern & Columbus Ry. (preferred) ..	*30	30
Cleveland Railway	*103½	104¾
Columbus Railway & Light Company	18	18
Columbus Railway (common)	a69½	69½
Columbus Railway (preferred)	82½	82½
Denver & Northwestern Railway	*108	*108
Detroit United Railway	80	a80
General Electric Company	140¾	141
Georgia Railway & Electric Company (common)	119	118¾
Georgia Railway & Electric Company (preferred)	83¾	84½
Interborough Metropolitan Company (common)	17½	17½
Interborough Metropolitan Company (preferred)	60	59¾
International Traction Company (common)	*35	*35
International Traction Company (preferred)	*95	95
Kansas City Railway & Light Company (common)	15	*15
Kansas City Railway & Light Company (preferred) ..	*30	*30
Lake Shore Electric Railway (common)	*6½	*6½
Lake Shore Electric Railway (1st preferred)	*91	*91
Lake Shore Electric Railway (2d preferred)	*25½	*25½
Manhattan Railway	128½	129
Massachusetts Electric Companies (common)	17½	18
Massachusetts Electric Companies (preferred)	75½	77
Milwaukee Electric Railway & Light Co. (preferred) ..	*100	*100
Norfolk Railway & Light Company	*25¾	*25¾
Norfolk Railway & Light Company	77	79
North American Company	75	75
Northern Ohio Light & Traction Company (common) ..	75	75
Northern Ohio Light & Traction Company (preferred) ..	105	105
Philadelphia Company, Pittsburgh (common)	43½	44¾
Philadelphia Company, Pittsburgh (preferred)	33¾	40
Philadelphia Rapid Transit Company	26	25½
Portland Railway, Light & Power Company	*67	67
Public Service Corporation	114	115
Third Avenue Railway, New York	37¾	38
Toledo Railways & Light Company	28½	2½
Twin City Rapid Transit Co., Minneapolis (common) ..	105½	105½
Union Traction Company of Indiana (common)	*4½	*4½
Union Traction Company of Indiana (1st preferred) ..	*81	*81
Union Traction Company of Indiana (2d preferred) ..	*34	*34
United Rys. & Electric Company (Baltimore)	27	27½
United Rys. Inv. Company (common)	27¾	28½
United Rys. Inv. Company (preferred)	49½	51
Virginia Railway & Power Company (common)	52	52
Virginia Railway & Power Company (preferred)	92	92
Washington Ry. & Electric Company (common)	91¾	92
Washington Ry. & Electric Company (preferred)	90¾	90¾
West End Street Railway, Boston (common)	78	77
West End Street Railway, Boston (preferred)	a96	*96
Westinghouse Elec. & Mfg. Company	66	65½
Westinghouse Elec. & Mfg. Company (1st preferred) ..	115	116¾

*Last sale. aAsked.

ANNUAL REPORTS

North American Company

The following is a comparative statement of income and undivided profits of the North American Company for 1911 and 1912:

	1912	1911
Interest received and accrued.....	\$537,327	\$659,995
Dividends received	1,517,953	1,392,448
Profits and compensation for services.....	289,189	53,549
Net increase in book value of assets.....	.....	1
Total	\$2,344,469	\$2,105,993
Salaries, legal expenses, net rentals and all other expenses of administration.....	\$76,217	\$87,361
Taxes	11,654	13,234
Interest and commissions paid and accrued.....	107,674	142,923
Sundry accounts written off and reserves.....	17,697	5,609
Total	\$213,242	\$249,127
Net income	\$2,131,227	\$1,856,866
Dividends paid and accrued during year	1,489,665	1,489,665
Balance carried to undivided profits account..	\$641,562	\$367,201

James Campbell, the president, says in part in the report: "During the year the North American Company acquired the capital stock and bonds of the Kenosha Electric Railway, a company owning and operating the street railway system in the city of Kenosha. The acquisition of this property permitted the extension of the route and operation of interurban cars of the Milwaukee Light, Heat & Traction Company into the center of Kenosha, with transfer privileges over the local lines.

"The North American Company also acquired from the Milwaukee Light, Heat & Traction Company the capital stocks of the Racine Gas Light Company, Kenosha Gas & Electric Company and Watertown Gas & Electric Company. It consolidated the Racine Gas Light Company with the Kenosha Gas & Electric Company and the Kenosha Electric Railway in the Wisconsin Gas & Electric Company. Your company acquired the capital stock and indebtedness of the Burlington (Wis.) Electric Light & Power Company.

"For the purpose of affording an additional market for Keokuk hydroelectric power and extending the range of activity of this company's properties in the St. Louis district, there were acquired all the shares of capital stock of the following companies: American Light & Power Company, Union, Mo.; Commercial Telephone Company, Union, Mo.; Tibbe Electric Company, Washington, Mo.; Franklin Independent Telephone Company, Washington, Mo., and Pacific Electric Company, Pacific, Mo. The telephone companies referred to are operated in connection with the electric light companies in the same towns, having poles in common, and their acquisition was advisable and necessary.

"In the latter part of the year the Wisconsin Edison Company, Inc., was organized under the laws of the State of New York to provide an additional means of financing the future cash requirements of the properties whose stock it acquired from the North American Company. The Wisconsin Edison Company, Inc., has an issued capital stock of 100,000 shares of preferred stock, of a par value of \$100 each, and 200,000 shares of common stock, without nominal or par value. It owns or controls by stock ownership the following companies: Milwaukee Light, Heat & Traction Company, The Milwaukee Electric Railway & Light Company, Wisconsin Gas & Electric Company, Watertown Gas & Electric Company, North Milwaukee Light & Power Company, Wisconsin General Railway and Burlington Electric Light & Power Company. Loans and advances consist of money loaned to corporations upon their notes, with ample collateral security, together with advances to subsidiary companies.

"The five-year 5 per cent collateral trust notes, dated May 1, 1907, of which there remained outstanding on Dec. 31, 1911, \$1,910,000, principal amount, were paid at maturity on May 1, 1912, and the indenture securing them was satisfied and canceled.

"The company has no contingent liabilities, except an instrument of guaranty, dated March 1, 1906, executed to the Trust Company of America, as trustee under the first mortgage of the West Kentucky Coal Company, whereby it has guaranteed the payment by that company of the interest upon \$2,000,000, principal amount, of its first mortgage bonds

and of the sinking fund payments pertaining thereto. The principal amount of these bonds, \$151,000, has been retired through the sinking fund, leaving \$1,849,000, principal amount, outstanding.

"Out of the surplus and net profits, four quarterly dividends, each of 1¼ per cent, upon the capital stock were declared and paid during the year.

"The operating revenues of The Milwaukee Electric Railway & Light Company, including the Milwaukee Central Heating Company, aggregated \$5,682,355, an increase of 10.7 per cent over the previous year; operating expenses increased 11.8 per cent; gross income aggregated \$1,813,483, an increase of 11.6 per cent, and net income \$1,098,277, an increase of 9 per cent. As between the various departments, operating revenues of railway department increased 4.1 per cent, light and power 31.7 per cent and steam heating 40.6 per cent. During the year there was expended on additions to physical property the sum of \$1,979,900.

"Effective on Jan. 1, 1912, The Milwaukee Electric Railway & Light Company established a pension or service annuity system, the benefits of which are open to all employees. It provides, until the death of the annuitant, monthly payments upon retirement of an amount equal to 1½ per cent of the average monthly wage or salary (excluding amounts of salary in excess of \$1,500 per year) for each year of service. The pension system is available to all employees who have been in the continuous service of the company for fifteen years or more and is optional to those of sixty years of age or more. Retirement is compulsory upon reaching the age of seventy.

"During the year the company assisted in the formation of the Employees' Mutual Benefit Association, the principal purpose of which is to supply medical attendance to its members and to make payment of benefits in case of sickness. The company contributes to the association an amount equal to that paid as fees and dues by members.

"In 1906 the city of Milwaukee applied to the Railroad Commission of Wisconsin for a reduction in the rate of street railway fare. In 1906 and 1907 and 1911 applications were made to the Railroad Commission for the extension of the Milwaukee city fare limits to Wauwatosa, West Allis and East Milwaukee. After an extended investigation and numerous hearings, the Railroad Commission handed down a decision in August, 1912, requiring the company to discontinue the present ticket rate of twenty-five for \$1 and to sell thirteen tickets for 50 cents. It also entered an order requiring the extension of the city single fare limits to Wauwatosa, West Allis and East Milwaukee. On the ground that the company was a party to a contract evidenced by a franchise granted in the year 1900, which provided for the rate of fare within the limits of the city of Milwaukee during the life of the franchise, the company secured a temporary injunction in the Circuit Court, on which an appeal was taken to the Supreme Court of Wisconsin. The outcome of the appeal is important to the company, not so much on account of the immediate effect of the ordered fare reduction, but rather on account of the effect on the company's revenues should greater fare reductions be ordered at a later date.

"The operating revenues of the Milwaukee Light, Heat & Traction Company aggregated \$1,237,383.78, an increase of 10 per cent over those of the year 1911; operating expenses increased 16 per cent; gross income aggregated \$1,204,530, a decrease of 2 per cent, and net income \$538,824.29, a decrease of 4 per cent. During the year there was expended on additions to physical property \$267,688.

"The Wisconsin Gas & Electric Company acquired the property and business of the Kenosha Gas & Electric Company and the Kenosha Electric Railway. All of the bonds of the constituent companies were retired and in place of these bonds there were issued \$2,000,000, principal amount, of 5 per cent forty-year first mortgage gold bonds, which the company sold. In addition to this mortgage debt, the company has an issued capitalization consisting of \$200,000 of 6 per cent cumulative preferred stock and \$1,000,000, par value, of common stock. The operating revenues of the Wisconsin Gas & Electric Company aggregated \$683,966, an increase of 17 per cent over those of the companies to which it is successor during the previous year; gross income aggregated \$205,665, an increase of 11

per cent; net income \$99,692, an increase of 19 per cent. During the year there was expended on additions to physical property \$157,205.

"The Mississippi River Power Distributing Company is under contract to purchase from the Mississippi River Power Company and to sell to the Union Electric Light & Power Company and the United Railways, St. Louis, 60,000 hp of Keokuk hydroelectric power. The construction work has so far progressed as to enable the distributing company to receive from the Mississippi River Power Company power at any time the latter may be able to deliver it, and to be in full operation by July 1, the date upon which the power company expects to commence regular delivery of Keokuk hydroelectric power.

