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### The Columbus Riot

The scenes, which have culminated in the week of riot and anarchism just passed in Columbus, should bring a blush of shame to the cheek of every citizen in the State. No community can be considered as law-abiding where such acts are permitted. It is difficult to conceive how an official like the Mayor of Columbus, sworn to maintain peace and the rule of the law within his city, can reconcile his oath of office with the events which have transpired during the present strike. His proclamation of Monday reminds us of the candidate in Lowell's Bigelow Papers, who, if he had been placed in a similar position, would doubtless have said: "I believe in the maintenance of law and order; that is, I kind o' do; that is, I would if those on strike should say they wish me to." Fortunately, the Governor has at last awakened to the gravity of the situation and has ordered a return to Columbus of the State troops, excluding—we hope—those who showed their sympathy with the disorder of last week by making a donation to the cause of the strikers after leaving the city. Napoleon once said that it was far more merciful for a military commander when dealing with rioters to use stern measures at first rather than to attempt to intimidate them by ordering his soldiers to fire over the heads of the crowd. It will probably be more difficult to secure order in Columbus now than if the undertaking had been begun at the outbreak of the disorder, but the sooner the work is accomplished, the better for the city and its citizens. After that there will be ample time to take up the merits of the controversy between the railway company and its late employees.

### Weaknesses in Democratic Government

Some of the early critics of the American form of government expressed apprehension that it would fail because in times of popular excitement the passions of the mob would triumph over the desires of the orderly portion of the community and scenes of excess similar to those which characterized the French Revolution would be committed. The events to which we have just referred, with other recent and unpunished acts of disorder which have occurred in the same State during the past few months, lend force to this fear, although to those who have a stronger faith in American democracy and a more accurate conception of its inherent strength, they indicate only criminal weaknesses on the part of the authorities. The real trouble with our popular form of government is that it affords too easy access to positions of responsibility of men who are mere political trimmers. They are so used to trying to placate this faction and humor that one, that they have not sufficient strength of character to take a decided stand when a crisis occurs. Those who arise to the exigencies of a situation of this kind, however, as did Grover Cleveland at the time of the Debs riots, find that the vast majority of American citizens support them and approve of their course.



### Saving Power at Electric Track Switches

Recent observation of the handling of cars at electric track switches leads to the conclusion that unless motormen are carefully instructed in this particular work considerable power is liable to be wasted, motors, car wiring and rheostats overheated, and the service delayed at points on the system where money has been specially invested to facilitate rapid transit. On a system with a few hundred cars in operation and having a dozen or more electric track switches there are a good many opportunities daily for multiplied losses and delays which are none the less expensive for being more or less intangible. It is a common habit of motormen inexperienced in operating over electric track switches to put on the power and apply the brake while current is flowing in the motors, in order to take the switch at the speed and with the current necessary to throw it, instead of cutting off power, coasting to the proper point and then throwing on but one or two notches at the outside. With improper handling energy is always wasted, and frequently the equipment is so badly overloaded that a fuse blows or a motor flashes over, so that a line of short interval cars may be held up, with subsequent excessive demands for current from the local feeder system instead of the normal requirements of a fairly steady schedule. Again, where motormen cut off power, drift to the switch and then apply current it is often the case that the controller handle at once is thrown to full series or perhaps to full parallel, with much the same results at the motors and fuse as in the former case. Close and frequent inspection of the track switches is also well worth while, because apparatus of this kind, subjected to severe changes of weather and temperature, cannot safely be left too long to itself.

### The Reasonableness of a Transfer Charge

Experience with a charge of 1 cent for each transfer issued in connection with a regular 5-cent fare on the lines of the Middlesex & Boston Street Railway Company in Newton, Mass., shows continued acceptance by the public of a situation proved two years ago to be incapable of being met by the ordinary nickel tariff. For two years past the Massachusetts Railroad Commission has received an annual petition from the company requesting that the transfer charge may be continued on account of the absence of earnings sufficient to enable free transfers to be given on the lines formerly operated by the Newton Street Railway Company. At the public hearings given by the commission this year and in 1909 no opposition appeared to the continuance of the transfer charge, although no little hostility to the 6-cent fare idea was in evidence in Massachusetts when the movement began two or three years ago. The ready acceptance of such a charge by the public and the absence of petitions requesting the reopening of hearings in connection with increased fares or restricted service facilities for a given expenditure points to the wisdom of making the public fully acquainted with the state of corporate earnings and expenses no less than it demonstrates the confidence of the community in the investigations and decisions of the reviewing tribunal. The Newton lines did much to clinch their case with the public two years ago by sending financial statements to all registered voters in the territory, as described in the exhaustive articles which were published in this journal at the time on the Six-Cent Fare Movement in Massachusetts. While it is true that the public served by this system represents perhaps the more intelligent classes rather than the cosmopolitan population found

in many other parts of the Boston suburban district, the good results of taking the people into the confidence of the company are not confined to any particular locality.

### ELECTRIFICATION AT THE BERNE RAILWAY CONGRESS

The presentation at the Berne International Railway Congress of four papers on the electrical equipment of trunk lines necessarily suggests a consideration of the progress made in this subject since the last International Railway Congress, held in Washington in 1905. In some respects, the record is disappointing. It is true that during the past five years the New York Central installation has been completed, the New Haven single-phase equipment has been selected and installed, and the Pennsylvania terminal electrification has been undertaken. There have been several other important installations besides, notably that of the West Jersey & Seashore division of the Pennsylvania Railroad; the Long Island Railroad equipment was well under way in 1905. But four of the most important of these undertakings were obligatory because of tunnel conditions, and while this cannot be said of all of the work done during the past half decade, there has not been that wholesale invasion of the steam railway field in this country by the electric motor which was expected five years ago by the more sanguine.

Nevertheless, the four papers presented at the Berne conference do not afford ground for a pessimistic view of the situation. Mr. Gibbs' report, which was published in abstract in our issue of March 26, gives a tabulation of the operating results of the Long Island and West Jersey & Seashore systems by no means unfavorable to electric traction. Statistics of this kind were non-existent in 1905 and are most conclusive evidence of the substantial progress made in this country so far as actual installations are concerned. The papers presented by the three foreign engineers, Drs. Gleichmann, Hruschka and Wyssling, contained no such record of accomplishments. But they do testify not only to the study given to electrical systems by the Government railroad authorities in the leading Continental countries of Europe, but as well to an established intention to undertake the early equipment of a number of roads, in a comprehensive way and along standard lines, so as to assure harmonious development in the future.

Owing probably to the extent of its railway system, the greatest actual progress among the Continental countries seems to have been made in Germany, where electricity has been adopted for several suburban lines near Berlin and Hamburg. An experimental line has also been especially constructed at Oranienburg for trial purposes. Almost as rapid progress in electrical equipment has been made in Austria-Hungary, according to Dr. Hruschka, while Dr. Wyssling reported that, like the other Continental countries mentioned, Switzerland has had a commission for several years carefully studying the situation. The progress in other countries, particularly Italy, Sweden and England, was also mentioned at the meeting, although there were no papers especially devoted to the work being done there.

Two points stand out with particular emphasis in all of the three papers presented at the meeting by foreign engineers. One of these is the extent to which the authorities in the different countries expect to utilize water-powers for the operation of their railways. This, of course, is particularly true in



Switzerland, but Austria-Hungary, Italy and Sweden are also rich in water-powers, as are parts of Germany, so that this fact gives an emphasis to the advantages of electrification. The other point is the practically universal preference shown by these representative foreign engineers for the single-phase system at about 10,000 volts pressure. Whatever may be thought of this position by readers of this paper, it at least is indicative of the changes which have occurred in the art because in the conclusions adopted by the congress at Washington in 1905 no attempt was made to draw a comparison of the advantages of the different systems. At its Berlin conference, in 1915, we hope that the congress will be able clearly to define the provinces of each in general railroad work, assuming that all three of the present leading systems will remain candidates for serious consideration at that time.

### IMPROVING CAR DETAILS

In the admirable work which has lately been accomplished in the broad field of car design lies the danger that the full benefits of such activities will be lost unless the minor details of car fittings are given perhaps a disproportionate share of attention. Only a trained operating man can realize the intimate connection which the design of such small car parts as door catches, grab-handle screws, register rod attachments, window-frame buffers, lighting fixtures, window guards, and similar details has with the punctuality and comfort of the service. The public cares no more about whether the commutators of the motors are undercut or not than a Somali chieftain yearns for Corot landscapes, but it is intimately concerned with the question of a dress torn by a projecting screw head or a finger pinched in a sliding door. It is profitable now and then for a master mechanic to spend a couple of hours on defects occurring with minor car fittings, and to bring home to the shop and car house forces the necessity of constant vigilance in forestalling such troubles.

The number of such difficulties which will come to light on even a well-operated system is surprising. Breakage of glass, losses of incandescent headlights by theft and by careless swinging of trolley catchers at the end of the rope when changing ends, loosening of sign-light sockets on account of poorly cut threads, excessive wear of bell and register cords and misalignment of fittings through hasty installation or improper adaptation to different car interiors, use of too short spouts on sand boxes, so that the sand is directed off instead of on the rails, fuse-box troubles on account of poorly fitting screws—these and numerous other defects in operation or design tend to interfere with the best service even where they are of insufficient individual consequence to cause an interruption to traffic. There is room for improvement in many details of car fittings, for the saving of weight without undue sacrifice of strength, and for the better adaptation of designs to the convenience of employees and the public. In the design and construction of a power plant the minor fittings can almost always be disposed to reasonable advantage, even if space is not set aside for them until after the erection of the building is completed. The conditions are so much more restricted on a car and so little free space is available on modern rolling stock that it pays to determine in advance many points of location and fitting that in earlier days could be left to cut and try methods.

### SINGLE-END VS. DOUBLE-END CARS

The general adoption of prepayment type cars and the interest which is being shown in the subject of reduction of car weights suggest at this time some new arguments in favor of single-end car operation. Single-end cars are particularly suitable for prepayment operation as the rear entrance and front exit platforms can be designed and built to suit the different purposes for which they are intended. The length of the front platform can be reduced to a minimum, while still leaving space for the motorman and a car heater, if used, while the rear platform can be arranged to provide protection for the conductor in bad weather without enclosing it completely; none of the floor space is occupied by a controller or other operating apparatus. Two sets of troublesome and expensive doors on the left-hand side of the platforms are dispensed with and a better seating arrangement inside of the car is possible. Fixed cross-seats, which cost less and require less maintenance than reversible seats, can be used. Other items of special equipment of which the first cost is cut in half include controllers, hood switch, brake handles or valves, alarm bells, headlights, destination signs, fenders, fare registers, and on long, double-truck cars, trolley bases and poles.

The weight of all the parts supplied in duplicate on double-end cars also is worth considering. The total is probably not far from 700 lb., not including the excess weight of a long front platform and the extra doors and windows required on the rear platform. A conservative estimate of the difference in weight in favor of a single-end prepayment car would be 1500 lb. At 5 cents per pound per year this would represent a saving in operating expenses of \$75 per car. Add to this the interest on the investment in the duplicate apparatus, its cost of maintenance and the depreciation on it and the yearly charges against the double-end car mount up rapidly.

The strongest argument in favor of double-end cars has been that in case of blockades or delays the cars could be switched at cross-overs and kept on time. In some cities with very congested streets double-end cars may be considered absolutely necessary for this reason. Single-end cars, however, are successfully operated in Philadelphia, Cleveland, Detroit, Indianapolis and in a host of smaller cities, many of which have badly congested districts. Rochester, N. Y., has operated double-end cars for a long time and frequent cross-overs have been built on all the lines. It has been the practice to permit cars to turn back whenever they were running late and thus preserve the schedule at the expense of the service in the outlying districts. Recently the Main Street line, which traverses the city from east to west and carries very heavy traffic, was equipped with new single-end prepayment cars as an experiment. No trouble has been experienced in keeping these cars on their schedule times. The crews and the street inspectors know that they cannot make up lost time by turning the cars back at convenient cross-overs and they make a special effort to avoid all needless delays.

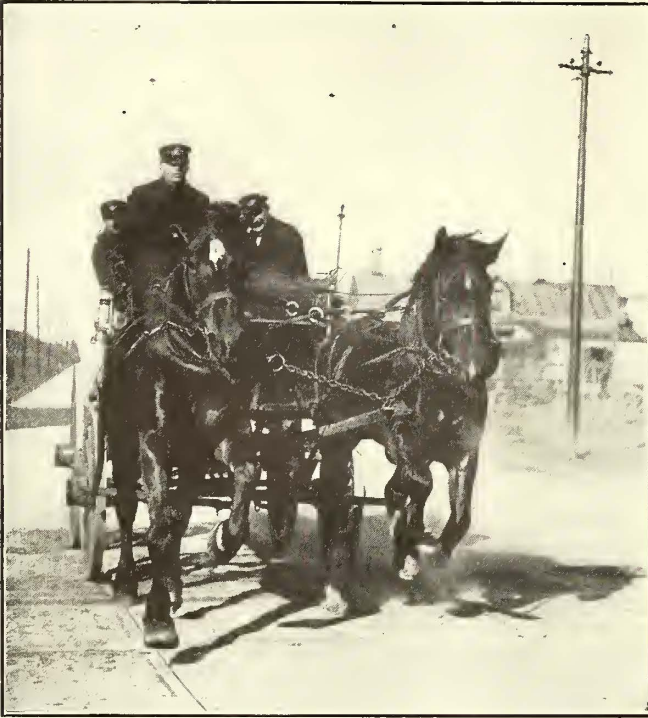
The operation of single-end cars requires the construction of loops or wyes at the terminals, but the first cost of the extra track and special work is little, if any, more than the cost of the duplicate car equipment required for double-end operation. The saving in operating expenses due to less weight is a net gain.



### BROOKLYN LINE DEPARTMENT—CONSTRUCTION, MAINTENANCE AND EMERGENCY CREWS

The regular construction and maintenance of the line department of the Brooklyn Rapid Transit Company is cared for by five crews having a total of 31 men. These crews report in the morning to the line department headquarters to secure their stock. It has been found preferable to start them from head-

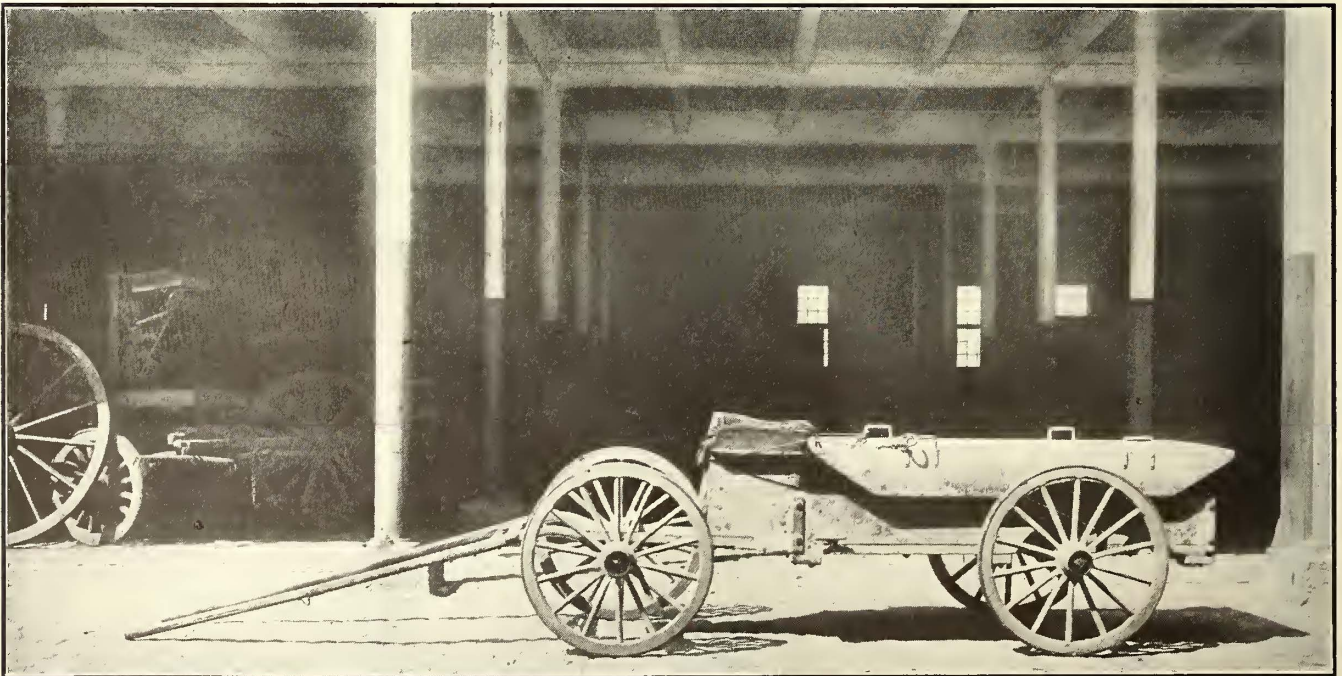
quarters of adjustable length used for hauling poles. A great deal of care is given to maintaining all of the vehicles in the best possible condition. When the line department headquarters were designed, it was arranged with commendable foresight that there should be a wagon shelter under the stable floor. In consequence of this provision, the wagons are always kept dry and free from snow. They are always available for immediate service, giving no delays whatever from snow, sleet



Brooklyn Line Department—An Emergency Crew in Transit to Repair a Break-Down



Brooklyn Line Department—Running Trolley Wire from a Car in a Suburban Town



Brooklyn Line Department—Wagon Shelter at Nostrand Avenue Headquarters

quarters daily so that the men will be available in case of emergencies, but in the afternoon the crews stop work wherever they may happen to be located. Each crew has a tower wagon for running trolley and is also provided with a four-motor double-truck car having a tower and swinging leaf. At the Nostrand avenue headquarters there is also stored a pair of

or stiffness of the wheels as are sure to occur where the wagons are kept constantly in the open air.

#### REGULAR LINE CREWS

Each crew is required to keep a certain amount of stock on hand, the assistant superintendent of the line department being the judge as to the amount. The construction crew materials



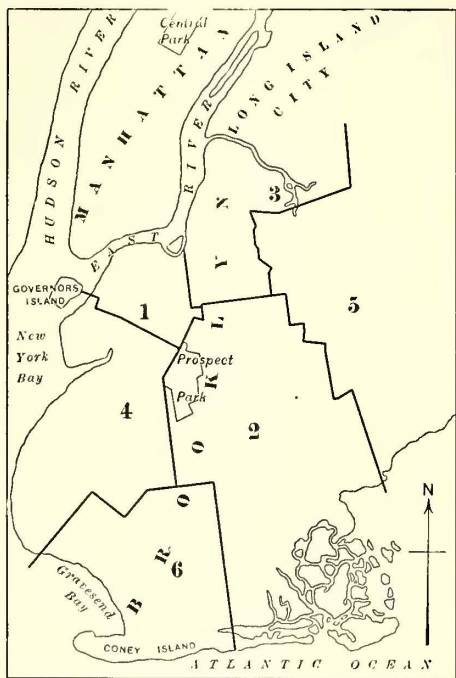




found better to provide the men with a manufactured furnace of this kind rather than to have them use for the same purpose such wasteful makeshifts as old milk cans. Owing to the use of the bar-iron overhead construction described in the article of June 11, 1910, each crew is also furnished with a special tool for punching holes in the bar-iron conductors. The punch is actuated by a screw toggle system which permits the bars to be punched while in place in the trough.

**EMERGENCY CREW WORK**

The emergency work of the line department is divided into six districts as shown on the accompanying map. These are not divided strictly according to mileage, but in accordance with the class of service and the amount of long distance travel necessary. To each district there is assigned a crew of four



**Brooklyn Line Department—Emergency Crew Districts**

tools for handling broken axles, derailed cars, etc., more expeditiously than can be done with the car of the shop wrecking crews.

The several emergency crew headquarters are provided with sitting and sleeping rooms, shower baths, etc. One of the ac-

| Foreman.  | Number of men. | Location and Description               | March 19, 1910. | Caror Charge. | horses. |
|-----------|----------------|--|-----------------|---------------|---------|
| Kayser    | 5              | Myrtle Ave.—feeder inspection.....     | 224             |               | 2       |
| Rathjen   | 5              | Lexington Ave.—iron workers.....       | 04942           |               | 2       |
| Moran     | 5              | Lexington & B'way—general repairs..... | 528             |               | 1       |
| Torrans   | 1              | Brooklyn Bridge.....                   |                 |               | ..      |
| Gallagher | 1              | 36th Street.....                       |                 |               | ..      |
| Mally     | 1              | East New York.....                     |                 |               | ..      |

**Brooklyn Line Department—Daily Report of Location of Crews (N. S. 150)**

| CALLS   |             |               |         |                 |           |            |
|---|-------------|---------------|---------|-----------------|-----------|------------|
| Time  | Reported by | Location      | Trouble | Notes and Cause | Man's No. | Study List |
| LINE DEPARTMENT EMERGENCY CREW NO. 17 (HOUSE ADDRESS) |             |               |         |                 |           |            |
| DAILY REPORT  |             |               |         |                 |           |            |
| Time Out  | Time In     | Call Answered | Time    | Remarks         |           |            |
| No. of men on duty                                    |             |               |         | Of days (same)  | Foreman   |            |

**Brooklyn Line Department—Daily Report Blank Used by an Emergency Crew**

companying illustrations shows the dormitory of the crew at the Nostrand Avenue headquarters. It will be seen that a sliding pole is provided, to permit quick access to the stable floor be-

| TELEPHONE CALL SHEET, FOR TROUBLES ON CARS, FEEDER AND TROLLEY |          |                   |           |           |            |          |         |         |        |    |
|--|----------|-------------------|-----------|-----------|------------|----------|---------|---------|--------|----|
| WEATHER.....   |          | A. M.             | P. M.     | DATE..... |            |          |         |         |        | 19 |
| No.  | LOCATION | NATURE OF TROUBLE | CALLED BY | CREW No.  | TIME REC'D | TIME OUT | TIME IN | REMARKS | BREAKS |    |
| 1  |          |                   |           |           |            |          |         |         |        |    |
| 2  |          |                   |           |           |            |          |         |         |        |    |
| 3  |          |                   |           |           |            |          |         |         |        |    |
| 4  |          |                   |           |           |            |          |         |         |        |    |
| 5  |          |                   |           |           |            |          |         |         |        |    |

**Brooklyn Line Department—Record of Emergency Calls Kept at the Line Department Headquarters (N. S. 680)**

men, consisting of two linemen, a driver and a foreman. An emergency man is also placed both at the Williamsburg Bridge and at the Brooklyn Bridge. Each crew has one tower wagon and one emergency wagon, but at the Coney Island, Ridgewood and Thirty-sixth Street quarters there is also installed a small

neath, just as in a city fire house. With one exception, apartments are also provided for the family of each foreman.

Experience has shown that the four-men emergency crews are large enough for the conditions of the overhead line service in the Brooklyn system. As the calls to be answered

| CREW STOCK REPORT       |         |          |      |         |               |                                     |         |          |      |         |               |  |         |               |
|-------------------------|---------|----------|------|---------|---------------|-------------------------------------|---------|----------|------|---------|---------------|--|---------|---------------|
|                         |         |          |      |         |               |                                     |         |          |      |         |               |  |         | Date.....     |
|                         | On Hand | Required | Used | Balance | Over or Short |                                     | On Hand | Required | Used | Balance | Over or Short |  | On Hand | Over or Short |
| Ears, BH No. 11, 1/0    |         |          |      |         |               | Insulators, sidefeed, with Brooklyn |         |          |      |         |               |  |         |               |
| " BH No. 21, 2/0        |         |          |      |         |               | " wood strain                       |         |          |      |         |               |  |         |               |
| " 4/0 15"               |         |          |      |         |               | " globe "                           |         |          |      |         |               |  |         |               |
| " 2/0, stub, L-390-1    |         |          |      |         |               | " small Brooklyn strain             |         |          |      |         |               |  |         |               |
| " 3/0, " "              |         |          |      |         |               | " large " "                         |         |          |      |         |               |  |         |               |
| " 3/0, 12"              |         |          |      |         |               | " frog pull-off                     |         |          |      |         |               |  |         |               |
| " 4/0, grooved          |         |          |      |         |               | " G.E. sectional                    |         |          |      |         |               |  |         |               |
| " type 'N,' 1/0, splice |         |          |      |         |               | " automatic switch                  |         |          |      |         |               |  |         |               |

**Brooklyn Line Department—Part of Second Page of Crew Stock Report**

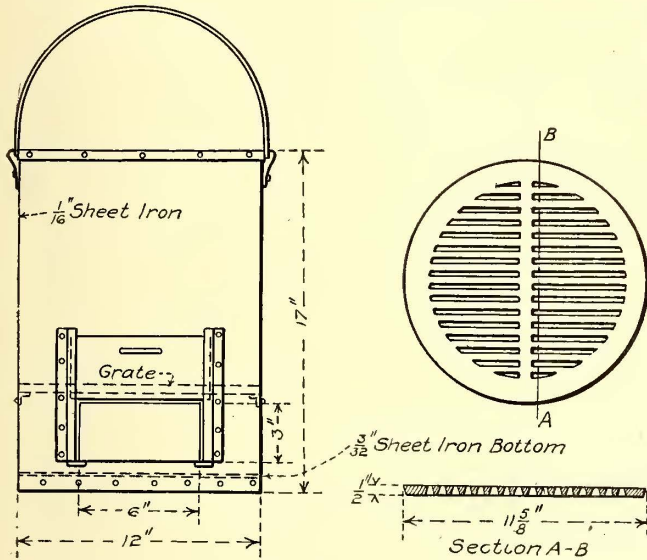
tower car for use on the suburban lines. Each tower car has two reels of trolley wire to run in case of heavy breaks. The crews without the tower cars keep two reels of wire in stock for the same purpose. At the High Street quarters, near the Brooklyn Bridge, there is maintained a wagon with wrecking

from 10 p. m. to 6 a. m. are not numerous, the men usually have ample time for rest. Three hours is given daily for meals, the men going in rotation so that three are always on hand for an emergency call. In the summer leave of absence is not granted for Friday, Saturday or Sunday, as



these are the days of the heaviest traffic. The care of the four horses assigned to every crew is divided among the men, but the foreman is held responsible for their condition.

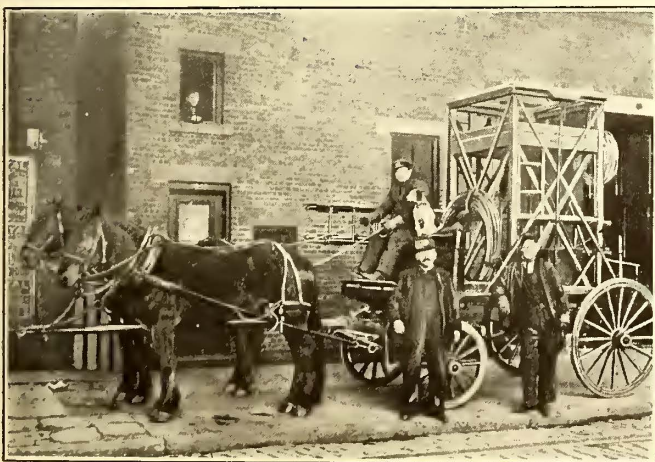
The calls for an emergency crew are written on form N.S.-680 and are received by the telephone operator at the line department headquarters. The telephone operator assigns the



Brooklyn Line Department—Charcoal Furnace Used by the Line Crews

proper crew to answer the call, but if the crew wanted is out on the line, he calls up the nearest one available. Form N.S.-150 shows a report made out by the emergency crew foreman for over 24 hours' work. This report gives the location, nature, cause of the trouble, the stock used and the number of calls answered. All work of importance is checked up by a special inspector from headquarters in the same manner as in the case of the construction crews.

Among the accompanying illustrations are views of the High Street and Fourth Avenue buildings, together with their crews and tower wagons. The Nostrand Avenue emergency crew uses a modern automobile tower wagon. The body and tower of this wagon were built by the company and the wagon has been in service for one and a half years. It has been found that after the men become accustomed to the automobile they prefer it to horse-drawn wagons. It is not practicable to



Brooklyn Line Department—Tower Wagon and Emergency Crew at High Street

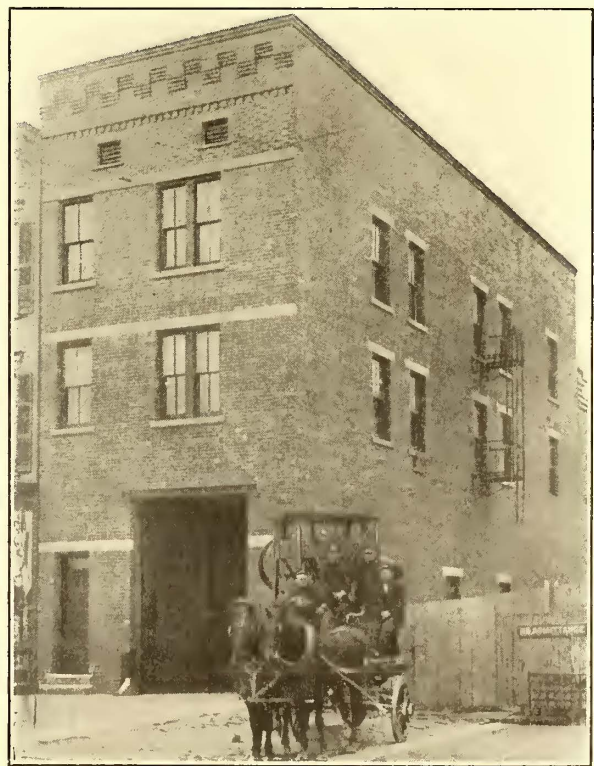
compare the cost of the gasoline service with horses owing to a number of changes made in the equipment and other causes. The main question, however, seems to be that of obtaining the

proper size and type of automobile rather than of making a choice between horse-drawn and motor-propelled vehicles. The advantages of the storage battery wagon have been considered, but the company has not yet reached any definite conclusions



Brooklyn Line Department—Nostrand Avenue Emergency Crew Room with Sliding Pole

on this type for emergency work. It has also been considered for use by construction crews, owing to its inherent capacity for being started and stopped quickly and accurately. This feature would permit more work to be done in streets where frequent



Brooklyn Line Department—Emergency Crew Quarters at Fourth Avenue and Thirty-eighth Street

interruptions to the work are caused by cars and other traffic. In this class of work horses are not so quick and reliable and they also occupy valuable space in the streets.



## ANOTHER PITTSBURGH REPORT

On Aug. 11 B. J. Arnold submitted to Mayor Magee, of Pittsburgh, another report on the subject of transportation in the Pittsburgh district. The first part of this report gives a history of the city as a center of transportation, dating from the time when the trip from Philadelphia to Pittsburgh by stage coach took 20 days. The Pennsylvania Railroad reached Pittsburgh from Philadelphia in 1854 and a steam railroad to Chicago was opened in 1859, the same year that a horse-car line was constructed in that city. The city was one of the first to introduce the horse car and the cable system and was a real pioneer in building electric railways.