"The operating revenues of the United Railways of St. Louis aggregated \$12,251,090, an increase of 2.79 per cent over those of 1911; gross income \$3,835,284, a decrease of 3.79 per cent; net income \$1,139,087, a decrease of 7.27 per cent. The principal causes of the increase in operating expenses are increase in cost of additional electrical power purchased for operation of cars, increases in wages of trainmen and increases in reserves for injuries and damages, taxes and depreciation. During the year there was expended on additions to physical property \$130,678.

"During the year the lower court decided the mill tax cases against the company. An appeal from these decisions has been taken to the Supreme Court of Missouri. The company has in its treasury sufficient funds, represented largely by United States government bonds, with which to make payment of accrued mill tax should the court of last resort decide against it.

The income account of the United Railways, St. Louis, for the year ended Dec. 31, 1912, follows:

Operating revenue	\$12,251,090
Operating expenses	\$6,508,924
Depreciation (reserve credit)	1,319,576
Taxes (reserve credit)	652,222
Net operating revenue	\$3,770,367
Non-operating revenue	64,917
Gross income	\$3,835,284
Interest charges	2,696,196
Net income	\$1,139,087

The income account of The Milwaukee Electric Railway & Light Company, Milwaukee Light, Heat & Traction Company, Wisconsin Gas & Electric Company, Watertown Gas & Electric Company, Burlington Electric Light & Power Company and North Milwaukee Light & Power Company, all subsidiaries of the Wisconsin Edison Company, Inc., for the year ended Dec. 31, 1912, follows, with inter-company dividends eliminated:

Operating revenues	\$7,733,150
Operating expenses	\$3,998,479
Maintenance and depreciation (reserve credit)	768,811
Taxes (reserve credit)	516,278
Net operating revenues	\$2,449,581
Non-operating revenues	48,197
Gross income	\$2,497,779
Interest charges	1,507,574
Net income	\$990,204
Preferred stock dividends	275,500
Balance	\$714,704

Winnipeg Electric Railway

The statement of earnings of the Winnipeg (Man.) Electric Railway for the year ended Dec. 31, 1912, follows:

Gross earnings	\$3,765,384
Gross expenses	2,004,148
Net earnings for year	\$1,761,236
Fixed charges	\$566,773
Dividends	720,000
	1,286,773
Surplus for year	\$474,463

William MacKenzie, the president, said in part in the report:

"Your directors beg to submit a statement of the past year's business, showing gross earnings of \$3,765,384, as compared with \$3,829,749 last year.

"After providing for the percentage on earnings accrued

to the city and interest on bonds, your directors declared four quarterly dividends, amounting to \$720,000, leaving a surplus of \$474,463, which has been transferred to the credit of profit and loss account, making a total credit to this account to Dec. 31, 1912, of \$2,091,236.

"In accordance with the plan of extensions adopted at the last annual meeting, the following improvements and additions to the company's equipment and system have been made in the various departments.

"Track and Roadbed.—9.235 miles of track was laid as follows: 6.92 miles with 80-lb. rails with concrete foundation and asphalt pavement; 2.157 miles with gravel ballast; 0.158 mile with creosote block pavement. Rolling Stock.—Thirty-three large double-truck closed motor cars with wide vestibules, equipped with air brakes and all other modern appliances to insure the comfort and safety of passengers and trainmen, were constructed in the company's Winnipeg shops and put in service. Two new snow sweepers and one 5000-gal. pneumatic street sprinkler were purchased and put in service.

"Owing to the increase in the company's business, the directors thought it advisable for the company to secure its own office premises and therefore purchased a lot on the corner of Notre Dame Avenue and Albert Street, in the heart of Winnipeg, and on June 13 commenced the construction of a fully modern ten-story fireproof office building. The company will use the basement and two first floors for its offices, the remainder will be rented, and on account of the great demand for office space it is estimated that the rentals received from the building will make it self-sustaining. The company expects its portion of the building to be ready for occupation by April 1, and the portion to be rented by May 1, 1913."

Ardmore (Okla.) Traction Company.—On June 15, 1913, the property of the Ardmore Traction Company will be sold at public auction by the receiver for cash. The property consists of 4.7 miles of trackage, including 1 mile in paved district, the paving being paid for; five standard cars, a fifty-year franchise, amusement and baseball park and approximately 190 acres of townsite property adjoining the city intersected by cars in operation. C. L. Byrne is the receiver of the company.

Bay State Street Railway, Boston, Mass.—William A. Read & Company, Boston, have purchased \$266,000 of Boston & Northern Street Railway 4 per cent bonds, due in 1954, and \$163,000 of Old Colony Street Railway 4 per cent bonds, due in 1954, authorized recently by the Railroad Commission of Massachusetts.

Belt Line Railway Corporation, New York, N. Y.—The Belt Line Railway Corporation has filed its new mortgage in favor of the Central Trust Company, New York, N. Y., to secure an authorized issue of \$4,000,000 of thirty-year 5 per cent gold bonds. The present issue is \$1,750,000.

Central Illinois Public Service Company, Mattoon, Ill.—F. S. Peabody has been elected vice-president of the Central Illinois Public Service Company to succeed C. H. Cox. R. B. Donnelly, treasurer, has also been made secretary, succeeding E. C. Beatty, who becomes assistant secretary. Samuel Insull, chairman; A. J. Authenreith, George W. Hamilton, Martin J. Insull and F. S. Peabody have been elected directors to succeed L. F. Ter Bush, C. H. Cox and A. J. Stahl.

Charleston Consolidated Railway & Lighting Company, Charleston, S. C.—The Charleston-Isle of Palms Traction Company is reported to have taken over the Seashore division of the Charleston Consolidated Railway & Lighting Company on March 15, 1913, at midnight. The Seashore division of the company has been operated since Feb. 1, 1913, for the account of the Charleston-Isle of Palms Traction Company, pending the settlement of details connected with securing a release of the property embraced in the division from the trustees of the mortgage.

Georgia Railway & Electric Company, Atlanta, Ga.—Charles H. Harrison, Jr., & Company, Philadelphia, Pa., are placing at 98½ and interest, yielding about 5.10 per cent, their new block of \$800,000 of refunding and improvement mortgage sinking fund gold bonds of the Georgia Railway & Electric Company, sold to them to pay in part for addi-

tions and improvements made during 1912. There are now outstanding \$2,801,000 of this issue and \$10,524,000 of prior liens.

Kansas City Railway & Light Company, Kansas City, Mo.—The holders of the \$10,200,000 of first lien refunding 5 per cent bonds of the Kansas City Railway & Light Company, which mature on May 15, 1913, have been requested to deposit their holdings for mutual protection on or before May 1, 1913, with the New York Trust Company, New York, N. Y., or the Old Colony Trust Company, Boston, Mass. The protective committee for the first lien refunding 5 per cent bonds consists of John B. Dennis, Acosta Nichols, James J. Storrow and Paul M. Warburg, with C. M. Travis as secretary. Mr. Dennis, Mr. Storrow and Mr. Warburg are also members of the committee formed to represent the holders of the notes of the Metropolitan Street Railway.

Lehigh Valley Transit Company, Allentown, Pa.—A large percentage of the stockholders of the Easton Consolidated Electric Company have agreed to accept the offer of the Lehigh Valley Transit Company to purchase the \$750,000 of paid-in capital stock of the Easton Consolidated Electric Company at \$30.83 per share, payment to be made in 6 per cent collateral trust bonds of the Lehigh Valley Transit Company. The authorized capital stock of the Easton Consolidated Electric Company is \$1,500,000, and the par value of the shares is \$50.

Montreal (Que.) Tramways.—The directors of the Montreal Tramways announce that a dividend of 5 per cent has been declared on the paid-up capital stock and that a new issue of \$1,000,000 of stock at par will be made immediately. The 5 per cent just declared on the outstanding stock is the first dividend distribution to shareholders.

New Hampshire Electric Railways, Haverhill, Mass.—The details have all been concluded in connection with the plan to consolidate the seven Massachusetts and the three New Hampshire subsidiary companies of the New Hampshire Electric Railways. The necessary legislation was obtained last year and the plan to consolidate the companies was referred to in the *ELECTRIC RAILWAY JOURNAL* of July 6, 1912.

New York, Auburn & Lansing Railroad, Ithaca, N. Y.—The hearing before the Public Service Commission of the Second District of New York on the application for the approval of a plan of reorganization for the New York, Auburn & Lansing Railroad, proposed by the reorganization committee of bondholders of the company and bondholders of the Ithaca Street Railway, will be continued at Ithaca on April 24. The plan of reorganization provides for a successor company to take over the properties after foreclosure sale, the new company to be authorized to issue new securities as follows: \$1,450,000 of cumulative preferred stock to be exchanged dollar for dollar for such of the \$475,000 of consolidated 5 per cent bonds of the Ithaca Street Railway and the \$975,000 of the first mortgage bonds of the New York, Auburn & Lansing Railroad as shall assent to the plan; \$1,000,000 of common stock to be sold along with the \$900,000 of new bonds, and \$4,000,000 of first and refunding 5 per cent gold bonds, of which \$900,000 will be sold forthwith and \$310,000 reserved to retire at maturity \$275,000 of underlying bonds of the Ithaca Street Railway. Of the first and refunding 5 per cent gold bonds \$2,000,000 will also be held to provide for future extensions and additions. The proceeds of the immediate issue of \$900,000 of bonds are to be used to take up the receiver's certificates and to cover the cost of reorganization, etc. The reorganization committee consists of H. W. Fitz, Pawtucket, R. I., chairman; Edward Gunster, Wilkes-Barre, Pa.; J. H. Caldwell, Troy, N. Y.; Howard Bayne and A. H. Flynn, New York, N. Y.; U. R. Chaplin, Bangor, Maine, and Jared T. Newman, Ithaca, N. Y.

New York, Westchester & Boston Railway, New York, N. Y.—De Witt Cuyler and George F. Baker have been elected directors of the New York, Westchester & Boston Railway to succeed Lewis Cass Ledyard and G. M. Miller.

Omaha & Council Bluffs Street Railway, Omaha, Neb.—A. B. Leach & Company, New York, N. Y., who have in the past sold a considerable amount of the bonds of the Omaha & Council Bluffs Street Railway, carried an adver-

tisement in the principal daily papers in New York recently giving a statement of the damage to the property of the railway so as to relieve the bondholders of any anxiety respecting their investment. The statement follows: to overhead construction, \$10,000; to cars, \$2,500; to shops, \$1,000; to expense of clearing tracks, \$1,500; total, \$15,000. According to Leach & Company, the receipts of the railway for the first seven days following the tornado show an increase of approximately \$18,000 over the corresponding week of last year, or \$15,000 above normal. The damage at Omaha was referred to at length in the *ELECTRIC RAILWAY JOURNAL* of April 5, 1913, page 638.

Port Arthur & Fort William Electric Railway, Port Arthur, Ont.—The city of Fort William will take over on Dec. 1, 1913, the portion of the lines of the Port Arthur & Fort William Electric Railway within its own borders now operated by a joint commission with Port Arthur. The lines to be taken over are 14.875 miles. The remaining mileage, 10.45, is within the boundary of Port Arthur. After the date mentioned each city will operate the lines within its own boundary and the present joint commission will be dissolved.

Rock Island (Ill.) Southern Railway.—It is reported that the Rock Island Southern Railway is negotiating with the People's Traction Company for the purchase of the inter-urban electric railway between Galesburg and Knoxville.

Seattle, Renton & Southern Railway, Seattle, Wash.—On April 30, 1912, William R. Crawford, former president of the Seattle, Renton & Southern Railway, brought suit against the company and Peabody, Houghteling & Company, Chicago, asking for a receiver for the railway and for damages from Peabody, Houghteling & Company on the ground of conspiracy and fraud. The suit was tried during February and March, 1913, before Judge Kauffman, in the Superior Court of King County, Washington, who has rendered an opinion which he concludes as follows: "It is my opinion that Peabody, Houghteling & Company have acted with the richest good faith toward Mr. Crawford and this property; that the charges of fraud have not been proved, but on the contrary have been overwhelmingly disproved; that they do not now want the property and never have wanted it; that their only object throughout their entire connection with this property has been to help it pay its debts and to this end they have devoted their time, their efforts and their money, and that this suit is unwarranted and should never have been brought. Let judgment and decree be drawn and entered accordingly." The court has since ordered the sale of the property of the railway by the receivers appointed by the State courts.

Third Avenue Railway, New York, N. Y.—The Third Avenue Railway has applied to the Public Service Commission for the First District of New York for permission to purchase the entire capital stock of the Third Avenue Bridge Company, which operates cars over the Queensboro Bridge. The Bridge company was organized by Third Avenue Railway interests with a capital stock of \$20,000. The construction and equipment of the road cost the Third Avenue Railway more than \$100,000, and the Third Avenue Bridge Company now proposes to give its note to the Third Avenue Railway for the amount due and the Third Avenue Company proposes to acquire all the stock of the bridge company and to operate the road of the latter as a part of the Third Avenue system.

Toledo Railways & Light Company, Toledo, Ohio.—At a meeting of the directors of the Toledo Railways & Light Company held on April 3, 1913, Morris Allen was elected president and L. E. Beilstein general manager of the company, to succeed F. R. Coates, who remains a director. Mr. Allen is an attorney at Toledo and son-in-law of Barton Smith, counsel for the company and attorney for the stockholders' reorganization committee. It is said that the action taken at the directors' meeting was contrary to the advice of Henry L. Doherty & Company, representing more than 80 per cent of the stock of the company. Rumor has it that a difference arose between the attorneys of the bondholders' and the stockholders' reorganization committees, and that Henry L. Doherty & Company, as representatives of the new interests, have declined to take part in the controversy. This action has nothing to do with the owner-

ship of control of the Toledo company or with the eventual operation of the property by Henry L. Doherty & Company.

West Shore Electric Railway, Goderich, Ont.—The municipalities of Goderich, Ashfield, Huron and Kincardine in Huron County, Ont., purpose to apply to the Ontario Railway & Municipal Board to have the West Shore Electric Railway turned over to them. The West Shore Electric Railway was to extend from Goderich to Kincardine, a distance of 35 miles. It received a charter in 1902 and the company says that \$797,550 was spent on construction and equipment. The municipalities mentioned guaranteed bonds of the company to the extent of \$400,000, all of which have been sold and the interest has become a charge on the municipalities.

Dividends Declared

Brooklyn (N. Y.) City Railroad, 2 per cent, quarterly.

Dallas (Tex.) Electric Corporation, 3 per cent, first preferred; 2½ per cent, second preferred.

Fort Smith Light & Traction Company, Fort Smith, Ark., quarterly, 1¾ per cent, preferred.

Manchester Traction, Light & Power Company, Manchester, N. H., quarterly, 2 per cent.

Memphis (Tenn.) Street Railway, quarterly, 1¼ per cent, preferred; 1 per cent, common.

Ohio Traction Company, Cincinnati, Ohio, quarterly, 1 per cent, common.

Ottumwa Railway & Light Company, Ottumwa, Ia., quarterly, 1¾ per cent, preferred.

Omaha & Council Bluffs Street Railway, Omaha, Neb., quarterly, 1¼ per cent, preferred; quarterly, 1¼ per cent, common.

Ottawa (Ont.) Electric Railway, 3 per cent, quarterly.

Stark Electric Railroad, Alliance, Ohio, quarterly, ¾ of 1 per cent.

West Penn Traction Company, Pittsburgh, Pa., quarterly, 1½ per cent, preferred.

ELECTRIC RAILWAY MONTHLY EARNINGS

BATON ROUGE (LA.) ELECTRIC COMPANY

Period		Gross Earnings	Operating Expenses	Net Earnings	Fixed Charges	Net Surplus
1m., Jan., '13		\$13,427	\$8,472	\$4,955	\$1,734	\$3,221
1 " " '12		12,161	6,313	5,848	1,730	3,118
12 " " '13		148,647	*90,065	58,582	20,772	37,810
12 " " '12		121,801	*76,039	45,761	20,719	25,042

BROCKTON & PLYMOUTH STREET RAILWAY, PLYMOUTH, MASS.

1m., Jan., '13		\$7,873	*\$7,190	\$683	\$1,091	\$408
1 " " '12		7,163	*6,878	285	1,055	770
12 " " '13		120,718	*91,184	29,534	12,590	16,944
12 " " '12		118,893	*90,975	27,918	12,850	15,068

CAPE BRETON ELECTRIC COMPANY, SYDNEY, N. S.

1m., Jan., '13		\$31,835	*\$17,760	\$14,075	\$5,823	\$8,252
1 " " '12		28,327	*17,495	10,832	5,636	5,196
12 " " '13		363,685	*195,146	168,539	68,292	100,247
12 " " '12		336,439	*183,969	152,470	67,811	86,659

COLUMBUS (GA.) ELECTRIC COMPANY

1m., Jan., '13		\$57,598	*\$27,514	\$23,008	\$19,919	\$3,089
1 " " '12		50,107	*23,579	20,736	18,408	2,328
12 " " '13		620,848	*272,964	274,607	228,274	46,333
12 " " '12		564,072	*248,413	249,189	193,255	55,934

DALLAS (TEX.) ELECTRIC CORPORATION

1m., Jan., '13		\$170,815	*\$106,094	\$64,721	\$23,635	\$40,086
1 " " '12		135,170	*86,242	48,929	19,614	29,315
12 " " '13		1,857,207	*1,112,647	744,560	295,278	449,282
12 " " '12		1,632,281	*1,105,548	526,734	244,035	282,698

EL PASO (TEX.) ELECTRIC COMPANY

1m., Jan., '13		\$80,922	*\$41,843	\$39,079	\$1,971	\$37,108
1 " " '12		69,775	*35,619	34,156	7,156	27,000
12 " " '13		804,466	*436,441	368,025	64,477	303,548
12 " " '12		699,613	*406,888	292,725	81,705	211,020

GALVESTON-HOUSTON ELECTRIC COMPANY, GALVESTON, TEX.

1m., Jan., '13		\$169,615	*\$105,104	\$64,491	\$33,660	\$30,831
1 " " '12		146,007	*90,736	55,271	34,119	21,152
12 " " '13		2,051,265	*1,197,070	854,195	405,197	448,998
12 " " '12		1,558,010	*978,121	579,889	245,328	334,561

HOUGHTON (MICH.) COUNTY TRACTION COMPANY

1m., Jan., '13		\$24,379	*\$15,776	\$8,603	\$5,752	\$2,851
1 " " '12		22,125	*18,345	3,781	5,227	1,446
12 " " '13		309,760	*172,166	137,593	67,758	69,835
12 " " '12		299,832	*179,445	120,387	62,703	57,684

*Includes taxes. †Deficit.

Traffic and Transportation

Decision by I. C. C. in Case Affecting the Washington, Baltimore & Annapolis Electric Railway

The Interstate Commerce Commission has dismissed the complaint of the Cal Hirsch & Sons Iron & Rail Company against the Washington, Baltimore & Annapolis Electric Railroad, Baltimore, Md., submitted on Jan. 16, 1913. The report of the commission follows:

"Complainant, a corporation, deals in railway material and scrap iron at St. Louis, Mo. By petition, filed May 31, 1912, it alleges that the defendants assessed unreasonable charges for the transportation of a less-than-carload shipment consisting of school desks, high stools, iron legs for desks, tin typewriter covers, copy presses and stands and rolls of cocoa matting, from Annapolis, Md., to East St. Louis, Ill. The establishment of a reasonable rate for the future and reparation are asked.

"Complainant purchased the articles comprising the shipment at Annapolis at a sale of condemned government property. The goods were shipped in the name of the drayman who delivered them to the carrier, and the several articles were specified in the bill of lading. Defendants assessed charges, based upon the first-class rates of 7½ cents from Annapolis to Odenton, Md., and 70 cents from Odenton to East St. Louis, aggregating 77½ cents, which have not been paid by complainant.

"It is the contention of complainant that the rate on this shipment should not exceed the scrap-iron rate or that a rating lower than first-class should be made applicable to condemned government stores. In answer to the first contention it is to be said that the shipment did not consist of scrap iron. It was more nearly analogous to second-hand furniture or household goods. Had the household goods rating been applied, however, the charges would have been the same as those assessed.