According to Mr. Arnold, a study of the local transportation system in Pittsburgh should not be confined to the city limits, but should include the district of Pittsburgh. Of the 581 miles of track comprising the present system of the Pittsburgh Railways Company, only 260.35 are within the city limits. Of the 1,000,000 people served by the system only one-half are found within the city proper. Although there are some competing electric railways in some of the various cities, such as Homestead and McKeesport, nearly the entire population of the district depends for street railway service upon the Pittsburgh Railways Company. The striking feature of the locality from a transportation standpoint is the scattered way in which the district has been settled. One important reason for this is that the industrial enterprises have sought the few level factory sites along the river edges and in the valleys contiguous to the railroads, whereas the residents have built their homes on the hill-tops in an effort to get away from the smoke. European cities are much more densely built up. Up to a critical point, depending on the locality, the greater the population per acre, the cheaper the public utilities such as gas, water, electric light and transit may be supplied. Continuing, Mr. Arnold said:

"The Pittsburgh District has already been very completely outlined by its local transportation system; now the building up of the vacant spaces must take place. This can best be accomplished by limiting further advancement into outlying territory to *actual necessities* and by furnishing better service over the track already provided.

"What is needed in the Pittsburgh District at the present time is a 'get together' movement. The division lines between the different parts of the district must be more completely broken down and the various communities must grow out to meet one another, and become massed into one community. In bringing about this desirable result, the lines of the local surface transportation system will play the most important part.

### DIFFICULTIES THAT MAY BE TURNED INTO ADVANTAGES

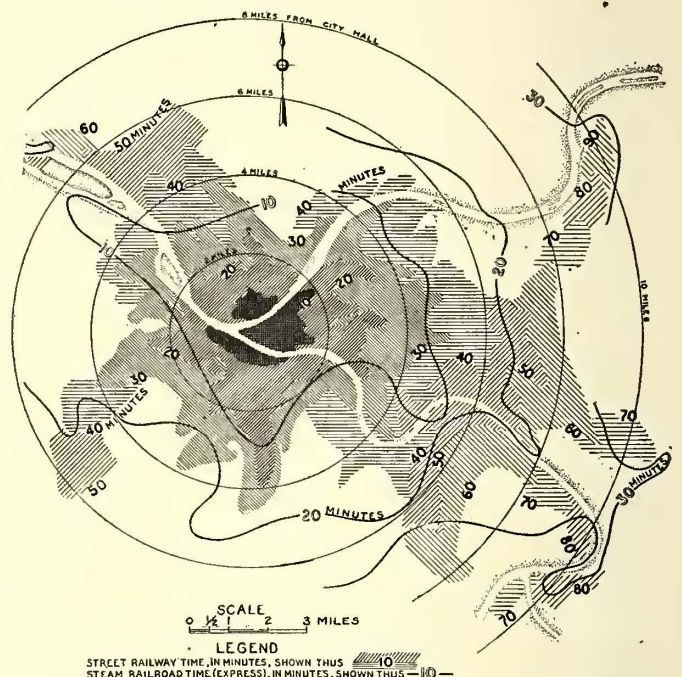
"It has often been pointed out that the rugged topography consisting of steep hills, deep ravines and only a few level spots, the narrow streets, the concentration of business into a section of 300 acres, the division of the city by its rivers into three parts, the isolated outlying communities and the lack of continuous street systems, are a unique combination of disadvantages which make it difficult to secure ideal or even good transportation. However, it is very possible that a little study may turn many of these disadvantages into benefits. For instance, the fact that the city grew up without a definite plan resulted in many "cross cut" thoroughfares between the different centers. This is really an advantage over those cities having a right angle street plan without diagonal avenues. The development of the district, primarily by local communities, will be a distinct benefit to traction developments in the future, as the scattering of the shopping and amusement districts throughout a city means considerable short haul business, which will get on and off the through cars, thus utilizing them in the most profitable way. The more passengers that may be accommodated by each seat on a single one-way trip, the more efficient is the use of each car, and to secure this result, the more scattered the centers which attract riders, whether for business or pleasure, the better the service that may be given with the same equipment.

"The fact that it is impracticable to run large cars up into the

hills, where narrow and crooked streets with excessive grades exist, may be turned to good account toward securing better service by allowing this disadvantage to dictate the use of a transfer system, using the small hill climbers on through routes from one hill section to another, connecting by means of a convenient transfer station to the main line of larger cars, which will carry passengers through the business district to other transfer centers on opposite sides of the city. A similar transfer system has been worked out in Boston with notable success.

"The entire situation, therefore, is by no means hopeless and does not demand radical changes in design or method of operation. A transportation system should really keep ahead of the development of the district which it serves, and fortunately the records of other cities show that increased business follows immediately after improved facilities.

"It appears quite probable that the poor business during the past several years has been the result, to a certain extent, of poor service, and that the curtailment of equipment was not



**Time-Zone Map of Pittsburgh, Showing Relative Running Time of Trolley Cars and Steam Trains**

justified entirely by the falling off in receipts. At any rate, with returning prosperity, the service should be considerably improved, and good business will no doubt be the natural result.

### ONE DISTRICT, ONE SYSTEM

"The most striking feature of the transportation developments in the Pittsburgh District is that its surface electric railway utilities have been combined into one system. Unification of operation is a result which may or may not be an advantage. At the present time there are some points of disadvantage, resulting largely from the fact that the future of the system was too heavily capitalized at the time the combinations were made.

"There can be little doubt as to the many benefits to be secured by the operation under one management of a large system such as is now controlled by the Pittsburgh Railways Company, but unless the public gets some of the advantages of the combination, there can accrue to the system itself no lasting benefits. The interests of the district and of the company are so inseparable that eventually the sentiment must prevail that the benefits should be divided share and share alike.

"Every effort should be put forth to conserve the progress that has been made toward a combined district served by a single trolley system, but this will be impossible if the company endeavors to collect toll too far in advance or if the citizens of the district fail to recognize that the building up of the system has required faith, enterprise and a large investment which in course of time should have its reward."



The report is accompanied by the time-zone map, reproduced herewith, showing the relative running time of the trolley system and steam railroads. In this map the successive shaded zones indicate the distance the trolley cars travel in 10-minute periods, and the "contour" lines, the corresponding distance for the steam railroad suburban express service. To the steam road time must be added the time of walking to and from the depot at each end so that the advantage of the steam road in point of time is not as great as shown. Mr. Arnold thinks that eventually "electrification" will make possible a frequent service and a downtown terminal for many of the suburban steam railroads, but the speed of the "rapid transit" trains will probably not be much greater than the present express steam service. However, the greater cleanliness, convenience and frequency of the electric trains would greatly increase the present suburban traffic, which even now is growing rapidly.

**TRACKLESS TROLLEY SYSTEMS ABROAD**

Considerable interest has been excited recently in England on the subject of trackless trolley systems. Two applications have been made to Parliament by cities which have municipal tramway systems to install trackless trolley systems as extensions to their present tramway lines. One of these is from Leeds, the other from Bradford. The report of the committee sent by the latter city to investigate the operation of these systems on the Continent has recently been made public in pamphlet form, and a paper upon trackless trolley systems in general was presented at the last meeting of the Tramways and Light Railway Association by H. England, general manager, Wakefield & District Light Railway. From this paper the following general statement can be made on the operation of trackless trolley systems on the Continent of Europe.

Three methods are employed. The Filovia in use on seven different lines in Italy, aggregating about 42 miles in length, with one of about 10 miles in course of construction; the Mercedes-Stoll, in use in Austria-Hungary on six lines with two in course of construction, and the Schiemann system in use in France and Germany on eight lines.

Briefly, the main features of each system are as follows: With the Filovia system there are two 12-hp motors mounted on the chassis and connected by spur gearing and chain drive to the rear wheels, which are run independently of each other. Rubber tires are employed and current is taken from a two-wire overhead line by an under-running four-wheeled trolley, carried on a pole similar to the ordinary trolley pole. According to the Bradford committee the Italian government grants a subsidy of \$300 for each mile of track equipped with the trackless trolley system in districts not provided with railway or tramway service.

In the Mercedes-Stoll system gearless motors are fitted to the hubs of each of the rear wheels of the car. An over-running trolley is employed with flexible cable to connect it to the car. Where two cars pass each other the trolley and cable are exchanged between the cars or else four overhead wires are used.

In the Schiemann system one motor is used and is geared to the front axle. An under-running sliding contact with two overhead wires and two shoes is employed.

In addition to these three systems, the Railless Electric Traction Company is placing on the British market a modification of the Schiemann system, of whose British patent the Railless company is the owner. The chief features in which the Railless Electric Traction Company's system differs from the Schiemann system are in the use of two motors geared to the rear axle and three overhead wires with a three-wheel trolley. The two outer wheels and wires are positive and the inner wheel and wire are negative, and the steel frame and metallic parts of the car are connected through the negative trolley wheel to the negative wire. This construction prevents the danger of reversal of current, but, of course, necessitates the use of three wires instead of two or else six instead of four. The company has also an alternative design employing positive

and negative trolley wheels and using two wires only with an arrangement to give audible warning should the polarity of the wires be reversed through any cause.

Mr. England considers the under-running system more desirable than the over-running system: (1) because standard overhead trolley material can be used; (2) because the cars can be turned at the termini without loops, and (3) because the trackless trolley cars can use the tracks and overhead system of trolley cars if necessary. This is an important point in case the trackless trolley system is owned by an electric railway. It enables the trackless cars to be run to the electric railway repair shop for overhauling and repairs. He considers the disadvantages of gearless motors more than outweigh their advantages, even if a chain drive has to be employed with the geared machines. The motor or motors should always drive the rear wheels to make steering easy. He estimates the cost of overhead construction complete at \$7,500 per mile, the cost of motor cars \$3,000 each and trail cars \$1,250 each. Car maintenance should be 3 cents per car-mile and the amount of power required would be about 1 kw-hour per car-mile.

In the discussion which followed the presentation of this paper the author's figures on maintenance and power were considered by some speakers as too low.

Mr. England said that the field of the trackless trolley system was for those routes where the traffic was too light to support an ordinary trolley system, which could hardly be made to pay on a longer schedule than 10 minutes' headway.

**ELECTRIC TRUNK LINE RAILWAYS IN AUSTRIA-HUNGARY**

In a paper presented at the Berne International Railway Congress, Arthur Hruschka, of the Government Railway Engineering Department, presented statistics on electric traction developments in Austria-Hungary. According to him the following electric trunk line railways were in operation at the end of 1909:

| Line.                         | System and voltage.              | Length in miles. | Opened in. |
|-------------------------------|----------------------------------|------------------|------------|
| Tabor-Bechyn.....             | Three-wire d.c. 700 volts.....   | 14.50            | 1903       |
| Innsbruck-Fulpmes.....        | Single-phase, 2500 volts.....    | 11.35            | 1904       |
| Bludenz-Schruns.....          | d.c. 500 volts.....              | 8.06             | 1905       |
| Vienna-Baden.....             | Single-phase & 55 volts d.c..... | 17.95            | 1907       |
| Brunek-Sand in the Tyrol..... | d.c., 500 volts.....             | 9.52             | 1908       |
| Neumarkt-Waizenkirchen.....   | " " ".....                       | 10.06            | 1908       |
| Trient-Malé.....              | " 800 ".....                     | 37.25            | 1909       |
| Total.....                    |                                  | 108.69           |            |

In addition there are some 16 extended electric tramways and mountain railways aggregating about 94 miles in length.

Two additional trunk lines are under construction by electricity aggregating 87.6 miles viz. Vác-Rákospalota, 31 miles, being equipped with 15 cycles single-phase and 10,000 volts and St. Pölten-Mariazell-Gusswerk, 50 miles, 2-ft. 6-in. gage, being equipped with 25 cycles, single-phase and 6000 volts.

In 1906 a branch of the Austrian Government State Railways was formed to study the subject of the electrical equipment of different lines. An examination of the available water powers was made and 11 schemes with an aggregate capacity of 140,000 hp were worked out. Calculations were also made of the application of this power to 2722 miles of track. An official report on the results will appear shortly. Those lines to which especial attention has been given are in the neighborhood of Trieste and Innsbruck. While no official decision has been rendered in the selection of system the speaker favored the single-phase. In this connection he stated that the only other system worth serious consideration was the three-phase, whose principal advantage was the smaller weight of car for the same output. Plans have already been prepared by the Austrian Government engineers for the equipment of certain of its railway lines with the single-phase system at 15 to 16½ cycles and 10,000 volts.

The Hungarian Government has also considered electrification. It has plans prepared for the equipment of one line with three-phase equipment and has decided to use single-phase on another but has not definitely settled upon any standard system.

The appendix to the paper contains detailed technical descriptions of the lines mentioned by the author including those under construction and projected.



## VALUATIONS OF THE DETROIT UNITED RAILWAY—II

In the issue of the *ELECTRIC RAILWAY JOURNAL* for Aug. 13, 1910, an account was presented of some of the events leading up to the present complicated situation with regard to the renewal of certain franchises of the Detroit United Railway. The conflict between the city and the railway company goes back to the early part of 1909 when the Committee of Fifty was appointed by Mayor Breitmeyer to investigate the entire situation. A sub-committee on appraisal selected Frederick T. Barcroft to make the appraisal of the company's property. The present article includes a statement of the position of the company regarding the Barcroft appraisal, a brief abstract of the Barcroft appraisal and a statement by R. B. Rifenberick.

### PUBLICITY DESIRED BY THE COMPANY

The position of the company regarding the Barcroft appraisal is shown by a letter addressed by J. C. Hutchins, president, to Mayor Breitmeyer on June 14:

"I am in receipt of your communication asking if the Detroit United Railway will accept the so-called Webster ordinance now in the hands of the Common Council, having written into it the valuation of our property made by Mr. Barcroft.

"I believe it is well known, certainly to the Committee of Fifty, that we cannot accept the ordinance with such valuation.

"We assured the committee, as we assure you, that, to enable the committee to develop any plan of settlement of our differences with the city, we would co-operate with and give them all the information concerning the affairs of the railway that we had in our possession, with the distinct understanding that all investigation of values and all proceedings relating to an appraisal should be public; in fact, the only condition we attached was that we should, when any points of difference arose, be given a public hearing. We knew then, as we know now, that the people of this city will never vote for any settlement based upon a valuation about which they have no authentic information. The first necessary step, therefore, was to lay authentic information before them in such a way that all who so desired might know the truth. The plan outlined by the Committee of Fifty promised us an opportunity that we have never before had to inform it and the public of the actual value of our property devoted to the transportation of the people of the city of Detroit, and so we very gladly went to great expense in making a complete inventory.

"Mr. Barcroft assured us that his work would be conducted fairly and openly, and that we would be given full opportunity to meet and discuss such points of difference as might arise. With this assurance we commenced our work, and agreed that as fast as the schedules were completed they should be turned over to Mr. Barcroft. On March 5, 1909, we furnished him with a complete set of blue prints of the real estate maps of the Detroit United Railway, and later furnished him duplicate copies as well as drawings of the same. On March 31, 1909, we furnished him a complete inventory of power station A, pipe shop of the power department, battery station K, battery station L, city revenue cars and equipment, and all the different departments of our Monroe shops. On the first list sent him we did not place our own appraisal value, and he requested that we should do so at once. From that time forward we furnished a complete schedule of all our property with our own valuations attached. Contrary to promise given, we were neither consulted nor informed as to what was subsequently done with them by Mr. Barcroft and his corps of appraisers. From time to time we expressed a desire to know what was going on and to learn what was being done with our data, but received no information whatever, but always a promise that at the proper time we should be given a hearing. It is sufficient to say that from the first to last we never were given a hearing and never were permitted to know what was going on until the book called 'The Barcroft Appraisal' appeared in print. The total of the figures appearing therein is astoundingly at variance with our own.

"From as careful an examination as we have been able to make of this so-called appraisal, we are able to state that it has

omitted bodily from consideration at all millions of dollars of our property used in the city service. It gives no method of procedure nor does it furnish any means whatever of ascertaining how the appraisal was made, nor does it give the reports of his assistants from which to check up Mr. Barcroft's own conclusions. Neither does it point out any errors or mistakes of our own appraisal. All we do know is that the total stated by Mr. Barcroft is a gross undervaluation of our property, and, if the board of directors of the Detroit United Railway should accept it as a basis of an ordinance, they would betray the trust imposed upon them. I am, therefore, obliged to say that for these reasons, among others, neither the Barcroft figures nor an ordinance with those figures written into it can be accepted.