"Complainant also contends that the defendants should establish a rate on condemned government stores not exceeding fourth-class in less than carloads from and to the points involved, and that their failure to do so resulted in unreasonable charges. The basis of this contention seems to be that the articles are second-hand and worth less than new goods of the same kind. It is obvious that application of a different rating to new and second-hand articles of the same kind would be impracticable. (Whitcomb v. C. & N. W. Ry., 15 I. C. C., 27.) The evidence shows that the shipment in question is the first one of the kind ever made from Annapolis, and that there has never before been a demand for a specific rate on condemned stores from that point. It appears that from Rock Island, Ill., where there is a government arsenal, lower rates are made to Chicago, Ill., and St. Louis, Mo., on condemned government ordinance than apply on new articles of the same kind. The purpose appears to be to provide low rates for shipments of condemned arms, cannon, etc., which are bought for the purpose of reducing the articles to junk.

"Under the facts here presented, we are of opinion and find that the rates applicable to the shipment here involved have not been shown to have been unreasonable or otherwise unlawful, and the complaint will be dismissed."

Baggage Checking on the Aurora, Elgin & Chicago Railroad.

The Aurora, Elgin & Chicago Railroad has provided an unusually liberal baggage service, and in an eight-page folder just issued the traffic department has pointed out to patrons the safe and expeditious means of baggage checking which it offers. An arrangement has been made with the United States Express Company whereby a patron may call on an agency for a wagon to be sent to any address for delivery or collection. The ordinary system of checking in baggage transfer is used except that provision is made not only for collection but delivery at destination. The rates charged for this service are 40 cents per 100 lb. for the first 25 miles and 50 cents per 100 lb. for any other point beyond on the company's line.

In calling attention to the reasonable charge for this service the folder states:

"An ordinary trunk weighs from 100 lb. to 150 lb. Transfer charge under old system from or to house to or from railroad station is usually 50 cents at each end of the line, making a total of \$1. Under our system this shows a saving of from 25 cents to 50 cents on trunks and a larger amount on suitcases and satchels, to say nothing of the fact that your property is in responsible hands all the time and you are saved trouble as well as expense."

In addition to this service, baggage is received and delivered at points where the express company does not maintain agents. Baggage may be delivered to the railway company's express or compartment cars at stations, and it is then forwarded promptly at a rate of 25 cents per piece. Under this system the owner of the baggage arranges for pick-up and delivery in the same manner as if traveling by a steam railroad.

Reduction on Fare by the Jamestown Street Railway.—The Jamestown (N. Y.) Street Railway has agreed to double-track its Lakewood line and reduce the fare between the western limits of Lakewood and Jamestown from 10 cents to 5 cents.

Ban on Roller Skates in Louisville.—The Louisville (Ky.) Railway has posted an order in all its cars forbidding anyone wearing roller skates to enter the company's cars. This is a precautionary measure to prevent accidents to skaters in boarding and alighting from cars.

Abandonment of Part of Line Authorized.—The Public Service Commission of the Second District of New York has consented to the abandonment of a part of the Binghamton Railway Company's line on Eldridge Street between Chenango and State Streets, Binghamton. There was no opposition to the granting of this application.

Restoration of Stops to Be Asked.—Councilman Moylan will ask that all original stops be restored by the Cleveland (Ohio) Railway on the West Fourteenth Street line between the Central viaduct and Scranton Road. The destruction of the West Third Street bridge by the flood and other damages make the restoration of the stops necessary to furnish proper service, according to Mr. Moylan.

"Safety First" Meeting Postponed.—The meeting of employees of the Louisville & Northern Railway & Lighting Company of New Albany, Ind., at which Alexander Shane, of Chicago, was to explain the idea back of the "Safety First" campaign was postponed on March 31, both on account of the absence of Mr. Shane from the scene and the enforced overtime labor of the L. & N. crews during flood time.

Seeing the Flood at Louisville by Electric Railway.—Thousands viewed the early April flood in the Ohio River at the falls via the "Big Red Car," which is run by the Louisville & Northern Railway & Lighting Company and the Louisville & Southern Indiana Traction Company. The flood at Louisville, Ky., and New Albany and Jeffersonville, Ind., was the worst since 1884. The electric railways pointed out through the newspapers that a round trip of the three cities on the "Big Red Car" at a total cost of 20 cents afforded the best and safest view of the flooded falls.

Advance in Wages of Platform Men at Akron.—Charles Currie, general manager of the Northern Ohio Traction & Light Company, Akron, Ohio, has announced an advance in wages of 1 cent an hour for the new men and 2 cents an hour for those who have been in the service for some time. The new scale is as follows: First year, 23 cents an hour; second year, 24 cents; third year, 25 cents; fourth year, 26 cents; fifth year, 27 cents; sixth year and thereafter, 29 cents. The scale for those employed on city cars is 1 cent less than that of the men on the interurban lines, except the maximum, which is 2 cents less.

New Fare Collecting System in Helena.—The Interurban Railway, Helena, Mont., carried a card 7 in. wide by 13½ in. high in the *Helena World* recently, announcing the installation on all of its cars on March 30 of the Rooke system of fare collection. The advertisement was concluded in part as follows: "This system is identical with collection principles on pre-payment cars. Please have your nickels ready. Read the notice posted in our cars. The passenger tendering 5 pennies will be handed a nickel in exchange, for insertion. Metal tickets will be inserted the same as nickels."

London & Port Stanley Railway Electrification.—The City Council of London has decided to submit the question of the electrification of the line to the people at the earliest possible date. Application has been made to the Ontario Legislature by the city for power to lease the line, to authorize its electrification and to operate it by commission or otherwise, after the passing of the necessary by-laws. The Council had previously referred to its finance committee a motion to authorize the city to apply to Parliament for an act which would enable the city to foreclose the mortgage which it holds secured by property of the company.

Apprehending "Dips" on New York Railways.—Secret service men in the employ of the Interborough Rapid Transit Company, New York, N. Y., have succeeded in apprehending and convicting a considerable number of criminals lately. From July 1, 1911, to March 17, 1912, thirty-four pickpockets were arrested by special officers. Thirty-six were sent to State prison for terms ranging from one year to twelve years. The Grand Jury failed to indict four and four were acquitted. From March, 1912, up to and including April 4, 1913, twenty-three pickpockets were arrested on property of the company by the company's detectives. Seventeen were convicted, three were discharged and three are now under bail awaiting proceedings.

Report on Lockport Accident.—In the report of the chief inspector of safety appliances on the investigation of the accident on the International Railway near Lockport, N. Y., on Jan. 25, 1913, the Interstate Commerce Commission lays the blame on Motorman Mack, who was killed in the accident, and who failed to see and obey stop signals given by a flagman who was back a distance sufficient to protect his train had his stop signals been observed and obeyed. Motorman Mack also failed to obey the rule providing that all trains must reduce speed and be under full control in yard limits. The commission recommends that the rules require the use of torpedoes in signaling under all conditions, saying that if trainmen are asleep the detonation of the torpedoes will awake them in time to avert collision.

Interurban Terminal Plans at Nashville.—At a recent conference between H. H. Mayberry, president of the Nashville-Gallatin Interurban Railway, Nashville, Tenn., and Percy Warner, president of the Nashville Railway & Light Company, it was decided that the interurban railway should use the transfer station of the Nashville Railway & Light Company and that the Nashville Railway & Light Company will pay 3 per cent of the gross receipts from this service to the municipality. It is expected that only temporary use of the transfer station will be made by the interurban railway, as Mr. Mayberry is considering plans for a terminal station in Nashville suitable for the use of the two existing interurban lines and the proposed line of the Nashville-Gallatin company to Murfreesboro and Woodbury, Tenn.

Train Schedule Held to Be a Contract.—The Northern Central Railway has been ordered by the Public Service Commission of Maryland to cease sidetracking local trains in order to give the right-of-way to through trains which have been delayed. The commission holds that local trains, of right, should be operated upon their published schedule, and that halting the schedule of locals, occasioned by giving the track to delayed through trains, is discriminatory and unjust. The decision does not apply to those sidetrackings of local for through trains which are provided for in the schedules of the local train. Philip D. Laird, chairman of the commission, who wrote the opinion in the case, says: "The position of this commission is that the train schedule published by the railway is the contract which the company makes with the public to place it at destination at a given time. The schedule is arranged to provide for through traffic and local traffic, and if the proper and necessary running time of the respective kinds of traffic is maintained there is no interference with either. The time allotted to a particular train belongs to it to the exclusion of all others, and the passengers on that train are entitled to be carried to their destination upon the schedule time. The fact that a through train is late does not give its passengers a right to consume the time assigned to a local train and subject the passengers on the latter to inconvenience."

Personal Mention

Dr. Eugene F. Roeber, editor of *Metallurgical and Chemical Engineering*, one of the McGraw papers, has just been elected president of the Electrochemical Society.

Mr. Frank B. Schneider, formerly general passenger agent of the Galveston-Houston Electric Railway, Galveston, Tex., has been promoted to the position of clerk to Mr. E. T. Moore, representing Stone & Webster in Dallas.

Mr. Fred Buffe, manager of the publicity department of the Illinois Traction System, Peoria, Ill., and Mr. Fred A. Stowe, general agent of the company at Chicago, resigned, effective on April 1, to become part owners of the Peoria *Herald-Transcript*.

Mr. George W. Esslinger has been appointed chief engineer of the Lackawanna & Wyoming Valley Power Company, Scranton, Pa., vice Mr. O. D. Havard, resigned, to engage in manufacturing. Mr. Esslinger will have charge of power station, substations and electric line.

Mr. A. A. Anderson, formerly general manager of the Springfield (Ill.) Consolidated Railway, the entire stock of which is owned by the Springfield Railway & Light Company, has become associated with the Middle West Utilities Company, Chicago, Ill., with offices in the Merchants' Loan & Trust Building, that city.

Mr. H. B. Whitehouse, formerly attached to the claim department of the Boston (Mass.) Elevated Railway and later identified with the claim divisions of accident insurance companies, has accepted the position of claim agent of the New Hampshire Electric Railways, Haverhill, Mass., to succeed the late Edward S. Eells.

Mr. F. W. Sweeny, who has been examiner in charge of the Chicago office of the division of accounts of the Interstate Commerce Commission, has been appointed chief examiner of accounts of the commission to succeed Mr. Charles A. Lutz, resigned, who has become comptroller of the United States Express Company.

Mr. David Daly has been appointed manager of the Galveston-Houston Electric Railway, Galveston, Tex., in addition to manager of the Houston Electric Company. Mr. Daly succeeds with the Galveston-Houston Electric Railway Mr. L. C. Bradley, who, as previously announced in the *ELECTRIC RAILWAY JOURNAL*, has assumed the duties of assistant district manager for Stone & Webster in Texas. No successor to Mr. Bradley as manager of the Galveston Electric Company has as yet been appointed.

Mr. Franklin T. Griffith, general attorney of the Portland Railway, Light & Power Company, Portland, Ore., was on April 8, 1913, elected by the board of directors vice-president of the company and on July 1 will succeed Mr. B. S. Josselyn, resigned, as president of the company. Mr. Griffith has been a resident of Oregon for twenty-two years and has practised law there for that length of time. He has been connected with the Portland Railway, Light & Power Company and its subsidiaries for nineteen years. He is forty-three years of age and is one of the most prominent men in the State. On account of his long connection with the company he is thoroughly acquainted with its policies and operating methods.

Col. Timothy S. Williams, president of the Brooklyn (N. Y.) Rapid Transit Company, was the guest of honor at a banquet at the Hamilton Club, Brooklyn, on the evening of March 26, 1913. The speakers, in addition to Colonel Williams himself, were Borough President George McAneny of Manhattan; Mr. Lewis H. Pounds, Commissioner of Public Works of Brooklyn; General George W. Wingate, counsel for the Long Island Railroad, and Public Service Commissioner George V. S. Williams. Mr. Frank Lyman, president of the Hamilton Club, under whose auspices the dinner was given, acted as toastmaster. Among the guests were Mr. C. D. Meneely, Mr. W. O. Wood, Mr. G. D. Yeomans, Mr. J. F. Calderwood, Mr. J. T. Crabbs, Mr. George S. Coleman, Mr. C. L. Rossiter, Mr. J. L. Greatsinger, Mr. S. W. Huff, Mr. H. A. Bullock, Mr. A. M. Williams, Mr. A. R. Piper, Mr. W. S. Menden, Mr. C. L. Crabbs and Mr. Lincoln Van Cott.

Mr. S. W. Barnes, whose appointment as traffic manager of the Central California Traction Company, Stockton, Cal.,

was noted in the *ELECTRIC RAILWAY JOURNAL* of March 22, 1913, began his career with the Santa Fé Railroad and was connected with both the traffic and operating departments of that company from 1891 to 1900. In 1900 he was appointed to the traffic department as traveling freight and passenger agent and later served as contracting freight agent. During 1907, 1908 and 1909 Mr. Barnes engaged in work other than railroading, but he returned to the railroad field with the traffic department of the Tonopah & Tidewater Railroad. In February, 1910, he accepted the position of chief clerk to the traffic manager of the Las Vegas & Tonopah Railroad, which position he held until July, 1911, when he was appointed general agent of the Tonopah & Tidewater Railroad at Los Angeles. He continued in the last-mentioned position until his appointment to the Central California Traction Company. With the exception of the short time that he was in Nevada, all of Mr. Barnes' railroading has been in California.

Mr. E. H. McHenry has resigned as vice-president of the New York, New Haven & Hartford Railroad and as vice-president of the Connecticut Company and other affiliated companies. Mr. McHenry began his railroad work as a civil engineer on the Northern Pacific Railroad in 1883, rising by successive promotions until he became chief engineer of the company. He was receiver of the company through the two-year period of its reorganization and was later chief engineer of the reorganized company. In 1902 he became chief engineer of the Canadian Pacific Railway but resigned from the company two years later to become connected with the New York, New Haven & Hartford Railroad. He has had charge of engineering, maintenance and construction work of the New York, New Haven & Hartford Railroad, including the original electrification work between New York and Stamford and the extension of the electric zone from Stamford to New Haven, which work is now under way. Mr. McHenry's resignation takes effect on May 1. It is understood that the duties which he performed with the company will be divided following his retirement from the company.

Mr. Mason D. Pratt has been appointed to the United Railways & Electric Company, Baltimore, Md., as engineer under Mr. J. M. Hood, Jr., consulting engineer of the company. Mr. Pratt was graduated from Lehigh University with the class of 1887 and was for a time after graduation a draftsman with the Phoenix Bridge Company. He afterward became associated with the Johnson Company at Johnstown, Pa., which later became the Lorain Steel Company. He served this company first as designing engineer on the new mill buildings at Moxham and later as engineer in charge of construction of electric railroads at Lancaster, Pa., and Washington, D. C. In 1889 he became assistant engineer under Mr. M. Tschirgi at Dubuque, Ia., where he had supervision of much municipal work, including the construction of a complete system of sewers. Mr. Pratt was connected for thirteen years with the Pennsylvania Steel Company, first as street railway engineer and later as engineer in charge of construction of new shops for the frog and switch department of the company. He was also a member of the water board of Steelton. In 1904 he opened an office as consulting engineer at Harrisburg, Pa., prepared to make surveys, plans and specifications for the construction of electric railways, power plants, water works, etc.

Mr. B. S. Josselyn, who is to retire on July 1, 1913, as president of the Portland Railway, Light & Power Company, and Mr. C. M. Clark, chairman of the board of directors of the company, had a testimonial luncheon at the Commercial Club, Portland, tendered to them recently by the other officers of the company and about 200 business men of that city. In replying to Mr. Edgar B. Piper, president of the Commercial Club, who acted as toastmaster, Mr. Josselyn said: "In winding up the work in which I have been engaged for the last six years, it is worth more than anything else to feel that I hold the respect and confidence of the entire community." Following the resignation of Mr. Josselyn Mr. Clark said: "I wish to express the most sincere appreciation of the service Mr. Josselyn has rendered to this company, with unflinching devotion and industry, over a period of almost six years. It is rarely in the history of any man's business career that he is called

upon to concentrate in any six years such an amount of difficult work as has fallen to Mr. Josselyn's lot in handling the affairs of this company since he took charge in July, 1907. Whatever success may have come in the upbuilding and development of the company's property and business it is largely due to his devoted efforts." The *Portland Journal* in a recent issue contained an editorial headed "Benage S. Josselyn," in which it reviewed the progress of the company during the last six years under Mr. Josselyn and referred particularly to his interest in the employees and the steps taken by him in their behalf. This editorial it concluded as follows: "It is satisfactory to know that in his intended resignation of the presidency of the Portland Railway, Light & Power Company Mr. Josselyn's citizenship and residence here and his interest in Oregon will not be severed. He has been in the past and, it is hoped, will be in the future an important factor in the development of the State."

Mr. H. C. Donecker, who since February, 1910, has been secretary of the American Electric Railway Association, has accepted the position of assistant general manager of the Public Service Railway, Newark, N. J. His resignation from the association will take effect on July 1, but by special arrangement with President McCarter of the Public Service Railway he will continue in charge of association matters until after the next convention and will give as much time to this work as may be necessary. Mr. Donecker has been a most efficient secretary and during his occupancy of the office which he has just resigned the association has gained rapidly in prestige and work accomplished. Previous to his appointment as secretary he had been office manager of the association for two years so that he was well acquainted with the needs of the organization. He has been engaged in the electric railway field since 1890. In that year he entered the employ of the Johnson Company, Philadelphia and Johnstown, later the Lorain Steel Company. Four years later, or in 1894, he became associated with Tom L. Johnson, Cleveland, and his brother, Albert L. Johnson, in the construction and operation of the Nassau Railroad, Brooklyn, N. Y., and in 1899 entered the employ of the St. Louis (Mo.) Transit Company under Mr. J. J. Coleman, general manager of the company. In 1900 Mr. Donecker became connected with Col. Giles S. Allison of the Security Register Company, St. Louis, Mo., with whom he remained until 1906, when he entered the employ of Ford, Bacon & Davis, New York, N. Y., where his work was largely the compilation and classification of electric railway financial statistics. The office to which Mr. Donecker has been appointed is a new one on the Public Service Railway.



H. C. Donecker

OBITUARY

William Belden Reed, Jr., treasurer of the Miller-Reed Company, New York, N. Y., and vice-president of the Otsego & Herkimer Railroad, Cooperstown, N. Y., is dead. Mr. Reed was born in 1876 and was graduated from Princeton University in 1896. For a few months he was with Mr. William B. Parsons, consulting engineer, New York, after which he spent a year with the Metropolitan Street Railway, New York, as rodman and leveler. Subsequently he was connected with the New York & Pennsylvania Brick, Tile & Terra Cotta Company and the Terry & Tench Construction Company, but returned to the Metropolitan Street Railway as assistant to the engineer of maintenance of way in 1899 and 1900 under Mr. W. Boardman Reed, engineer of maintenance of way. In 1901 he was elected vice-president of the White Manufacturing Company, New York, and in 1906 he was elected vice-president and treasurer of the White Plains Construction Company, White Plains, N. Y. This last position he held until his association a few months ago with the Miller-Reed Company.

Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (*) indicates a project not previously reported.

RECENT INCORPORATIONS

***Edmonton, Stony Plain & Wabamun Railway, Edmonton, Alta.**—Incorporated in Alberta to build an electric railway from Edmonton to Stony Plain, thence to the shores of Lake Wabamun. Directors: A. Boileau, E. S. McQuaid, Edmonton, Alta., and A. V. Pujebet, Paris, France.

***Tramways Company, Ltd., Edmonton, Alta.**—Incorporated in Alberta to build the following lines: From Edmonton northerly to Bon Accord, with a branch to Fort Saskatchewan Settlement; from Edmonton northeasterly to Fort Saskatchewan Settlement, and from Edmonton easterly and northerly on the south bank of the Saskatchewan River to Fort Saskatchewan Settlement, with branch lines not exceeding in any one case 6 miles in length. The provisional directors are: G. Cresswell, S. Carson, W. Golley and S. H. Smith, Edmonton, Alta.

Lewiston-Clarkston Valley Railway, Lewiston, Idaho.—Incorporated in Idaho to build an electric railway to connect Lewiston, Idaho, and Clarkston and Asotin, Wash. Capital stock, \$1,000,000. Incorporators: F. L. Sturm, C. F. Osners, S. L. Alford, J. E. Nickerson, Lewiston, Idaho, and J. E. Hooper, Clarkston, and E. S. Florence, Asotin, Wash. [E. R. J., March 15, '13.]