"When the committee developed an ordinance based upon the principle of giving a stated and certain return to the capital invested in the railway properties, it appealed to us as eminently just to all, and when that committee was informed by General Manager Brooks that the valuation by Mr. Barcroft could not be accepted under any circumstances, the committee proposed an arbitration of values, which proposition was at once accepted by us. A high court of arbitration was appointed, composed of men whose integrity, ability and fairness was beyond criticism or question, and at its first meeting, when it asked our representative if its findings would be accepted by us as final, it was unhesitatingly assured that they would be. We felt then, as we do now, that the proposed arbitration by men of such character would furnish the people of Detroit the best information to be had concerning the value of our property.

"While we approve the cardinal principle of the ordinance, we desire to state that we are averse to making any contract for a long period of years, and that we are not seeking such a contract. But we do believe that we are under obligations to meet every reasonable proposition toward a fair adjustment.

"It is my belief that the ideal relation between a street railway company and a municipality would be that there should be no fixed-term franchise at all. One main reason for this was well stated by Judge Tayler in his remarks before the Board of Commerce, when he said: 'No man can foretell what the cost of transportation will be in the future; it may be halved or it may be doubled.' This fact alone renders a long-term franchise undesirable to either party. Both the railway and the municipality should have the right at any time when conditions have changed to appeal to some competent tribunal to change the rate of fare in accordance with the changed conditions. Arbitrary, fixed fares for a long period of years may do injustice to one side or the other.

"The street railways in our city, subject to such inconsequential changes as the Common Council may find necessary, are in the streets permanently, and there are only two questions to be solved, which are: Who shall operate the street railway system, and how shall it be operated? On these two questions the Detroit United Railway stands ready at all times to meet the people or their representatives in efforts to solve these questions fairly for both parties.

"The average rates of fare now charged on any of the lines in this city are below those in effect elsewhere in the world. And so it would seem, in fact, we all know, that the immediate necessity which confronts us all in this rapidly growing city is the extension of railway lines into those portions of the city not now served, and the construction of such tracks and loops as will sensibly relieve much of the present congestion of traffic."

### BARCROFT APPRAISAL, DETROIT UNITED RAILWAY

The report of the appraisal, a book of 237 pages, includes photographs of the members of the appraisal committee of the Committee of Fifty, of Frank W. Eddy, chairman of the Committee of Fifty; Mayor Breitmeyer, of Detroit; Frederick T. Barcroft, director of the appraisal, and of various engineers and assistants who took part in the work. Illustrations of various units and of other parts of the property of the company are also included in the book. An abstract follows:

The introduction states that the system within the city limits includes 170.41 miles of track, over which are operated, in ad-



dition to the interurban traffic, 998 revenue cars. Two generating plants develop 13,500 kw, and the company also purchases 3100 kw from the Detroit Edison Company. The company owns 81 buildings, including those which are used for railway purposes and those utilized as dwellings and for commercial purposes.

The land used for street railway purposes within the city limits amounts of 68.23 acres. It is stated that the Detroit United Railway is the successor to 50 corporations that have been organized or have engaged in the transportation business in Detroit and suburbs subsequently annexed to the city. The introduction states that among those engaged on the work were the following:

William D. Ray, Chicago; Frank E. Johnson, Chicago; Walter H. Evans, Buffalo, N. Y.; Fred H. Froehlich, Toledo, Ohio; Fred G. Simmons, Milwaukee, Wis.; Albert H. Sisson, Chicago; William E. Richards, Toledo, Ohio; H. D. Sanderson, Toledo, Ohio; Edward C. Dunbar, Detroit; Herbert L. Russell, Detroit; Henry D. Miles, Buffalo, N. Y.; Frank W. Hall, Detroit; Daniel M. Deininger, Chicago; George D. Mason, Detroit; John H. Tigchon, Detroit; Edward I. Stimson, Detroit; Charles Kotting, Detroit; Claude M. Harmon, Detroit; James B. McKay, Detroit, and Holmer Warren, Detroit.

The property is divided into 10 sections as follows: 1, Real estate; 2, buildings except power stations and battery stations; 3, power plants, including buildings; 4, battery stations, including buildings; 5, power distribution, including overhead feed wires and telephone system; 6, track; 7, rolling stock, including equipments; 8, shops; 9, tools, materials, supplies, furniture, etc.; 10, overhead charges.

#### REAL ESTATE

The real estate of the company was investigated and valued by a committee of the Detroit real estate board. The company owns 68.39 acres of land used in the operation of its city lines. Of this amount 50.021 acres are in actual use for railroad purposes and 18.374 acres are not in use for railway purposes. The appraisal considers the land only and does not include any of the buildings. The entire property was divided into 40 items, 26 used for railway purposes and 14 not so used. The real estate is valued as follows: Total real estate, \$685,320; not used for railway purposes, \$121,772; land used for railway purposes, \$513,548; electric depot property, \$50,000.

#### BUILDINGS

Comment is made on the buildings as follows: "With but a single exception, uniform ugliness is the particular characteristic of these buildings, and this applies not only to the older structures, but to those which have been built within comparatively recent years. No depreciation has been applied, except for condition. Many of the buildings are located on prominent avenues and streets, but instead of adding to the beauty of the city, they are a blot on the landscape. The majority of the buildings are of common brick, and no other thought than utility seems to have entered into their design or construction. However, they have been valued only as buildings; and no analysis or distinctions have been made as to whether they are the best for the purposes for which they are employed. Nor has any analysis been made to determine what proportion of cost should be charged against city operation and what against interurban." The total values of the buildings are stated as follows: Total value of buildings owned by company, \$602,808; not used for railway purposes, \$24,045; used for railway purposes, cost, \$654,884, and present value, \$578,763. The values of the buildings not used for railway purposes are stated as follows: Cost, \$64,084; present value, \$24,045.

#### POWER STATIONS, INCLUDING BUILDINGS

Regarding this part of the property, the report states: "The power-house buildings are of brick with stone and concrete base construction and are considered to be in good condition. Each power house has one extension to accommodate the growth of the system and the greater demand for current." It is also stated that power-house costs "have decreased considerably since stations 'A' and 'B' were built. If these two stations were combined under one roof the cost of generating

electrical energy would be decreased. The future points to the ultimate shutting down of the power house and the renting of electrical energy elsewhere because of the cheaper cost and the desirability of permitting the central-station company in supplying power to carry the power-house investment and fixed charges rather than the railway company." The power plant has been appraised on the basis of what it is doing and not as a mere element of material and machinery. The sole purpose of such a station being to produce certain power, the usefulness of the building necessarily follows the machinery.

The recapitulation of values placed on stations "A" and "B" is as follows: Power station "A," cost, \$626,248; present value, \$502,681. Power station "B," cost, \$855,080; present value, \$716,370. Totals, cost, \$1,481,328; present value, \$1,219,051.

#### BATTERY STATIONS

The value of two battery stations are stated as follows: Battery station "K," cost, \$126,021; present value, \$110,575. Battery station "L," cost, \$102,231; present value, \$89,912. Totals, cost, \$228,252; present value, \$200,487.

#### POWER DISTRIBUTION

The appraisal of the overhead system of the company included the following: Poles, span wires, trolley wires, overhead positive feeder wires, underground positive feeder wires, overhead negative feeder wires, underground negative feeder wires, special feeder and trestle construction, overhead special work, underground system, line equipment, miscellaneous copper.

The report states that every line in the city was inspected and that from 10 to 15 poles per mile were uncovered at the ground line. This was done on both wood and iron poles. It is stated that, as a general rule, the iron poles are well set and in good condition and that the life of the majority could be increased by painting. The wood poles examined, it is stated, bore out the knowledge of average conditions of life affecting property of this character. The report adds:

"The pole fixtures, such as iron brackets and cross-arms, are in good condition, but need additional painting. The switch pans, crossings and section insulators are in fair condition. Practically all of the trolley is 2/0 round hard-drawn copper. In general, this was found to be in good condition." Practically 90 per cent of the feed-wire material was found to be in good condition.

The report says that the distribution and oversight of all wires in the city should be under the arbitrary control of the city electrician.

Iron poles were valued at \$2.75 per 100 lb., and the labor of erecting was computed at \$9.78; 30-ft. to 45-ft. cedar poles were valued at from \$5.50 to \$12.50, and the labor of erecting at \$4; 50-ft. to 60-ft. Idaho poles were valued at \$14.25 to \$21, and the labor of erecting at \$5.35; 30-ft. to 40-ft. octagon pile poles were valued at \$7.50 to \$12.50, and the labor of erecting at \$4. The cable was valued at 17 cents per pound. The total number of poles was as follows: Iron, 7498; cedar, 2409; Idaho, 113; octagon Northern pine, 201. Iron cross-arms were valued at \$2.20 to \$3.50, and the cost of labor for erecting 1244 was computed at \$1 apiece. Maple cross-arms were valued at 30 cents to 60 cents apiece, and the cost of labor for erecting 2212 was valued at 50 cents apiece. For 266.99 miles of positive feeder lines, aggregating 2,710,459 lb., values were assumed as follows: Cost, \$486,314; present value, \$461,998. A total of 211.95 miles of No. 00 trolley wire was valued at \$85,050 cost and \$68,040 present value. In computing the distances 1 per cent was allowed for sag. Following is a recapitulation of the values placed on the overhead line materials: Total of items, cost, \$1,154,187; present value, \$1,037,279. Contingencies, cost, \$57,709; present value, \$50,784. Totals, cost, \$1,211,896; present value, \$1,088,063.

#### TRACK

In valuing the track six elements of constructive value and two destructive factors were considered, the constructive elements being as follows:

1. Substructure, foundation, kind, drainage.



2. Ties, kinds, quality, treated or untreated.
3. Railway, type.
4. General alignment, gage and grades, representing the condition of above.
5. Age of all these units and their effect on each other.
6. Adequacy, present, future.

The destructive factors, both positive and continuous, were stated as follows:

First, the element which is subjected to mechanical wear and when worn out by mechanical destruction carries with it destruction and consequent disturbance of all the other elements that are allied with it.

Second, the element of age. If the age of track, as a complete unit existing under uniform conditions for a period long enough to establish its life, can be obtained, as a fact, it would simplify the problem very much, but no such records exist.

Depreciation of the trackage was determined by consideration of the following factors: The condition of the rails, rail joints and flanges, the weight of the rails, substructure of ties and the foundation under the ties and drainage. It was found that there were 21 types of rails used in Detroit and 204 types of construction, including paving.

The value of the rails, so far as present scrap value was concerned, was determined by measuring and the life of the rails was determined by taking into consideration "that it is only one factor in the track construction."

The introduction to this feature of the report states: "The company has no records of its track construction or replacement work, and it was impossible to get information concerning existing conditions beneath the pavement without an unwarrantable amount of labor and effort. This was finally accomplished after a fashion by consultation and investigation with the company's track men. The various types of rail in use are explained by the fact that the present company is a consolidation of various other companies."

The report adds that the company objected to the proposed method of valuing track by life and depreciation. The types of rails generally used are said to be exceptionally poor types of grooved girder. The report adds that the welding on the T-rail is somewhat better than on the grooved girder, and that the work done this year is an improvement over that done last year. It is stated that, in determining the value of track special work, each lay-out was considered, listed and estimated upon the cost required for this work, ties, joints, ballast, excavations, labor required to install it. All the items entering into track work are purchased directly by the company. The company requested that \$12,000 be added for rail inspection at the mills. Some of the bases of cost computed in connection with the straight track construction were as follows: White oak ties, 75c to \$1.18; cedar and pine ties, 60 cents to 65 cents each; track foundation, earth filling, 22 cents per cubic yard, gravel \$1.80 per cubic yard, crushed stone \$1.95 per cubic yard, concrete \$4.50 per cubic yard; rails, "T," \$31.75 to \$33.75 per ton; girder groove, plain girder and tram, \$40 per ton. A summary of the straight track mileage is as follows:

Single track, 167.4891 miles; special Ys, turn-outs, etc., 2.92199 miles; total, 170.41109 miles; car station yards, etc., 12.93 miles; grand total, 183.34109 miles.

The cost value of straight track mileage, exclusive of special work, etc., was placed at \$2,534,565, and the present value at \$1,821,922. Track in the car station yards and power houses was valued at \$115,262 cost and \$80,684 present value. Track in the electric depot yards was valued at \$1,424 cost and \$1,096 present value. The special track work was valued as follows: Cost value, \$708,894; present value, \$473,169. The grand summary of the track totals was as follows: Cost value, \$3,601,336; present value, \$2,599,222.

#### ROLLING STOCK

The car equipment was classified as follows: Revenue cars: 518 closed car bodies, single trucks; 230 closed car bodies, double trucks; 230 open car bodies, single trucks; 20 open car bodies, double trucks; 3 miscellaneous, double trucks; total of 748 single-truck cars and 253 double-truck cars.

Non-revenue cars: 3 special cars; 106 miscellaneous work cars.

In the appraisal the cars of the company were considered as part of the equipment of a going concern and they were not valued "at their forced sale or scrap value, except when the material was obviously fit for scrap only." The cars were divided into groups, each group representing the cars purchased or built under the same contract or specification. One, and usually two cars selected at random from each group were carefully checked with the specifications and examined in detail. Every car was examined for general condition. There are fewer sets of trucks than cars.

"An average amount for each of the elements of value for each group has been determined by examining all of the cars in the same group for condition and type of trucks, taking the average cost per car in its present form from each group, and deducting from the same the amount necessary to make it as good as new in that particular type. Car bodies were examined and considered at what it would cost to produce them new in their present type, and condition was placed on them. They were further considered for depreciation due to obsolescence of type and age and size. The later double-truck closed cars are not depreciated except for general repairing and condition and age.

Sixteen-ft. to 25 ft. single-truck closed cars, body only, f.o.b. Detroit, were valued at \$1,130 to \$1,582; 28-ft. to 29-ft. double-truck closed car bodies were valued, f.o.b. Detroit, at \$1,950 to \$2,125. Single-truck double-end open-car bodies were valued, f.o.b. Detroit, at \$1,032 to \$1,182. Double-truck single-end open-car bodies were valued, f.o.b. Detroit, at \$1,490. These prices included various items.

A summary of the total values placed on the cars is as follows:

|  | Cost.       | Present value. |
|--|-------------|----------------|
| 518 closed single-truck cars.....            | \$1,095,603 | \$765,768      |
| 230 closed double-truck cars.....            | 745,705     | 662,071        |
| 230 open single-truck cars.....              | 374,569     | 188,800        |
| 20 open double-truck cars.....               | 48,420      | 43,234         |
| 3 miscellaneous revenue cars.....            | 14,046      | 13,456         |
| Total .....                                  | \$2,278,343 | \$1,673,329    |
| 2 non-revenue special cars.....              | 3,703       | 3,583          |
| 104 non-revenue work cars.....               | 97,691      | 97,087         |
| Total .....                                  | \$2,379,737 | \$1,773,999    |
| Old cars and miscellaneous car fittings..... | 14,125      | 14,125         |
| Grand total.....                             | \$2,393,862 | \$1,788,124    |

The equipments were valued as follows:

|                             | Cost.       | Present value. |
|-----------------------------|-------------|----------------|
| Revenue car equipments..... | \$1,186,427 | \$998,747      |
| Special car equipments..... | 2,276       | 1,643          |
| Work car equipments.....    | 93,532      | 72,890         |
| Grand total.....            | \$1,282,235 | \$1,073,280    |

#### GRAND SUMMARY ROLLING STOCK.

|                            | Cost.       | Present value. |
|----------------------------|-------------|----------------|
| Car bodies and trucks..... | \$2,393,862 | \$1,788,124    |
| Car equipments.....        | 1,282,235   | 1,073,279      |

#### MECHANICAL DEPARTMENT

The report criticises one of the two repair shops on the ground that it was designed originally for an entirely different purpose and was simply re-arranged for present requirements and, therefore, cannot be said to be ideal either in location or in general arrangement for repairing equipment. The company requested that the appraisal include \$34,000 for money invested in patterns, but this was not done. It is stated that the location of the division car stations are convenient for economical operation of the lines. Summaries of the values placed on the shops are as follows: Monroe shops, \$170,074; Harper shops, \$24,578; air-compressor outfits, \$71,298; car inspectors' outfits, \$38,769; total, \$308,719.