***Benwah Railway, St. Marie's, Idaho.**—Incorporated in Idaho to build an interurban railway with about 10 miles of main track and about 18 or 20 miles of branch lines in the Benwah country, near to Benwah Lake. Capital stock, \$25,000. Incorporators: William A. Monroe, Spokane, and S. Parker and H. H. Boomer, St. Marie's.

***Monroe, Louisiana & Gulf Railway, Monroe, La.**—Chartered in Louisiana to build an interurban railway from Monroe in a southwesterly direction to Winnfield. Capital stock, \$1,000,000. Officers: J. M. Parker, New Orleans, president; T. J. Sheldon, vice-president, and Percy Sandel, secretary and treasurer.

Portage Radial Railway & Canal Company, Portage la Prairie, Man.—Incorporated in Manitoba to build a railway from Portage la Prairie to Winnipeg; from Portage la Prairie to Delta, all in Manitoba, with branch lines, and a canal from Lake Manitoba through the municipality of Portage la Prairie to the Assiniboine River. The company may develop and distribute hydroelectric power and use the same, steam or any other motive power for the operation of its railway. The provisional directors are: W. Richardson, H. Stephens, F. G. Taylor, Portage la Prairie; B. L. Grant, St. Francis Xavier; A. H. Oakes, Winnipeg.

***Belmont & Northern Traction Company, Lincoln, Neb.**—Incorporated in Nebraska to build a 3-mile electric railway from Thirteenth Street and P Street in Lincoln to Belmont. Capital stock, \$40,000.

***Wilmington-Carolina Beach Railway, Wilmington, N. C.**—Incorporated in North Carolina to build a 15-mile railway between Wilmington and Ocean Beach. Construction will be begun within the next six months. Incorporators: Iredell Meares, George F. Meares and William H. Green.

Chambersburg & Shippensburg Railway, Shippensburg, Pa.—Chartered in Pennsylvania to build a 9-mile electric railway between Shippensburg and Chambersburg. Capital stock, \$250,000. T. M. Mahon, Chambersburg, president. [E. R. J., March 8, '13.]

FRANCHISES

Birmingham, Ala.—The Birmingham Railway, Light & Power Company has received three franchises from the Council to extend the Norwood, Lewisburg and West End lines in Birmingham.

Lethbridge, Alta.—The Lethbridge Municipal Railway has asked the City Council for a franchise to build 4 miles of new track in Lethbridge.

Corona, Cal.—The Pacific Electric Railway has asked the Council for a franchise over Third Street in Corona.

Los Angeles, Cal.—The Los Angeles Railway has received a franchise from the Council for an extension of its West Tenth Street line in Los Angeles.

Shreveport, La.—The Shreveport Traction Company has received an extension of time on its franchises in Shreveport, so that all its franchises will expire in 1954. In return for these extensions the company is to build a double-track line to the main entrance of the State Fair grounds and will connect the Highland Park line with the double track on Texas Street in Shreveport.

***Lincoln, Neb.**—The Belmont & Northern Traction Company, the incorporation of which is noted elsewhere in this issue, has received a franchise from the Council for a 3-mile line from Thirteenth Street and P Street in Lincoln to Belmont.

St. John, N. B.—The St. John Railway has asked the City Council for a franchise to extend and double-track some of its lines in St. John.

McGregorville, N. H.—The Manchester Street Railway has asked the Council for a franchise to double-track its lines on the West Side in McGregorville.

Syracuse, N. Y.—The Public Service Commission, Second District, has granted its approval of the construction by the New York State Railways of additional tracks in Syracuse, consisting of an additional single-track railway in certain portions of South Crouse Avenue and also of a double-track railway to begin at the intersection of South Crouse Avenue and University Place and there to connect with the present single track and the proposed additional track in South Crouse Avenue, thence extending westerly in University Place to Irving Avenue, and from thence southerly in Irving Avenue, a distance of 1625 ft.

***Hamilton, Ont.**—The Hamilton Incline Railway has asked the City Council for a franchise to build an inclined railway from Wentworth Street, Hamilton, to the top of the mountain. The gradient will be 35 ft. x 100 ft., and the line will be equipped to carry electric cars, as well as vehicles and pedestrians.

Medford, Ore.—The interurban franchise granted to M. T. Minney, Oakland, last January by the city of Medford has been transferred by that company to F. B. Waite, Roseburg, Ore., and associates. The new company will carry out the proposed improvements of the old company and will immediately begin the construction of an electric railway from Medford to Ashland. The company also contemplates the purchase and electrification of the Barnum Railroad to Jacksonville. [E. R. J., March 8, '13.]

Salt Lake City, Utah.—The Utah Light & Railway Company has accepted the franchise granted it by the Council for a line north on Beck Street from the Warm Springs to the Davis County boundary line.

Seattle, Wash.—The Puget Sound Traction, Light & Power Company has accepted the franchise granted it for the extension of the Kinnear Park line and has announced that work on the extension will be begun at once.

Morgantown, W. Va.—The Morgantown Interurban Railway has received a thirty-nine-year franchise from the Council for a line to connect Morgantown with Point Marion. This line will connect Morgantown, Point Marion and Star City. J. H. McDermott, president. [E. R. J., Dec. 14, '12.]

TRACK AND ROADWAY

Birmingham & Gulf Railway & Navigation Company, Tuscaloosa, Ala.—A temporary arrangement has been made whereby this company will electrify its line in Tuscaloosa from the Central Foundry Company's plant at Holt. As soon, however, as the company can erect its own power plant it will furnish its own electric power.

Alberta Interurban Railway, Calgary, Alta.—About 20 miles of track will be built by this company during the year.

***East Edmonton, Alta.**—The East Edmonton property owners have formed a permanent organization to further the proposition of a 7-mile electric railway to extend east from Watt Street, in Forest Heights, to Alberta College grounds, thence south to Clover Bar road and east to the Great West coal mine and to Clover Bar Heights and west to meet the city extension south.

International Railway & Development Company, Vancouver, B. C.—Surveys have been completed by this company for a line through the Delta district to New Westminster, B. C. G. R. McDuff, engineer. [E. R. J., Aug. 24, '12.]

Vancouver Island Hydroelectric & Tramway Company, Ltd., Victoria, B. C.—The plans of this company are said to include the construction of a tramway from Nanaimo to Nanoose and Departure Bay on Vancouver Island. It is understood that these two branches, of 16 miles and 3 miles respectively, are to be part of a project to construct 200 miles of railway in the Nanaimo district. [E. R. J., Jan. 11, '13.]

San Joaquin Light & Power Company, Fresno, Cal.—Plans are being considered by this company to extend its railway to the Kern River oil fields and to the new Standard Oil refinery on the north side of the Kern River.

Glendale & Eagle Rock Railway, Los Angeles, Cal.—Grading has been completed and rails are being laid by this company on its 6-mile extension to Montrose.

Tidewater & Southern Railroad, Stockton, Cal.—Work will be begun at once by this company on its line to Merced. The right-of-way has been secured and surveys have been begun.

Big Four Electric Railway, Tulare, Cal.—Plans are being made by this company to begin the construction of its 45-mile electric railway to connect Porterville, Lindsay, Tulare and Visalia. The work will be done by the W. H. Hahn Construction Company. Orders for rails and ties have already been placed. [E. R. J., Dec. 21, '12.]

Orlando (Fla.) Interurban Traction Company.—Plans are being made by this company to raise the necessary money to build this 45-mile electric railway to connect Orlando, Kissimmee and Sanford. W. C. Temple, president. [E. R. J., Dec. 21, '13.]

Tampa (Fla.) Electric Company.—This company will spend \$400,000 for improvements to its power plant and track extensions during the year.

Athens Railway & Electric Company, Athens, Ga.—The citizens of Barberville and East Athens have asked this company to consider plans to extend its lines to those sections of Athens.

Sand Point & Interurban Railway, Sand Point, Idaho.—A 5-mile line between Sand Point and Dover will be built by this company during the year.

East Side Electric Railway, Centralia, Ill.—This company will begin construction at once on its 2½-mile electric railway between Centralia and Irvington. Capital stock authorized, \$25,000. The power station and repair shops will be located in Centralia and the company will operate four cars. Officers: C. F. Lender, Centralia, president; H. C. Higgins, vice-president; S. A. Frazier, secretary; W. M. Grisson, treasurer; H. C. Higgs, purchasing agent, and Lee S. Traener, engineer. [E. R. J., March 29, '13.]

Northern Illinois Electric Railway, Chicago, Ill.—A 24-mile line between Middlebury and DeKalb will be built by this company during the year.

Freeport Railway & Light Company, Freeport, Ill.—About 1 mile of new track will be built by this company in Freeport during the year.

People's Traction Company, Galesburg, Ill.—This company contemplates a 25-mile extension between Galesburg and Galva during the year.

Chicago, Peoria & Quincy Traction Company, Quincy, Ill.—Satisfactory agreements have been made by this company and the city officials of Quincy to build an electric line in Quincy. J. L. Soebbing, president. [E. R. J., Feb. 22, '13.]

Joplin & Pittsburg Railway, Pittsburg, Kan.—About 2 miles of track will be built by this company during 1913.

Louisville (Ky.) Railway.—Plans are being considered by this company to extend its Preston Street line, a distance of 1¼ miles, south to Audubon Park.

Baton Rouge (La.) Electric Company.—An agreement has been made by this company and the city authorities as to the location of the new line in Baton Rouge. It will be built in the center of Florida Street and on the east side on the East Boulevard.

Livermore & Augusta Street Railway, Augusta, Maine.—This company states that it has been incorporated but has not yet organized permanently nor decided when it will begin the construction of its electric railway to connect Augusta, Manchester, Winthrop, Readfield, Mount Vernon, Fayette, Chesterville and Livermore. The company will furnish power for lighting purposes. Capital stock authorized, \$250,000. Charles P. Hatch, Augusta, is interested. [E. R. J., March 8, '13.]

Aroostook Valley Railroad, Presque Isle, Maine.—A 7.13-mile line between Carson and Caribou will be built by this company during 1913.