#### TOOLS, MATERIALS, SUPPLIES, FURNITURE, ETC.

This section covers the equipment at the emergency stations, the furniture, fixtures and stationery at car stations, and the furniture, fixtures, supplies, etc., at the general offices. The present value is stated at \$728,158.

#### OVERHEAD CHARGES

The discussion on this subject is followed by the text of the



capital accounts prescribed by the New York Public Service Commission, Second District. The discussion is, in part, as follows:

"No objection can be raised to corporation fees, legal expenses, transfer and registrar fees, for the reason that such charges are local and must be met with in every case. They are incidental and preliminary and cannot be avoided.

"The amounts per year as compensation for executive and other officers and incidental expenses in connection therewith, also are reasonable and cannot be criticized.

"Question of salary is always one of wide range. It is a purely local one and depends upon what the majority of the owners of the stock deem reasonable.

"Engineering instruments, office furniture, adding machines, automobiles, etc., are all an asset and properly a capital charge, and the salvage value of these items should be credited to the final overhead expense.

"The item of contingencies, as applied to the various classifications of construction, covers elements of incidental expense and losses of time and material, and all other items not possible to tabulate in a precise manner, or charge a specific sum against them. On parts of the work this is somewhat greater than on others. The buildings can be contracted for and construction contracts are drawn to cover every contingency. The risk is assumed by the contractor.

"Overhead charges should be depreciated in the same proportion as the present condition of the physical property bears to its cost, and this charge, when added to the physical elements depreciated, represents the net depreciated physical and overhead value of the property.

"If it is not necessary to maintain the property in the same condition as when new, then the amount now depreciated on physical elements could have been established as an initial saving in the first place by buying second-hand materials, partially worn cars and power houses, in fact, everything of the same type as now exists after a use of from 2 to 15 years, and so save that per cent of original capital charge.

"All property, unless possible to maintain in the same condition as when first established and constructed, should carry a depreciation fund sufficient to equal the replacements demanded by new types in the near future, and which may be impossible to take care of in short periods of time.

"It is a poor criterion that overhead charges should remain at 100 per cent when their whole function has been one of constructing physical properties, which at the same instant are much below that percentage of condition.

"Administration charges can only continue to exist where administration is a fact. On lines where franchises have expired, it is a question for disposal whether or not these charges exist after the expiration of the rights of the company."

The total overhead charges were placed at \$1,024,310.

#### PAVING

Paving was not considered an asset of the company in the preparation of the appraisal. The question as to whether the paving was to be considered as an asset or tax was submitted to P. J. M. Hally, corporation counsel of Detroit, and it was his opinion that the legal title to the pavement was in the city of Detroit and not in the company. The report adds:

"The paving can have a value to the company when it was all new and laid at one time, and then only in the sense that they have prepaid their taxes up to the point of the first renewal. Thereafter the repairs and renewal become an annual maintenance charge or tax.

"If the company has charged the maintenance of this paving to capital account, it is not justified in so doing, and has done so because it has not provided for the renewal of any physical property by a depreciation reserve, and if it has charged this to operation or maintenance under those circumstances, the result is a tax, by whatever name it has labeled it.

"The company should have been compelled to charge the cost of original paving to 'cost of initial paving account,' which would be automatically wiped out in eight years, assuming, for example, that this is the life of the paving, by being credited

with one-eighth of the cost of the paving annually. The maintenance and repairs after the above date should be charged to operating account 'paving.'"

#### STATEMENT BY MR. RIFENBERICK

A copy of a long letter addressed by Robert B. Rifenberick to the editor of *Engineering-Contracting* has been sent to the *ELECTRIC RAILWAY JOURNAL*. In his letter to the *ELECTRIC RAILWAY JOURNAL* Mr. Rifenberick states that "the article is a true statement of facts concerning the 'Barcroft Appraisal' of the property of the Detroit United Railway lines in the city of Detroit." In his letter to *Engineering-Contracting* Mr. Rifenberick states that as the committee was embarrassed for lack of funds to carry on its work, Mr. Hutchins, president of the Detroit United Railway, agreed, at the request of the committee, to have made for its use an inventory of the property of the company that would be as thorough, complete and exhaustive as it was possible to make it so that any competent engineer with proper assistance familiar with this line of work could readily check the figures in a few weeks' time. With this end in view the Detroit United Railway employed Mr. Rifenberick to assist its department heads and a large number of its employees in compiling this inventory. Mr. Rifenberick adds that the first schedule of this inventory was completed and given to Mr. Barcroft on or about March 31, 1909, and that the other principal schedules followed in rapid succession. To get out the inventory in the shortest possible time, Mr. Rifenberick states that a force of over 150 employees of the company worked. He adds: "It is the work of these employees for which you have so earnestly and perhaps without knowledge, and therefore unintentionally, given Mr. Barcroft the credit, as this 'Barcroft Appraisal' is a copy verbatim of the work of the employees of this company, excepting omissions and arbitrary reductions and confusions of the items and prices turned in to him by his own appraisers. Naturally, working as we did, with a large force, and at it so continuously, there were several other schedules of inventory turned in to Mr. Barcroft before Mr. Brooks ordered the placing of the appraisal prices on same. This order necessitated the putting at work of a large additional number of men to comply therewith, but it was immediately done, and every schedule of inventory from the first to the last was handed Mr. Barcroft in detail with every detail item from a tin cup to a turbine unit priced and thus, before Mr. Barcroft or his appraisers had done any of the work of their appraisal, he had as complete and as exhaustive an inventory of the various schedules of this property as we were able to furnish him, together with what we believed to be the reproduction price of same. This cost the company many tens of thousands of dollars.

"Mr. Barcroft, during the interim, from his appointment on this work in February, 1909, to April, 1910, when this 'Barcroft Appraisal' was published, endeavored to impress the public with the idea that the company was interfering with it and refusing him necessary information, and that this 'appraisal' is the result of his most strenuous labors, despite this claimed handicap. Nowhere in this 'Barcroft Appraisal' can it be found wherein this company has been given credit for furnishing him any information at all, or of having given him the least assistance in connection with his work.

"Right here I state as emphatically as words can express it that the work published as the 'Barcroft Appraisal' is a copy, practically verbatim, of the information furnished him by the company in accordance with the promise of Mr. Hutchins to the Committee of Fifty, and that I have in my offices, ready for the inspection of anyone, the original of everything pertaining to the property of this company that appears in this 'Barcroft Appraisal.'

"It was understood that the appraisal of this property was to be made as of a going concern for street railway purposes, and that the condition and usefulness of this physical property, at the time this appraisal was to be made, would readily be shown by an actual personal examination of the items appraised, and that any engineer or appraiser familiar with the



construction and use of the things he was appraising would put such value on same as he found it to be worth in the actual operating condition it showed when examined. Therefore, any competent appraiser would have no need of knowing the age of the article or item, for this knowledge would only have tended to have warped and interfered with his judgment of its value. If this is the kind of parlor appraisal that was to be made, any intermediate school boy, if given the original cost, the age and a fixed rate of depreciation, could have ascertained the present value of this physical property as easily and accurately as the most trained engineer."

### DISCUSSION ON HEAVY ELECTRIC TRACTION AT MECHANICAL ENGINEERS' MEETING

In connection with the joint meeting of the American Society of Mechanical Engineers and the British Institution of Mechanical Engineers, held last month in London and Birmingham, five papers on "Heavy Electric Traction" were read at the session of July 29. The authors were George Westinghouse, W. B. Potter, L. R. Pomeroy, H. M. Hobart and F. W. Carter. Abstracts of the papers of Messrs. Westinghouse and Potter were published in the *ELECTRIC RAILWAY JOURNAL* for July 2 and 9. Mr. Pomeroy's paper dwelt on the superiority of electric traction over steam locomotives, especially for very heavy trunk line service and congested suburban traffic.

Mr. Carter expressed the opinion that there appeared to be little prospect at the present time of general electrification of railways in Great Britain. His investigations had convinced him that the commercial advantages of electric traction could be demonstrated in general only in the case of very heavy suburban service and even here the margin in favor of electrification by no means was overwhelming. The case of entirely new railways was much more favorable to electric operation.

Mr. Hobart presented a comparison of existing single-phase and direct-current suburban installations in Great Britain. His conclusions based on what purported to be accurate data were that the cost of current plus the interest on the investment in rolling stock (leaving out of consideration any difference in cost of generating and distributing systems), was 6 cents per train mile higher for single-phase than for direct current in moderate service and might be as much higher as 12 cents per train mile in the case of very severe service. The advantages of direct current over single-phase current were more apparent the higher the schedule speed and the shorter the distance between stops.

The discussion on the papers was opened by H. F. Parshall. He said that both the New York Central and the New Haven roads were handling a class of traffic by electricity that could not be handled by steam locomotives. He did not regard the New Haven road as a good example of a single-phase system because many of the safeguards as to reliable operation had been omitted. The British Board of Trade would not give its approval to an installation constructed as the New Haven system had been built. In England the cost of a transmission system for an electric railway was about 15 per cent of the total as against 45 per cent for cars and locomotives and 35 per cent for generating stations. The cost of the transmission system was only one-third that of the locomotives and in his opinion the economy of direct-current locomotives over single-phase locomotives both as to first cost and operating expense would quickly wipe out any saving in the comparatively small item of the transmission system. Distance was only a factor in so far as the transmission system was concerned and the transmission system of a single-phase system was heavily handicapped. Owing to the compensating properties of the rotary converter, its existence was fully justified in a direct-current system because of the material economy effected by having a power factor of unity in the transmission system. In conclusion Mr. Parshall said that the direct-current system was the only one known in the present state of the art that could compete with steam in the situations where electric operation was generally applicable, namely for dense urban and suburban traffic.

J. Dalziel, Midland Railway, believed that main line operation by electricity was not only commercially possible in Great Britain but was comparatively imminent. The selection of a system applicable to all conditions was the most important problem of the day. The results of tests made by him showed that the single-phase system was burdened by few of the disadvantages attributed to it and that it was the best system for general use. This opinion advanced by Mr. Westinghouse was shared also by Continental engineers who have almost universally adopted single-phase. The trend of opinion expressed at the recent International Railway Congress was in favor of single-phase. Mr. Dalziel did not see how the subject of electrification could be narrowed down to consideration of separate sections and districts. Railways in general during the last few years had expended enormous sums in double-tracking and in yard improvements in order to increase their carrying capacity. An equal or greater increase in capacity could have been obtained at less cost by adopting electric traction. To ignore electric traction for main lines was to incur the risk of insurmountable complications in the future and retard development. Single-phase in suburban work must have very serious disadvantages to warrant its being discarded when its many advantages for main line operation were admitted. Much of the trouble with single-phase apparatus referred to in Mr. Potter's paper undoubtedly was due to the complications involved by attempting to operate single-phase motors on direct-current sections. As demonstrating the reliability of single-phase equipment the speaker said that only four electrical failures had been noted in the 2½ years of operation of the Midland Railway's single-phase Heysham line. With regard to efficiency he cited comparative figures to prove that the single-phase motors on the Heysham line consumed 20 per cent less current than direct-current motors on the Liverpool-Southport line when running at the same schedule speed. Mr. Dalziel strongly objected to the data on the Midland single-phase equipment given in Mr. Hobart's paper and said that the errors introduced by these incorrect data entirely vitiated Mr. Hobart's argument and conclusions respecting the superior efficiency of direct current.

Sidney Stone called attention to the fact that the wear on the track of the electrified railways in Great Britain was excessive, more particularly on those using multiple-unit equipment. On the District Railway where long trains with only three motor cars were used the rails were badly worn at intervals of about 40 ft. He thought the cause of the wear was due to the fact that when a motor car was operated at each end of a train the forward car on entering a curve encountered an excess of side friction on the rail. The rear motor car did not meet with the same resistance and consequently its power was expended in pushing the entire train around the curve. This threw the intermediate cars out of their normal tangential position and caused the trucks to dig into the rails. He thought that the forward motor car of a multiple-unit train should always have more motor capacity than the rear cars so that the couplings between cars at all times would be in tension.

C. F. Scott made some general comparisons between single-phase and direct current. Single-phase motive power equipment cost more and the transmission and distributing lines cost less than a direct-current installation. The losses in the direct-current system were greater between the power house and the car. In general, the amount of current generated for a direct-current system would be 25 per cent greater than for a single-phase system for each kilowatt-hour delivered to the cars. The cost of power on the New York Central had been given as 2.6 cents per kw-hour, of which only 40 per cent was charged to the power station and 60 per cent to the transmission line and substations. Taking the substation and transmission cost for alternating current as one-fourth that of direct current the cost of direct-current power could be shown to be 50 or 60 per cent more than for single-phase. Very slight differences in assumptions such as Mr. Hobart made in his paper might lead to very different conclusions. Referring to Mr. Potter's paper, Mr. Scott questioned the assumed cost of electrical maintenance for



alternating-current equipment which was given as 1.5 cents per car mile. The cost of maintenance on the Indianapolis & Cincinnati Traction Company's lines had averaged less than 1 cent per car mile for the last three years. The cost of car equipment assumed by Mr. Potter, he also criticized. Ten single-phase cars at \$17,000 each and ten 1200-volt, direct-current cars at \$10,000 would fulfill the assumed schedule service and on this basis the total cost of the two systems would be about equal. In comparing two systems as Mr. Potter had done, due consideration should be given to the relation between car equipment and line capacity. It would be unfair to assume three times as many cars required as could be operated with the assumed line capacity or to assume a line capacity so small that not more than the scheduled number of cars could be operated at one time. In conclusion Mr. Scott thought it was significant that the New Haven was the only electrified steam road in the United States which was actively proposing to extend its present electric zone for trunk line service.

Philip Dawson sent a telegram to the meeting regretting his unavoidable absence and calling attention to a number of errors in the fundamental data on the South London Elevated trains which appeared in Mr. Hobart's paper. The correct data would completely change Mr. Hobart's conclusions.

Angus Sinclair did not believe there was the least indication of the probable extension of electric traction for handling through freight trains.

J. G. Wilson agreed with Mr. Westinghouse that a uniform system of electric traction might be very desirable for many reasons but he thought it was impracticable and not absolutely necessary. He compared two railways entering London. The Great Eastern had the heaviest suburban traffic in Great Britain while the Great Northern had only a small suburban traffic but handled an enormous mineral traffic on its main line. The Great Eastern could use direct current to the best advantage for its heavy suburban service and single-phase might prove to be the most economical for the Great Northern to adopt. If one of these roads for the sake of promoting interchange of equipment had to give way to the other which system should be adopted and what inducements could be held out to the railway which relinquished its advantage? He did not believe that it was economically sound to delay the adoption of electric traction until a uniform system could be decided upon because the advantages of uniformity were remote and problematical while the advantages to individual companies which in the meantime are being foregone are large and self-evident.