Winnipeg, Selkirk & Lake Winnipeg Railway, Winnipeg, Man.—During 1913 this company will build 6 miles of city track and an 18-mile line between Middlechurch and Stonewall.

Holyoke (Mass.) Street Railway.—Plans have been made by this company for the extension of its Pleasant Street line across Highland Park to Northampton Street in Holyoke.

Nahant & Lynn Street Railway, Lynn, Mass.—This company has begun double-tracking part of its line in Lynn.

Berkshire Street Railway, Pittsfield, Mass.—About 30 miles of new track will be built by this company during 1913.

Benton Harbor & St. Joe Railway & Light Company, Benton Harbor, Mich.—Plans are being made by this company to begin work on its extension to Watervliet. Contracts for grading will be let at once. Orders for rails have been placed.

Iron River, Mich.—Plans are being made to organize a company to build an electric railway to connect Iron River, Stambaugh, Mich., and Ashland, Wis., and other towns on the Menominee Range. F. D. Sullivan, 1023 Seventh Avenue, West, Ashland, Wis., is interested. [E. R. J., March 29, '13.]

Meridian Light & Railway Company, Meridian, Miss.—Work has been begun by this company on its East End line and West End line extensions in Meridian.

St. Louis, Afton & Sunset Railway, Afton, Mo.—This company, which is building a 10-mile electric railway from St. Louis to Fenton, has filed a mortgage at Clayton securing an issue of bonds amounting to \$300,000. The American Trust Company, St. Louis, is trustee for the bondholders. The bonds were authorized Feb. 29, 1913. They become due in 1963 and bear 5 per cent interest. John M. Storm, president. [E. R. J., March 8, '13.]

Berkshire & Canaan Street Railway, Canaan, N. Y.—A bill reincorporating this company, with a capital of \$100,000, has been favorably reported in the Legislature. The charter in this state lapsed ten years ago through the failure of the company to build its entire line.

Elmira Water, Light & Railroad Company, Elmira, N. Y.—This company plans to build 2100 ft. of new track during the year.

Jamestown (N. Y.) Street Railway.—Plans are being made by this company for a line over Willard Street and to double-track Winsor Street in Jamestown. New and heavier rails will be laid in West Third Street in concrete.

Schenectady (N. Y.) Railway.—This company plans to build about 0.47 mile of city track during 1913.

Halifax (N. S.) Electric Tramway.—It is proposed to build about 1 mile of new track on Quinpool Road, from Oxford Street to the Arm Bridge, Halifax, N. S., during this year. Application has been made to the City Council to build a second track on about 1 mile of existing lines in Halifax.

Northern Ohio Traction & Light Company, Akron, Ohio.—This company plans to build 7 miles of double track during 1913.

Columbus Railway & Light Company, Columbus, Ohio.—Work has been begun by this company on the 2-mile extension to the plant of the Interstate Lumber Company north of Lake Park.

Ohio River Electric Railway & Power Company, Pomeroy, Ohio.—During the year this company plans to extend its tracks 1 mile to Hobson shops.

Oklahoma (Okla.) Railway.—This company plans to build about 5 or 10 miles of new track during 1913.

Kingston, Portsmouth & Cataract Railway, Kingston, Ont.—An agreement has been signed between this company and the Kingston City Council under which the Princess Street line is to be reconstructed.

Ottawa (Ont.) Electric Railway.—About 4 miles of city track will be built by this company during 1913.

Niagara, St. Catharines & Toronto Railroad, St. Catharines, Ont.—This company will build 20 miles of new track during the year.

Mount Hood Railroad, Portland, Ore.—Plans are being made by this company to electrify the 12-mile section of its line between Gresham and Bull Run. Recently the 8-mile section between Montavilla and Gresham was electrified. Until March 1, 1913, this 20-mile line between Montavilla and Bull Run was operated by steam.

Portland Railway, Light & Power Company, Portland, Ore.—This company is asked to consider plans to build a crosstown line on East Thirty-ninth Street in Portland.

Erie (Pa.) Traction Company.—This company, which recently purchased the rights of the new electric railway to be built between Erie and Corry, via Waterford, Le Boeuf and other points, plans to begin the construction soon of this proposed line.

Hummelstown & Campbellstown Street Railway, Hershey, Pa.—This company will build 4 miles of new track during the year.

Pottstown & Phoenixville Railway, Philadelphia, Pa.—This company plans to build a new bridge which will cost about \$100,000.

West Penn Railways Company, Pittsburgh, Pa.—During 1913 this company will build 9½ miles of new track from Latrobe to Hecla.

Wilkes-Barre (Pa.) Railway.—This company is asked to consider plans to extend its lines to Browntown and Yatesville.

Saskatoon (Sask.) Electric Railway.—Sealed bids, addressed to the City Commissioners, Saskatoon, will be received up to 12 o'clock noon on April 24, 1913, for double-tracking certain streets in Saskatoon for the municipal street railway. Specifications, instructions to bidders and tender forms can be obtained on application to E. Hanson, superintendent of street railway, Saskatoon, Sask. F. E. Harrison, Mayor, chairman of commissioners.

Greenville, Spartanburg & Anderson Railway, Greenville, S. C.—Grading has been begun by this company on Wofford Street, Greenville. The company plans to have the section of its line between Greenville and Spartanburg in operation during the year.

Sioux Falls (S. D.) Traction System.—This company will build about 2 miles of new track during the year.

Houston (Tex.) Electric Company.—This company plans to build 5.4 miles of new track during 1913.

Lynchburg Traction & Light Company, Lynchburg, Va.—Work has been begun by this company double-tracking and extending some of its lines in Lynchburg.

Virginia Railway & Power Company, Richmond, Va.—Plans are being considered by this company to double-track High Street from Chestnut Street to the city limits.

Mount Vernon, Wash.—A delegation of business men of the local Commercial Club recently petitioned Jacob Furth, head of the Stone & Webster Corporation, to construct an interurban line from Mount Vernon to Everett, the connecting link in the Tacoma-Bellingham electric interurban railway. Mr. Furth refused to commit himself on the proposition but stated that a line would be built in the future between the two cities.

Puget Sound Traction, Light & Power Company, Seattle, Wash.—During the year this company plans to build 5 miles of new track.

Fayette Traction Company, Fayetteville, W. Va.—This company states that it has completed 2 miles of the roadbed for its 4-mile electric line between Fayette, Fayetteville and Oak Hill. The company will be supplied by the Virginia Power Company. Capital stock authorized,

\$60,000. Capital stock issued, \$60,000. Officers: C. W. Dillon, president; M. M. Malcolm, vice-president; James Abbott, secretary and treasurer, and Phillip Conrad, chief engineer, all of Fayetteville.

Shenandoah Valley Railway, Martinsburg, W. Va.—Surveys will be begun at once by Dudley Britt, Clarksburg, on this company's 16-mile electric line from Martinsburg, W. Va., to Williamsport, Md. Clarence E. Martin, Martinsburg, is interested. [E. R. J., Nov. 9, '12.]

Madison, Wis.—The Rogers Park Engineering & Construction Company is making a survey for a proposed interurban railway between Janesville and Madison by way of Indiana Ford, Edgerton and Stoughton.

SHOPS AND BUILDINGS

Northern Electric Company, Chico, Cal.—A contract has been awarded by this company for a new freight depot in Oroville. The structure will be a frame building, 40 ft. x 120 ft. The cost is estimated to be about \$8,000. S. T. Cobb, the local contractor, will have charge of the work.

Tidewater & Southern Railroad, Stockton, Cal.—This company is receiving specifications for the construction of a new depot at Escalon. The structure will include a passenger waiting room, freight shed and platform. There will be ½ mile of siding at Escalon.

Illinois Traction System, Peoria, Ill.—This company is drawing plans for the new terminal building to be erected at Ninth Street and Adams Street in Springfield. The structure will cost about \$25,000.

POWER HOUSES AND SUBSTATIONS

Birmingham-Tuscaloosa Railroad & Utilities Corporation, Birmingham, Ala.—This company has placed a contract with the General Electric Company for the equipment for its new power plant in Tuscaloosa. [E. R. J., March 29, '13.]

British Columbia Electric Railway, Vancouver, B. C.—This company is constructing a receiving station which will regulate the distribution of current to the company's territory on the southern mainland of British Columbia. The site for the building is on the boundary line of the city of Vancouver, where the company has a large tract of land. The total expenditure which will be made on the property is estimated at \$250,000. The details of this and other proposed power improvements of the company were referred to in the ELECTRIC RAILWAY JOURNAL of April 5, 1913, page 652.

Albany (Ga.) Transit Company.—This company plans to build a new substation on Flint Street and Front Street in Albany. The structure will be 15 ft. x 20 ft.

Shreveport (La.) Traction Company.—This company will add to its station equipment a 1000-kw generator and switchboard. The General Electric Company will furnish and install the apparatus.

Worcester (Mass.) Consolidated Street Railway.—This company will install in its power house at Millbury a 5000-kw Curtis turbo-generator with 75-kw turbo-exciter, two 330-kva transformers and switchboard. This order has been placed with the General Electric Company.

Benton Harbor & St. Joe Railway & Light Company, Benton Harbor, Mich.—This company has placed an order with the General Electric Company for three 300-kw, 15,000-volt transformers.

Meridian Light & Railway Company, Meridian, Miss.—Among the improvements planned by this company will be the installation of a new 2000-kw turbo-generator at its Meridian power house.

Ohio Valley Electric Railway, Ironton, Ohio.—This company will install four 200-kw, 11,000-9500-volt substation transformers. The apparatus has been ordered from the General Electric Company.

Philadelphia & Western Railway, Upper Darby, Pa.—This company will install in the Beechwood power house a 500-kw rotary converter and 500-kw air-blast transformer and switchboard. The order for the apparatus has been placed with the General Electric Company.

South Carolina Light, Power & Railways Company, Spartanburg, S. C.—This company will install a 300-kw motor generator set and switchboard to be furnished by the General Electric Company.

Manufactures and Supplies

ROLLING STOCK

Saskatoon (Sask.) Electric Railway is reported to be considering the purchase of six cars.

Detroit (Mich.) United Railway, it is reported, will purchase a number of trail cars for use on its city lines.

Asheville & East Tennessee Railroad, Asheville, N. C., has purchased one double-truck car from the Southern Car Company.