H. H. Barnes, Jr., referred to Mr. Scott's criticism of the number of cars assumed by Mr. Potter in his comparison of the single-phase and the 1200-volt, direct-current systems for an interurban line. The speaker had made some calculations to show that even with half the number of cars the difference in favor of 1200-volt direct current was \$20,000 per year instead of \$32,000 a year. The brush maintenance of alternating current apparatus was much higher than direct-current apparatus. Mr. Barnes thought that just as many men were employed on an alternating-current road as on a direct-current road, the substation employees being offset by men needed in other departments. Particular attention had to be paid to the maintenance of the rail bonds of an alternating-current system for economical operation.

J. A. F. Aspinall, Lancashire & Yorkshire Railway said that he discovered soon after the opening of the Liverpool-Southport line that if the cost of repairs to motors and trucks was to be kept down it would be necessary to revert to the use of larger bearings such as were employed on steam locomotives. Low center of gravity and excessive non-spring borne weight in his opinion were responsible for much of the excessive rail wear observed on electrically operated roads. As the general manager of a large railway system he expressed the belief that no railway company could afford to disregard the possibilities of electric operation. The utilization of the equipment to its fullest capacity was an important point in favor of electric operation. A steam locomotive is engaged in doing useful work less than 28 per cent of the time.

## ELECTRIC RAILWAY LEGISLATION IN MASSACHUSETTS IN 1910

Matters of interest to public utility corporations occupied a prominent place in the recent session of the Massachusetts Legislature. Of the total number of bills considered 84 were of direct interest to electric railways.

One of the most important bills passed was that permitting the New York, New Haven & Hartford Railroad to acquire the stock of the Berkshire Street Railway. A feature of the act is the requirement that various extensions and improvements shall be made in the electric railway system serving the country between Springfield, Pittsfield and North Adams. Facilities are to be given to communities at present without adequate transportation and gaps in existing through lines are to be filled. An expenditure of about \$2,000,000 in electric railway improvements is contemplated under the act. An extension is to be made from Great Barrington to the Connecticut boundary, and another from Huntington to the Berkshire Street Railway. The Railroad Commission has full supervision over the security issues and sales and it is provided that fares shall not be increased or service decreased as a result of the transfer of control. The railroad company is required to offer minority stockholders the price paid by it for a majority control.

By Chapter 536 the Legislature defined and extended the authority of the Railroad Commission to supervise the issue of bonds by street railways. The board may prescribe the minimum price at which such bonds shall be sold, and may modify the price from time to time. Whenever the board authorizes or has approved the issue or sale of bonds of a face value in excess of the amount determined by it to have been properly expended or to be properly required, it may, in its order of approval, or at any time thereafter, require the company issuing such bonds to establish a sinking fund, estimated to realize at the maturity of the bonds a sum equal to the difference between the amount or amounts for which such bonds were authorized and the face value of the bonds, and may designate some Massachusetts trust company as trustee and custodian of the fund, and may from time to time change the trustee. The provisions of any agreement made relative to the sinking fund between the railway company and the trust company are to be submitted to the board and are not valid until approved by the latter.

Among the labor laws passed was Chapter 445, providing that if an employer, during the continuance of a strike among his employees, or during the continuance of a lock-out or other labor trouble among his forces, publicly advertises or solicits persons to work for him to fill the places of strikers, he shall plainly mention that a labor disturbance exists.

Chapter 518 provides that the several boards and commissions authorized to grant locations to street railways may grant temporary locations on public or private land, or public streets, for the purpose of enabling the company to maintain uninterrupted service. The Railroad Commission is permitted to approve such locations without a hearing.

The termination of the fiscal year for electric railways was made June 30 instead of Sept. 30 by Chapter 558.

The Boston & Eastern Electric Railroad was authorized to construct a tunnel under Boston Harbor by Chapter 630. The law provides that the Railroad Commission and the Boston Transit Commission, sitting as a joint board, shall determine the general character, size, design and location of the tunnel, and on agreement it may be connected with the subway system of the Boston Elevated Railway. The issue of securities to pay for the construction is placed under the jurisdiction of the joint board. The company is authorized to take land for the construction by right of eminent domain, and the tunnel is to be built without cost to the city. Upon the completion of the tunnel and before it is opened for use, the company is required to convey it by deed to the city free from all incumbrances, and in return obtains the use of the tunnel for 40 years. The company is to maintain the tunnel, light it, and



so far as necessary in the opinion of the board, ventilate it. Any railroad company may use the tunnel subject to conditions determined by the board. The act expressly declares that nothing in it shall be held to be a declaration that public necessity and convenience require the construction of the tunnel.

The transit bonds of the city of Boston were exempted from the provisions of the law relative to city loans by Chapter 437. By Chapter 579 the Boston Transit Commission was authorized to relocate the westerly terminus of the Riverbank subway, subject to the approval of the Boston Elevated Railway, bringing the tracks to the surface at a point about one-quarter mile west of the terminus originally fixed near the Charlesgate East.

In Chapter 355 railroad corporations were authorized to operate their lines by electricity or such other power as the Railroad Commission may approve, and Chapter 629 provides that the Board of Gas & Electric Light Commissioners be directed to investigate the transmission of electricity and the laws bearing upon it in Massachusetts, with particular reference to the carrying of energy in bulk through several towns, and the location, construction and maintenance of transmission lines.

By Chapter 567 it was provided that the rates of fare charged by street or elevated railways for the transportation of pupils of industrial day or evening schools shall not exceed one-half the regular fare charged by the companies for the transportation of other passengers between those points. Tickets are to be sold to such pupils in lots of 10 each.

Chapter 443 provides that a street railway company incorporated under the laws of the State may purchase from a foreign company that part of its property that lies within the State, when the line of the foreign company connects, intersects, or forms a continuous line with that of the purchasing company, provided that the facilities for travel be not diminished or fares increased. The Railroad Commission is to approve the terms of such a purchase.

It was provided by Chapter 453 that no street railway company shall require passengers whom it permits to ride upon the platform to do so at their own risk, and no such passenger shall be prevented from recovering compensation in damages for any injury by reason of the fact that he is so riding.

One of the most important matters considered by the Legislature was the electrification of the steam railroads in the Boston district. Chapter 134 directs the railroad corporations operating within the metropolitan district of Boston to prosecute studies with reference to the electrification of their passenger service in the district, and to present the results of such studies by Nov. 1 to the Joint Board on Metropolitan Improvements created by the Legislature of 1909. The joint board is directed to continue the investigation of the subject and to report upon it to the Legislature of 1911, with the draft of an act which shall provide for the electrification of all railroads of standard gage in the district within a stated time, and which shall empower the proper board or boards to determine the manner in which the work shall be prosecuted.

Chapter 596 provides that a street railway, with the consent of a railroad corporation owning tracks, may, to such an extent and subject to such terms and regulations as the Railroad Commission may approve or prescribe, operate cars upon such tracks as are equipped for electric operation and the tracks of the street railway may be connected with those of the railroad system by approval of the board.

Chapter 587 provides that if an electric railroad does not begin the construction of its road and expend thereon at least 10 per cent of the amount of its original capital stock within two years after date of its certificate of incorporation, and does not complete and open its railroad for use within four years of that date, its corporate powers shall cease, unless the Railroad Commission, after a public hearing, shall extend the time. A similar provision is made in the case of extensions of electric railroads.

Several important questions were referred to the State commissions by the Legislature for consideration and report to the Legislature of 1911. Besides the resolve relating to electrification, the joint Commission on Metropolitan Improvements is

required to hold public hearings on the advisability of constructing a tunnel between the north and south stations in Boston; on the question of ownership of such a tunnel, the terms upon which it should be built, and to submit a bill providing for the construction of the tunnel or the layout of its route by a proper board. The Railroad Commission is required to consider whether any legislation making it compulsory under certain conditions for street railways to receive and convey over their tracks traffic or cars tendered by connecting street railways is desirable.

Chapter 139 provides for an investigation by the Railroad Commission and Boston Transit Commission, jointly, as to whether it is in the public interest: First, To provide for the acquisition by the Boston Elevated Railway of stocks and bonds of other street railways, or for the acquisition of the property and rights of other street railways in any other way; second, to provide for extensions before expiration of the existing contracts for the use of the Tremont Street subway, the Washington Street tunnel and the East Boston tunnel, and third, to determine by what method the advantages of a single control of the systems of the Boston Elevated Railway and the West End Street Railway may be continued. The joint board is also required to investigate and report upon the Codman bills for the construction of a subway loop in the West End of Boston, in connection with the existing subway under Tremont Street, and to investigate the cost of construction of a subway from Park Street to the South Station in Boston, and the need of subways to South Boston and Dorchester, from Park Street.

### ELECTRIFICATION PLANS OF CANADIAN PACIFIC RAILWAY

The Canadian Pacific Railway Company is said to be considering plans for the electrification of a portion of its old steam line to Prescott and the formation of an electric railway belt line around the city in connection with the Hull Electric Railway controlled by the Canadian Pacific Railway, for the purpose of creating at Ottawa a large industrial area for manufacturing sites.

Briefly the plans include the electrification of the old Prescott line from the Union Station to the Sussex Street station, connecting the Sussex Street station with the mouth of the proposed tunnel by a surface electric line, connecting the Hull electric line with the line thus formed, which would create an electric belt line giving access to a large area of suburban residential property, and create an industrial district along the old Prescott line from Hurdman's bridge into the city, along the banks of the Rideau Canal.

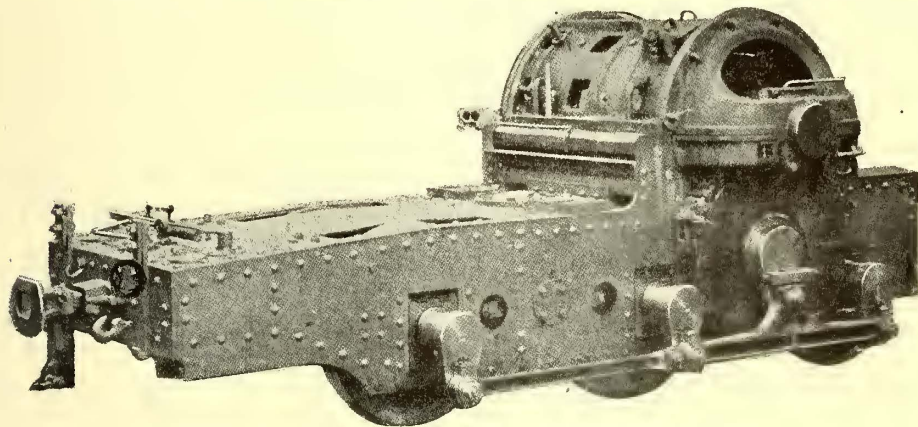
In an interview, N. Cauchon, consulting engineer of the Canadian Pacific Railway Company, at Ottawa, on Aug. 8, is reported as saying that the electrification of the Prescott line through the city of Ottawa is being considered because the company realizes the great industrial possibilities of Ottawa, and is anxious to develop them. At the present time manufacturers on the Sussex Street line are at a great disadvantage in getting cars in and out. The freight yards are located on the flats and there is a haul of 11 miles around to Sussex Street. In connection with the development of the district is a proposal from the Ottawa & Morrisburg Electric Railway which has been made to the Canadian Pacific Railway, which contemplates turning over the Prescott line from Ridgemount, near the Chaudiere Junction, to the electric traction company, thus providing it with an entrance into the city.

Should the scheme with the Morrisburg Company fail to materialize a plan has been suggested to the Canadian Pacific Railway to connect the Sussex Street branch with the proposed tunnel from the Central station, and, with the electrification of the tunnel and the Prescott line, to form an electric belt line around the city from the Union station to the Central station, then to the Sussex Street station, and around to the Union station by way of the Prescott line. The old Prescott line is the original railway entrance to the city of Ottawa. At the present time its traffic consists of freight trains at infrequent intervals.



**GEARED SIDE ROD LOCOMOTIVE FOR AUSTRIAN SINGLE-PHASE RAILWAY**

The *Bulletin* of the International Railway Congress for June, 1910, contains a report on electric traction in Austria and Hungary by Arthur Hruschka. Included in the report is a description of a novel geared side rod locomotive for the St. Pölten-Mariazell-Gusswerk Railway in lower Austria. This is a single-phase railway 66.5 miles long and having a track gage of 2 ft. 6 in. Current at 6000 volts and 25 cycles is supplied from an overhead catenary conductor. The line has but one track and traverses the Austrian Alps, with numerous steep



Truck and Motor of Geared Side Rod Locomotive

grades and sharp curves. Electric traction was decided upon because the traffic had increased beyond the capacity of steam operation; the maximum speed with steam locomotives was 18.6 m.p.h. while with electric locomotives the maximum speed will be increased to 30 m.p.h.

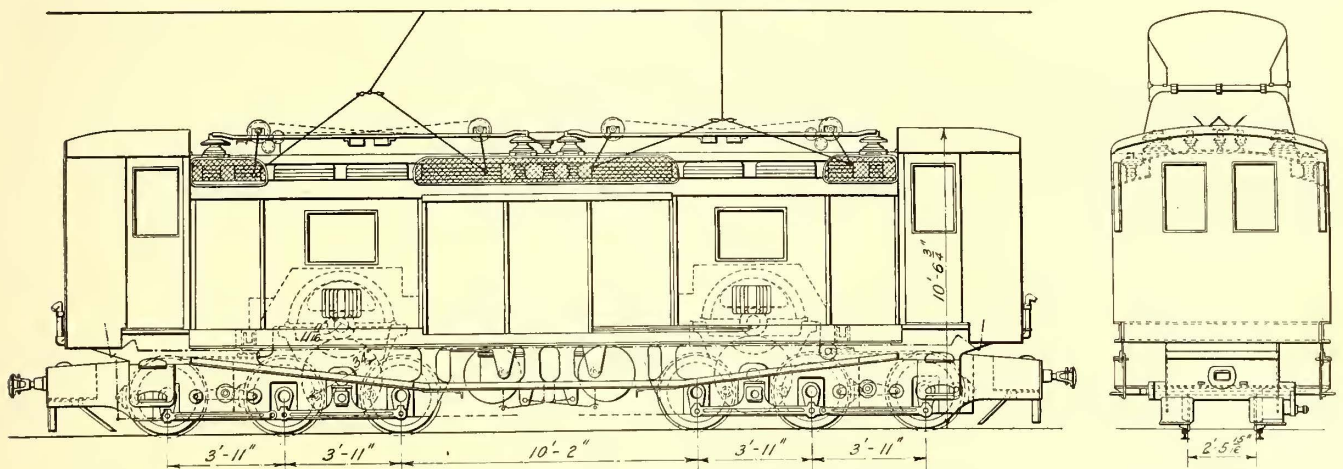
Seventeen electric locomotives have been ordered from the Linzer Locomotive Works, the electrical equipment being supplied by the Austrian Siemens-Schuckert Works. Two locomotives will be operated with multiple-unit control when hauling heavy passenger or freight trains. The accompanying engravings illustrate the principal features of construction. The locomotives consist of two six-wheel swiveling trucks on which a long cab is mounted. The drawbars are attached to the outside end frames of the trucks but the draft of the forward

centrifugal force acting on, the large mass of the motor tends to revolve the truck and relieve the pressure of the forward or guiding wheels of the front truck on the outside rail.

Each of the two motors weighs 4400 lb. As shown in the engraving from a photograph the armature bearings are on the extreme ends of the shaft. A pinion is mounted on each end of the shaft inside the bearings and meshes with a gear on the end of a jack shaft passing through the truck frame between the middle and rear driving axles. The gears are outside of the truck frames and are enclosed in dust-proof gear cases. A gear ratio of 2.9 is employed. On the end of the jack shaft outside of the gear a crank arm and pin is pressed on and this pin is connected to the driving wheel crank pins by a T-shaped parallel rod. The forward driving wheel is connected to the middle wheel by a side rod with a knuckle joint. The cranks on opposite ends of the jack shafts are quartered so that a uniform torque is obtained at the driving wheels. This arrangement permits the use of a wide motor entirely supported by springs and gives the locomotive a high center of gravity. The upper half of the motor can be removed for inspection or repairs.

Each of the two motors is supplied with current at 250 volts. A motor-driven blast fan is used for cooling the fields, armatures and commutators. Each motor is supplied with current from its own transformer. Speed regulation is obtained by changing the secondary transformer voltage in seven steps through step-by-step switches and relays. The transformers are placed in the center of the locomotive and are mounted on rollers. They can be removed by opening the wide side doors in the cab. High-tension current is collected by two bow collectors on top of the cab. The collector frames are raised and lowered by a hand winch and are designed for variations in the height of the trolley wire from 12 ft. to 18 ft. The flexible bows automatically reverse their position when the direction of motion is reversed.

The locomotives weight complete 99,180 lb., divided as follows: mechanical parts, 46,284 lb.; motors and gears, 26,448



Narrow-Gauge Geared Side Rod Locomotive for Austrian Single-Phase Railway

truck is transmitted through its center plate and the cab underframe to the center plate of the rear truck. The trucks have plate frames built outside of the wheels on account of the narrow track gage. Each truck carries a 250-hp single-phase series motor with commutating poles mounted above the truck frame and between the middle and the inside driving axle. A feature of the design which it is claimed reduces the danger from derailment on curves is the location of the truck center plate in front of the middle driving axle. When rounding a curve the

lb.; transformers, 15,428 lb.; control apparatus, 8816 lb.; current collectors, 2204 lb. The maximum speed is 31 m.p.h. and the maximum tractive effort, 15,400 lb.

A tube railway has been proposed in London, Eng., to extend from Victoria embankment to the Crystal Palace, with a branch to the Elephant and the Castle. The total length of the route is 8 1/4 miles, and the cost will be \$1,700,000 per mile.



## ONE-MAN PREPAYMENT CAR

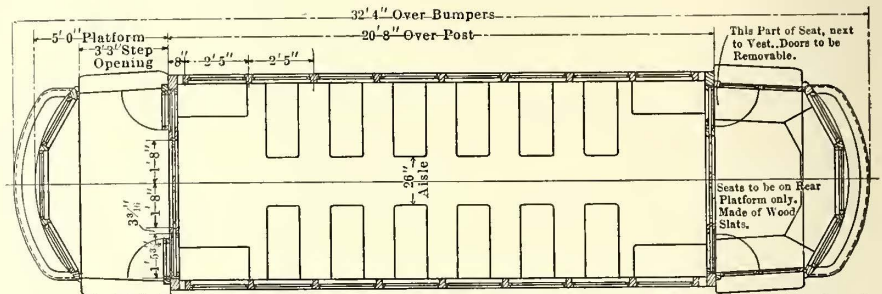
BY JUDSON H. BOUGHTON.

In the smaller cities, of from 40,000 to 50,000 inhabitants, or less, the traffic and earnings of a street railway system are not sufficient in many instances to justify the employment of conductors on the cars. There are, however, numerous objections to operating street cars in the usual way with only one man. When unaided by a conductor the motorman is required not only to watch the track and operate the car, but to watch the entrance and exit of passengers and to see that their fares are collected and that the necessary transfers are issued. Under these conditions the service can hardly be made rapid or satisfactory, fares are missed in abnormally large numbers and legitimate and other claims on account of accidents accumulate at a rapid rate. Exceptional opportunities are offered to the unprincipled to manufacture claims on account of alleged injuries, and it is difficult for the company to successfully defend these claims in the absence of a conductor, or other witness, to disprove the statements made by the claimant. The accident and legal accounts of small roads operated in this manner are usually excessively high.

In some instances a compromise plan has been tried by having conductors on the cars during the hours of heaviest traffic. This involves maintaining a force of extra men at considerable expense. These extra men seldom are thoroughly trained, and are not as efficient as regular conductors. With

Citizens' Railway Company of Waco, Tex., a city of 30,000 inhabitants.

A floor plan of the car, which is of the semi-convertible type, is shown herewith. The car is entered through the right-hand door on the front platform, where the fare is deposited by the passenger in a fare box, change being furnished by the motorman. The body of the car, which is particularly roomy adjoining the doors, is used in the regular way, provision being made for negroes on the rear seats in the main portion of the car, when it is to be used in the Southern States. The steps of the



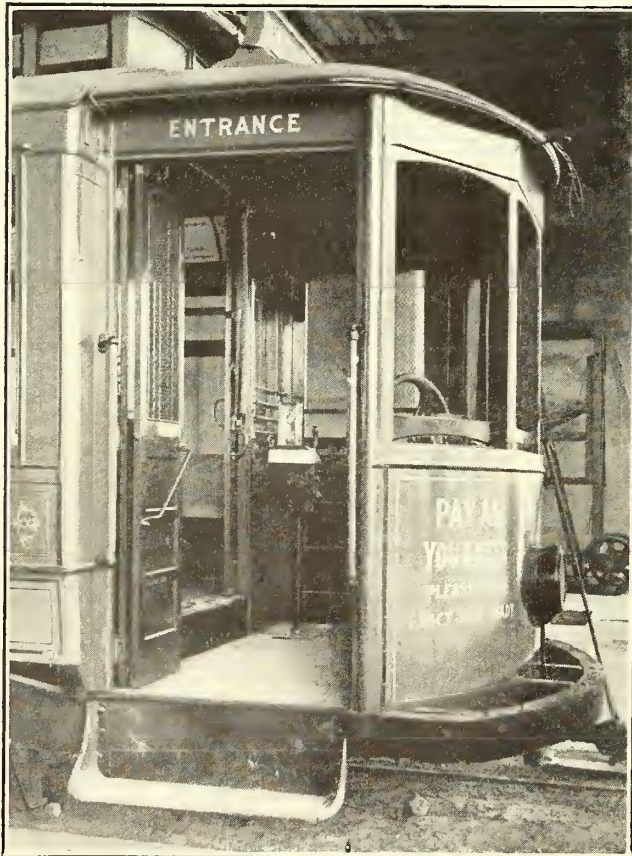
Floor Plan of One-Man Prepayment Car

Electric Ry. Journal

rear platform are entirely removed, and the doors are closed and locked. A shield protects the rear bumper, leaving no overhanging parts on which boys or others may sit or hang. In addition to the regular sash on the doors and windows of the rear vestibule, which can be opened or closed at will, there are screens to prevent entrance or exit through these openings. A semi-circular bench, seating from eight to ten persons, is a part of the regular equipment of the rear platform, which is utilized as a smoking compartment. This feature increases the seating capacity of the car considerably, and has proven to be very popular. The passengers leave by way of the front platform, passing out the right-hand door, under ordinary conditions, although on single tracks and in times of heavy traffic the left-hand front door is available as an exit. Transfers are issued when desired as the passengers leave the car, a transfer-issuing machine being employed for this purpose.

Under this system of front-end entrance and exit the cars are stopped on the near instead of the far crossing. This method requires somewhat more current in starting cars on curves at street corners, but tends to prevent the injury of passengers who might attempt to leave the car as it runs at reduced speed around the curve. The pay-as-you-enter system which is used and which is now well established is not objectionable in any way, and it insures the collection of the fares much more completely than was possible under the usual system of one-man operation. With the natural tendency on the part of passengers to congregate on the rear platform this method assists materially in distributing the passengers evenly throughout the car and in utilizing the car to its full capacity without causing passengers to suffer discomfort from crowding. The issuance of transfers as the passengers leave has not been found to delay their exit perceptibly, and has proven satisfactory in every particular. With only one entrance and exit to watch, and with that close at hand, and with the burden removed of collecting fares and issuing transfers, under the old system, the motorman is able to devote his whole attention, while the car is in motion, to its operation. Average speeds 25 per cent greater than those permissible under the old system are made possible, thus improving the service to a marked degree. The accident claims have been reduced by at least one-half.

The better facilities for collecting all of the fares, the better service and larger capacity of the cars, the elimination of any expense for conductors and the material reduction in accident and legal expenses have caused a material improvement in both the gross and net receipts from operation. Thus far no serious objections to the use of this type of car operated in the manner described have developed. Three cars of this type, built by the American Car Company, are in service in Waco and the number is to be increased to 20.



Front Platform of One-Man Prepayment Car

conductors on the cars at certain hours of the day and not at other times the public has another cause for complaint and criticism.

To meet these conditions, which are common to the street railway systems of small cities, a special type of car, designed for one-man, pay-as-you-enter operation, has been developed and put in service with marked satisfaction and success by the



## THE COLUMBUS STRIKE

On the evening of Aug. 9, 1910, the City Council of Columbus, Ohio, appropriated \$25,000 to pay extra expenses of the police department, incurred on account of the strike of the employees of the Columbus Railway & Light Company and adopted a resolution which provides that no money shall be allowed for this purpose until both sides have agreed to submit their differences to arbitration. In his remarks at the meeting Councilman Sherman said that the extra protection is taking money from the taxpayers to humor the whim of one man.

J. C. Pretzman, president of the Chamber of Commerce and members of that body tried on Aug. 9 to induce the strikers to recede from some of their demands, but the officers insisted that the differences should all be submitted to arbitration, which they know the company opposes. The last of the State troops left the city on Aug. 9. Some of the men arrested for disorder have received very light sentences.

On Aug. 9, 1910, it was reported that 30 union men had returned to work at the South High Street car house.

Some discussion has taken place regarding the disposition of the cases of those who have been arrested for rioting, stoning cars and other crimes, and the advisability is being considered of calling a special grand jury to consider the cases. The *Ohio State Journal*, Aug. 11, 1910, said that the rioters should be speedily and summarily dealt with; that the police department should be more vigilant in its protection of people and property, and that the mob spirit which has infested the city should be done away with by force. The opinion is expressed that if long terms of imprisonment were meted out to those who are guilty of rioting trouble would speedily subside.

On Aug. 11, 1910, the directors of the Chamber of Commerce announced that they would not insist upon arbitration until the police department had restored order. On the same day the directors discussed the situation with Mayor Marshall and Safety Director McCune. The plan of placing policemen on cars in the districts which have been most affected by rioting was considered. The directors of the Chamber of Commerce favored this, as they believed that it would result in averting much trouble, but Mayor Marshall objected.

On the night of Aug. 11 a motorman on the Mt. Vernon Avenue line was shot in the leg while his car was in the western section of the city. On the preceding evening muriatic acid was thrown in the face of a non-union motorman on the Oak Street line. This man is at a hospital and may lose his sight.

As a result of a police revolt the work of the rioters was more dastardly on the evening of Aug. 12, 1910, than at any time since the strike was declared. Three persons were shot and nine employees of the company and three policemen were injured. Mayor Marshall ordered the patrolmen to ride on the cars with the motormen on certain lines to protect the crews and the passengers. Thirty-two of the men refused to do duty on the cars and the news soon spread. Emboldened by the idea that the cars would not be protected the rioters made the most of the opportunity. Many arrests were made.

The company announced during the week which ended on Aug. 13, 1910, that all former employees who did not return to work by Aug. 15, 1910, would never be re-employed.

On the evening of Aug. 13, 20 men employed as special policemen refused to obey Mayor Marshall's order to do duty on the cars. This served still further to incite the disorderly element and 10 or 12 persons were injured and a number of cars damaged.

The South Side Business Men's Association adopted a resolution on Aug. 13 asking for the suspension of Mayor Marshall on the ground that he has lost control of the situation. The call of the Mayor for volunteers to aid the police department after the special men had mutinied did not result in a single response.

A story has been published to the effect that the Mayor advised the railway men to organize and that he promised not to

put officers on the cars in case of a strike. The story goes that under pressure from the people, he had to break his promise and put policemen on the cars.

The men now in the employ of the company have been authorized to carry arms to protect themselves and their passengers.

On Aug. 15, 1910, Governor Harmon undertook to stop the rioting by ordering out the First Regiment, National Guard, of Cincinnati, and Troop B and Battery C, of Columbus. The local militiamen were on duty within an hour after receiving the order, and the Cincinnati men arrived at 10 o'clock. These forces number 800 men, and sufficient companies of the Third Regiment to bring the number up to 1000 will be added. Governor Harmon issued his orders without consulting Mayor Marshall after a conference with Adjutant-General Weybrecht and the president of the Columbus Chamber of Commerce. He issued this proclamation:

"I have ordered a portion of the National Guard to report for duty at Columbus forthwith. I have done this on my own motion under my authority as Governor. The police force of the city, which is entirely too small at best, has been reduced and demoralized by the open mutiny of many of its members. It has shown itself incapable, without help, of maintaining order. A continuance of this condition would disgrace the State and inflict grievous injuries on its capital city.

"Wherever the blame rests, for it surely rests somewhere, the menace of the situation is beyond question, and I am unwilling to let lawless violence run unchecked for lack of sufficient force to put it down, while the police of the city is being recruited and reorganized and the sheriff is summoning the men of the county to uphold the public authority. It does not mend matters to say the local authorities should have taken these steps sooner, though this is true. Let them be taken now without delay. Meanwhile the troops will render whatever assistance is needed.

"The State expects every citizen promptly to show his colors and lend his aid, so that the emergency which the guard is summoned to meet may speedily be brought to an end and Columbus and Franklin County prove themselves worthy of the right of self-government by meeting their responsibilities. The public interest now wholly overshadows the private controversy which is the occasion of the grave danger that if permitted to continue would threaten the foundation of the government, and the first care of all citizens must be to maintain law and order, because otherwise no man can enjoy his individual rights, whatever they may be."

The 32 policemen who refused to ride on the cars to protect the employees of the company and the passengers have been dismissed from the force. The mayor says that as the troops are in the city he will not be responsible for the operation of cars at night until the force is strengthened.

## PROPOSED CHANGES IN THE ELECTRIC RAILWAY SYSTEM OF BUCHAREST

The city of Bucharest, Roumania, covers an area of about 25 sq. miles. There is at present one street railway system operating about 32 miles of double-track lines, of which 3½ miles are electric and 28½ miles are horse-car lines. Upon these, 138 horse cars and 10 electric cars are in service, and the company has 6 electric cars in reserve. All of the cars are small and of inferior pattern. The concession of the present company expires in six years, and unless an extension is obtained its assets revert to the municipality of Bucharest. A new company, 25 per cent of whose capital is owned by the city, has lately obtained a charter, and expects in the near future to build and equip 14 miles of electric lines, six of which, it is stated, will be built in the present year. The old company is attempting to obtain an extension of its concession, but whether it obtains such an extension or its properties revert to the city, a consolidation of the two companies will probably shortly be effected, and the electrification of the entire system will then be undertaken.



## COMMUNICATIONS

### THE ARNOLD PITTSBURGH REPORT

PITTSBURGH RAILWAYS COMPANY,  
PITTSBURGH, PA., Aug. 16, 1910.

TO THE EDITORS:

We have just received the Aug. 13 number of the *ELECTRIC RAILWAY JOURNAL* containing an installment of the report of Bion J. Arnold to the Mayor of Pittsburgh on the Pittsburgh traction situation.

Various curves and tabulations are shown analyzing the service given, on the basis of car-miles operated each year and the statement is flatly made that "according to this record the standard of service furnished decreased from 1902 to 1908 with a considerable improvement in 1909."

Mr. Arnold has failed absolutely to take into consideration either in his calculations or in his discussion of the subject a fact well known to every Pittsburgher—viz., the gradual increase in seating capacity of new cars purchased until the latest car seating 56 people is just twice as large as those in use in 1902. The facts are that of the 600 cars purchased since 1902 all but 100 trail cars are larger than the old car bodies and the average seats per car of all winter car bodies (including motor and trail cars) have increased from 27.3 seats in 1902 to 32.9 seats on April 1, 1910, or 20 per cent.

Correct all of Mr. Arnold's curves and tabulations by allowing for the increased seating capacity of cars operated and you will find even the service during the panic of 1908 as good as that of 1902 and the present service much better.

We do not care at this time to enter into a discussion of other inferences he has drawn from his data but in justice to the railways company the erroneous impression regarding the service furnished should be corrected at once.