Washington Railway & Electric Company, Washington, D. C., has ordered five double-truck cars from the Southern Car Company.

Phoenix (Ariz.) Railway has ordered from the American Car Company four 38-ft. 8-in. California type cars mounted on Brill 27-GE-1 trucks.

Norfolk (Va.) Southern Railroad has ordered five double-truck cars from the Southern Car Company. They will be equipped with Brill 27-MCB-2 trucks.

Boston (Mass.) Elevated Railway has ordered thirty cars from the Pressed Steel Car Company and twenty-five cars from the American Car & Foundry Company.

Southern Pacific Company, San Francisco, Cal., has applied to the Railroad Commission of California for permission to issue car trust certificates, the proceeds of which are to be used to purchase additional equipment including ninety passenger motor cars.

Meridian Light & Railway Company, Meridian, Miss., has ordered two single-truck cars from the Southern Car Company. They will have steel underframes with wooden posts. The company is now building in its own shops four single-truck cars which will have semi-steel underframes and wooden posts.

Philadelphia (Pa.) Rapid Transit Company, noted in the ELECTRIC RAILWAY JOURNAL of April 5, 1913, as having ordered 600 additional near-side cars, has ordered through the Near-Side Car Company from The J. G. Brill Company 550 34-ft. 1⅝-in. semi-convertible near-side car bodies mounted on Brill 39-E trucks.

Belt Line Railway, New York, N. Y., has ordered from The J. G. Brill Company forty 18-ft. storage battery cars. They will be equipped with the Electric Storage Battery Company's exide batteries, General Electric motors and Brill special trucks. The cars are similar to those now being operated by the Third Avenue Railway, New York, which were described previously in the ELECTRIC RAILWAY JOURNAL.

Worcester (Mass.) Consolidated Street Railway, noted in the ELECTRIC RAILWAY JOURNAL of March 22, 1913, as considering the purchase of twenty-one cars, has ordered fifteen 28-ft. closed city cars from the Osgood-Bradley Car Company and six 35-ft. semi-convertible interurban cars from the Wason Manufacturing Company. The city cars are equipped with two General Electric 87-A motors and Standard 0-36 trucks. The interurban cars are equipped with four Westinghouse 305-A-2 motors and with H.L.F. control and Standard C-50-P trucks.

Northern Texas Traction Company, Fort Worth, Tex., reported in the ELECTRIC RAILWAY JOURNAL of Feb. 15, 1913, as having ordered ten double-truck double-end closed cars from the St. Louis Car Company, has included the following details in the specifications for this equipment:

Seating capacity.....	40	Gongs	Wall
Length of body.....	26 ft. 6 in.	Hand brakes.....	Peacock
Length over buffers.....	39 ft. 0 in.	Heaters	Consolidated
Width over sheathing.....	8 ft. 4 in.	Headlights	C-H
Width over all.....	8 ft. 7 in.	Motors	outside-hung
Body	composite	Registers	International
Interior trim.....	mahogany	Sash fixtures.....	Edwards
Roof	arch	Seats	H. & W.
Underframe	steel	Seating material.....	wood slats
Car trimmings.....	bronze	Step treads.....	Mason
Curtain fixtures.....	Natl.L.W.Co.	Ventilators.....	
Curtain material.....	Pantasote	Stone & Webster vacuum	
Destination signs.....	Hunter	Wheelguards	H-B

TRADE NOTES

Watson-Stillman Company, New York, N. Y., has moved its Chicago office from 449 The Rookery to the McCormick Building, Chicago.

B. J. Carney & Company, Grinnell, Ohio, have just shipped fifteen cars of cedar poles to Omaha, Neb., to replace the poles destroyed by the tornado in that territory.

Allis-Chalmers Company's properties in Chicago, Ill., were sold at public auction on April 8 for \$1,000,000 to J. H. McClement, J. W. Wallace and Francis S. Bang, representing the reorganization committee.

C. F. Goodrich Switch Company, Chicago, Ill., has been incorporated with a capital stock of \$2,500 to manufacture and deal in railway equipment and machinery. The incorporators are C. F. Goodrich, Paul Schroeder and Joel Baker.

William Wharton, Jr., & Company, Inc., Philadelphia, Pa., announce that George R. Lyman, who has been connected with the company for several years, has been made sales agent at Chicago, with headquarters in the Fort Dearborn Building.

Metal Treating & Equipment Company, Inc., New York, N. Y., has been incorporated with a capital stock of \$100,000 to exploit its patented processes and solutions for electro-galvanizing in the form both of installing job galvanizing plants and installing special plants for its customers.

Smiley Company, Edmonton, Alta., has just closed for the account of the United States Steel Products Company an order for 3000 tons of rails and \$100,000 worth of special track work. J. B. Smiley, president of this company, was connected for a number of years with the Pennsylvania Steel Company in New York.

Eastern Car Company, Ltd., New Glasgow, N. S., is completing its plant at New Glasgow. The main building, which is 1100 ft. long, of four spans, each 90 ft. wide, is getting under roof, and much of the machinery is on the ground. It is expected that the plant will be in full operation within sixty days. H. B. Douglas, formerly manager of the Standard Steel Car Company, at Hammond, Ind., has accepted a position with the Eastern Car Company, Ltd., as manager.

General Vehicle Company, Long Island City, N. Y., has received an order from the New York (N. Y.) Railways for electric commercial vehicles as follows: One 1000-lb. wagon with express-type body, two 1000-lb. wagons with panel bodies, one 2000-lb. panel money wagon, fourteen 7000-lb. trucks with steel dumping bodies and hand-operated dumping devices, four 3½-ton trucks with platform and stake bodies, one 5-ton truck with platform and stake body and one 5-ton special truck. The 1000-lb. wagons will be used for special parcel delivery, while the money wagon ordered is a type already in use by express companies and banks. The fourteen 7000-lb. dumping trucks are to be furnished with the most modern equipment and will be the highest type of truck for the purposes for which they are designed. The 5-ton trucks will be used for cable work and the 3½-ton trucks will be used for general hauling.

Day & Zimmerman, Philadelphia, Pa., engineers, have moved their Philadelphia office from 608 Chestnut Street to 611-13 Chestnut Street. On April 5, to celebrate this move, the firm held a reception in its new offices, which occupy all but the first floor of the four-story building at 611-613 Chestnut Street. This is the third office in Philadelphia which the firm has occupied since 1902, the first being in the Drexel Building. Originally the business was confined largely to the rearrangement of equipment and industrial plants and the application of motors to machine tools. Eventually the firm developed the business of power plant work of all kinds for public service properties, and this led to the design and construction of transmission lines and finally the management of public utility properties. Among the latter, the firm operates the Lewistown & Reedsville Electric Railroad and the Citizens' Traction Company, Oil City, both in Pennsylvania.

Electrose Manufacturing Company, Brooklyn, N. Y., advises that it has received a reward of priority by the Court of Appeals of the District of Columbia in the Patent Office

interference case upon the company's patent on suspension insulators. The interference was between Mr. Steinberger, president of the Electrose Manufacturing Company, and E. M. Hewlett, of the General Electric Company, and was first decided in favor of Mr. Steinberger last December by the Commissioner of Patents. An appeal from this decision was entered by Mr. Hewlett but was affirmed April 7 in the court already mentioned. The first claim of the patent sustained, No. 904,370, is as follows: "A disk strain insulator, comprising suspension members, a mass of insulating material partially enveloping the same, said mass being provided centrally with a disk integral therewith and lying substantially in the general equatorial plane of the said mass, and further provided with flanges extending in opposite directions from said equatorial plane."

Western Electric Company, New York, N. Y., demonstrated its ability to answer most unusual demands for apparatus during the last two weeks when orders began to come in to repair the damage caused by the recent tornado in Omaha and the flood in the Central States. After the Omaha disaster the company was notified that 8000 poles, 25,000 cross-arms, 100,000 pins and 32,000 ft. of telephone cable were immediately needed in that city and the entire order was filled and the apparatus was shipped the following day from the different yards and storerooms of the company. Following the floods in Indiana and Ohio other calls came for emergency line materials, and the stock at the company's storehouses at Cleveland, Pittsburgh, Indianapolis, Cincinnati, Boston, New York and other cities was immediately drawn upon for aid, and telegraphic orders were issued to the company's sources of supply for more than 500,000 lb. of copper wire and from 5,000,000 ft. to 10,000,000 ft. of rubber-covered wire and distributing wire. All of this emergency material was sent to the stricken districts by express, and upon one shipment the express charges aggregated over \$6,000.

Esterline Company, Lafayette, Ind., was able to predict the overflow of its manufacturing plant in the recent flood in time to remove many thousands of dollars' worth of valuable material. The Esterline plant at Lafayette is located in a broad lowland, protected on one side by a high hill and on three other sides by levees. At 7 a. m. on Tuesday, March 25, the engineers of the company established a gage and took hourly readings of the rise of the water. These readings were plotted in the form of a curve in which the height of the levee was shown by ordinates and the hours were shown by the abscissas. By extending the curve the engineers determined about the time at which the levee would overflow and before that time the company removed about \$100,000 worth of merchandise and tools, all of its records, office furniture and fixtures. The belts were taken from the machines and the latter cleaned up and painted with heavy grease. The finished goods removed are sufficient to take care of customers for at least three weeks. After the flood had subsided a large force removed and cleaned the machinery and tools, which were shipped to Indianapolis, Ind., where the company intends to commence operation of its new plant April 15. The total damage sustained will not exceed \$10,000 and is limited practically to the cost of removing and cleaning up the apparatus and machinery which could not be moved before the flood. Shortly prior to the flood the company secured a new three-story building on South Street in Indianapolis, and now that the flood has subsided both factories, that at Indianapolis and that at Lafayette, will be used for the manufacture of the company's "Golden Glow" electric lamps and other material manufactured by it.

ADVERTISING LITERATURE

Barrett Manufacturing Company, New York, N. Y., has issued two circulars which contain directions for inspecting and full specifications for use of Barrett specification roofs over concrete and board sheathing.

Kennicott Company, Chicago Heights, Ill., has issued Bulletin No. 38, which describes the principle of the operation of the Kennicott water weigher. The purpose of this device is set forth in a booklet entitled "Value of the Kennicott Water Weigher in the Power Plant." The company recently had awarded to it the John Scott legacy medal on this measuring device.