Will you please publish this letter, and oblige,  
J. H. REED, Vice-President.

### THE DETROIT APPRAISAL

DETROIT, MICH., Aug. 12, 1910.

TO THE EDITORS:

I notice in your edition of July 9 reference is made to the Detroit situation and certain extracts made from a letter of mine to the Mayor under date of June 25.

You did not publish that letter in full, though it was all equally essential. The paragraphs that are numbered are merely questions to be answered, but the others illuminate the analysis of the situation.

You constantly make the statement that I have "refused to defend my figures." I object to this most emphatically as being an absurd untruth. The procedure suggested was wholly improper and wrong, and could lead to no good result, hence we refused to become a party to it. This was done under the advice of a great many business men, leading attorneys, the gentlemen who employed me and to whom my work was satisfactory, in every particular, approved and adopted by them, and last, but not least, the Corporation Counsel of the city of Detroit, not only advised against it, but absolutely refused to have anything to do with it himself.

Inasmuch as we are all in this solely for the interests of the city, the safeguarding of our client's rights is a responsibility that cannot be ignored, and our actions have been taken with a very careful comprehension and knowledge of the situation as it exists.

We were never able to get into the company's books and until the promise of the company is kept, we would certainly be paying ourselves a poor compliment by meeting the company on any proposed scheme.

The statement which I have made constantly is that I will be very pleased to take a hand in defending the city at any time possible under proper arrangements, in which I have a hand, leading to a definite result, authorized and agreed to by the city and the company ahead of time, and always with access to the company's books.

You must be aware that since this appraisal was made the situation has been further complicated by the expiration of franchises on all the important streets, and the precise application of the values to these particular portions cannot be the same as they were as a going concern. These are legal matters for the city of Detroit to establish.

The actions of certain members of councils are much the same in every town, and it seems strange that in printing the statement of Alderman Harpfer you likewise did not print the statement of Alderman Gutman, assuming that daily expressions of members of the council are essential to the knowledge of the rest of the United States, as reached by your magazine.

I am entitled to simple truth in these notices, just exactly the same as I would be if I had been retained in the same professional capacity for the car company, and was looking after their interests instead of the city's.

FREDERICK T. BARCROFT.

[We are sorry that Mr. Barcroft considers we have done him an injustice, so are glad to publish his letter. We assume that by "the gentleman who employed me" he refers to the committee on appraisal of the Committee of Fifty. But we understand that the procedure criticised by Mr. Barcroft was regarded as a just one by the mayor representing the city which paid for the report and by the executive committee of the Committee of Fifty, of which the committee on appraisal was a sub-committee. Nor have we heard any criticism of the character and ability of the three men selected to act on the board of arbitration. There is also a decided difference of opinion as to some of the other points mentioned by Mr. Barcroft, such as whether the company has fulfilled its promises and whether the railway franchises on all of the important streets have expired.—EDS.]

### PROGRAMS OF ENGINEERING AND ACCOUNTANTS' ASSOCIATIONS

The programs for the conventions of the Transportation & Traffic, Engineering and Accountants' Associations at Atlantic City next October have just been made public and are published below.

#### CONVENTION PROGRAM FOR ENGINEERING ASSOCIATION.

MONDAY, OCT. 10—2:00 P.M.—5:00 P.M.  
Registration and badges.

TUESDAY, OCT. 11—9:30 A.M.—12:30 P.M.  
Convention called to order.  
Address of acting president.  
Annual report of executive committee.  
Annual report of secretary-treasurer.  
Appointment of convention committees.  
Report of committee on way matters.

TUESDAY, OCT. 11—2:00 P.M.—5:00 P.M.  
Report of joint committee on shop accounting.  
(Joint meeting with Accountants' Association.)  
Report of committee on power generation.

WEDNESDAY, OCT. 12—9:30 A.M.—12:30 P.M.  
Appointment of nominating committee.  
Report of committee on equipment.  
Report of committee on heavy electric traction.  
Convention photograph. Directly after this session. (Place to be announced.)

WEDNESDAY, OCT. 12—2:00 P.M.—5:00 P.M.  
Report of committee on heavy electric traction (continued).  
Report of committee on power distribution.

THURSDAY, OCT. 13—9:30 A.M.—12:30 P.M.  
Inspection of exhibits.

THURSDAY, OCT. 13—2:00 P.M.—5:00 P.M.  
Inspection of exhibits.

FRIDAY, OCT. 14—9:30 A.M.—12:30 P.M.  
Report of committee on buildings and structures.  
Report of committee on standards.

FRIDAY, OCT. 14—2:00 P.M.—5:00 P.M.  
Question box.  
General business.  
Report of nominating committee.  
Election of officers.  
Installation of officers.  
Adjournment.

#### CONVENTION PROGRAM FOR ACCOUNTANTS' ASSOCIATION.

MONDAY, OCT. 10—2:00 P.M. TO 5:00 P.M.  
Registration and badges.

TUESDAY, OCT. 11—9:30 A.M. TO 12:30 P.M.  
Convention called to order.  
Annual address of president.  
Annual report of executive committee.  
Annual report of secretary-treasurer.  
Address, "The Census and Electric Railway Statistics," by W. M. Steuart, chief statistician for manufactures, Bureau of Census, Washington, D. C.  
Paper, "Freight and Express Accounting," by L. T. Hixson, auditor, Terre Haute, Indianapolis & Eastern Traction Company, Terre Haute, Ind.



Report of the committee on interline accounting.  
 Appointment of convention committees.  
 Appointment of nominating committee.  
 New business.

TUESDAY, OCT. 11—1:00 P.M.

"Get-together" luncheon, Marlborough-Blenheim.

TUESDAY, OCT. 11—2:30 P.M.

Report of the joint committee on shop accounting.  
 (Joint meeting with Engineering Association.)

WEDNESDAY, OCT. 12—9:30 A.M.—12:30 P.M.

Paper, "Method of Determining Overhead Charges," by Henry J. Davies, secretary, Cleveland Railway Co., Cleveland, Ohio.  
 Address, "Overhead Charges," by Dean M. E. Cooley, of the University of Michigan.

Paper, "Pay Rolls and Invoices," by N. E. Stubbs, auditor, United Railways & Electric Company of Baltimore, Baltimore, Md.

THURSDAY, OCT. 13—9:30 A.M.—12:30 P.M.

Paper, "Collection and Auditing of Receipts of Pre-payment Cars," by M. R. Boylan, general auditor, Public Service Railway Co., Newark, N. J.

Paper, "Detail Records, Their Use and Value," by J. H. Neal, general auditor, Boston Elevated Railway Company, Boston, Mass.

Report of the committee on a standard classification of accounts.

Reports of convention committees.

Report of nominating committee.

Election of officers.

Installation of officers.

Adjournment.

#### CONVENTION PROGRAM OF TRANSPORTATION AND TRAFFIC ASSOCIATION

MONDAY, OCT. 10—9:30 A.M.—12:30 P.M.

Registration and badges.

MONDAY, OCT. 10—2:00 P.M.—5:00 P.M.

Convention called to order.

Annual address of the president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees.

Reports of special committees.

Report of committee on passenger traffic.

TUESDAY, OCT. 11—9:30 A.M.—12:30 P.M.

Report of committee on interurban rules.

Paper, "Excess Fare on Limited Trains," speaker to be announced later.

Report of committee on express and freight traffic.

WEDNESDAY, OCT. 12—9:30 A.M.—12:30 P.M.

Appointment of committee on nominations.

Report of committee on city rules.

Paper, "Use of Metal Tickets," by George L. Radcliffe, superintendent of transportation, Cleveland Railway, Cleveland, Ohio.

Report of committee on transfers and transfer information.

Paper, "Transfer Laws and Suggested Changes," by L. S. Hoffman, general solicitor, Public Service Railway, Newark, N. J.

THURSDAY, OCT. 13—9:30 A.M.—12:30 P.M.

Report of committee on training of transportation employees.

Report of committee on construction of schedules and timetables.

General business.

Report of nominating committee.

Election of officers.

Installation of officers.

Adjournment.

#### CHANGE IN THE CONVENTION HEADQUARTERS OF THE ENGINEERING ASSOCIATION

Owing to important additions which have been decided upon for the Dennis Hotel, the management of that hotel has decided to close before the opening of the convention. This hotel was selected for the headquarters of the Engineering Association. The executive committee of the Engineering Association is now considering the selection of another hotel as headquarters. The announcement as to the name of the hotel will be made within a few days.

#### SOCIAL PROGRAM OF THE INTERNATIONAL STREET RAILWAY CONVENTION

P. t'Serstevens, secretary of the International Street & Interurban Railway Association, has just issued another bulletin in regard to the convention of the association at Brussels, Sept. 5 to 10. All meetings will be held in the grand hall of the Palais des Académies. The following social program has been arranged:

Sept. 5, 9 p. m., reception in the Salle des Fêtes. Registration.

Sept. 6, 9:30 a. m., first business session; 7:30 p. m., theater party at the Royal Theater.

Sept. 7, excursion to Antwerp with reception at the Antwerp City Hall, lunch tendered by the Antwerp Tramway Company and reception in the evening at the zoological gardens.

Sept. 8, 9 a. m., second business session of the congress; 2 p. m., third business session of the congress; 7 p. m., banquet tendered by the Belgian Government in the Salle des Fêtes.

Sept. 9, 9 a. m., fourth and closing business session of the association. In the afternoon visits to the Exposition and the power station and shops of the Brussels Tramways Company. In the evening, reception at the city hall. Sept. 10 there will be a trip to Ostend in charge of the local railways.

#### MEETING OF THE EXHIBIT COMMITTEE OF THE MANUFACTURERS' ASSOCIATION

The exhibit committee of the American Street & Interurban Railway Manufacturers' Association held a meeting at the office of the American Street & Interurban Railway Association, 29 West Thirty-ninth Street, New York, on Friday, Aug. 12, for the purpose of assigning space to exhibitors at the Atlantic City convention to be held in October. The meeting was called to order by K. D. Hequembourg, vice-president in charge of exhibits, at 11:15 a. m. The following officers, members of the exhibit committee and representatives of exhibitors were present:

President J. R. Ellicott, Westinghouse Traction Brake Company; Vice-President K. D. Hequembourg, Walker & Bennet Manufacturing Company; Vice-President, Charles C. Castle, U. S. Metal & Manufacturing Company; L. R. Ashurst, Jr., William Wharton, Jr., & Company, Inc.; C. W. Laskay, representing H. T. Bigelow, Hale & Kilburn Manufacturing Company; F. J. Drake, Lorain Steel Company; J. R. Dickey, Baldwin Locomotive Works; F. H. Gale, General Electric Company; John C. Jay, Jr., Pennsylvania Steel Company; J. A. Kucera, ELECTRIC RAILWAY JOURNAL; J. H. Milliken, McConway & Torley Company; Mr. Stone, representing H. G. McConaughy, Dearborn Drug & Chemical Works; J. C. McQuiston, Westinghouse Electric & Manufacturing Company; F. C. Randall, Allis-Chalmers Company; Charles H. Thomas, Galena Signal Oil Company; J. V. E. Titus, Electric Service Supplies Company; N. M. Garland, representing A. L. Wilkinson, Ohio Brass Company; S. M. Wilson, J. G. Brill Company. There were also present representatives of the following member companies: The Pantasote Company, New York, N. Y.; Whipple Supply Company, New York, N. Y.; Grip Nut Company, Chicago, Ill.; National Car Advertising Company, Chicago, Ill.; Consolidated Car Heating Company, Albany, N. Y.; Duff Manufacturing Company, Pittsburgh, Pa.; *Electric Traction Weekly*, Chicago, Ill.; Midvale Steel Company, Philadelphia, Pa.; National Carbon Company, Cleveland, Ohio; Sterling Varnish Company, Pittsburgh, Pa.

J. R. Ellicott, president of the Manufacturers' Association, complimented the exhibit committee on the work which it had done up to the time of the meeting. The large attendance at the meeting was evidence of the interest which the members of the committee were taking in their work. While he realized the difficulties confronting the committee in allotting exhibit space and was aware that some exhibitors would probably be disappointed in not receiving their exact choice of space, he had full confidence in the committee and was sure that the best assignments possible will be made under the conditions.

K. D. Hequembourg, vice-president in charge of exhibits, said that in appointing the exhibit committee, it had been his endeavor to divide the representation equally between member companies using a large amount of exhibit space and companies using smaller spaces. He called attention to the fact that 75 per cent of the available space had been applied for up to the time of the meeting. The space for which applications had been received already was nearly equal in amount to the total space available for exhibits at the 1908 convention. Of the space applied for, more than one-third had been requested by 11 of the larger companies, each of which wished to use more than 1000 sq. ft. It was to be regretted that the companies wishing to exhibit heavy and bulky devices were restricted in their choice of space to comparatively small areas on the pier, but this could not be avoided because the construction of the pier was such that concentrated loads could not be placed on the floor except over certain areas. Mr. Hequembourg expressed the hope that a building better suited to the requirements of such a large and comprehensive exhibit would soon be available. In such a building, heavy and bulky exhibits could be distributed equally through the exhibit area and the smaller exhibits could be grouped around them. At the present time, the large exhibits must be grouped in one or two locations. He called attention to a change in the general arrangement of



exhibit space, particularly in Buildings Nos. II and III. In these two buildings, all of the delegates in going to and from the meetings at the outer end of the pier must pass through two aisles, whereas in the main building next to the board walk there are five aisles.

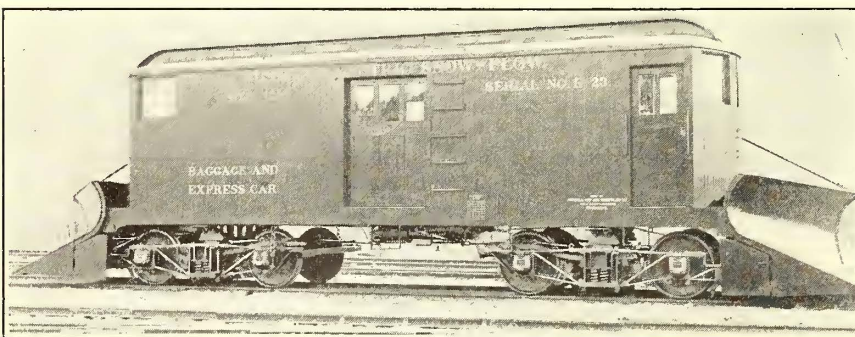
A list showing the names of all applicants for space, the date of application, the approximate weight of the exhibit, the number of square feet required, the location desired and the requirements as to head room was then distributed to the members of the committee. A diagram which had been prepared to show the conflicts in choice of space was also shown to the members of the committee. This diagram indicated that 53 exhibitors had requested allotments of space in Building No. I. These requests totalled more than 35,000 sq. ft., while there is only 13,000 sq. ft. available in the entire building. A number of letters from exhibitors were read in which reasons were given for requesting particular locations for their exhibits.

After a long discussion, a motion was made and carried, without a dissenting vote, that space should be assigned to all those who had made application prior to the meeting in the order of the amount of space requested by the applicants. The committee then proceeded to assign locations to the largest exhibitors. Good progress was made up to the time of the adjournment at 5 p. m. Assignment of the balance of the exhibit space was left to the vice-president in charge of exhibits. Mr. Hequembourg stated that the clerical work of tabulating, checking and issuing notifications of assignments of space was very great, but that he would endeavor to complete it at the earliest possible moment. It is expected that notices will be mailed to all those who had made application for space prior to Aug. 12 not later than Aug. 20. The complete list of assignments will be made public about Sept. 1.

### COMBINATION SNOW-PLOW AND EXPRESS CAR

The Russell Car & Snow-Plow Company, Ridgway, Pa., has brought out for the 1910-1911 season an improved combination baggage and express car and snow-plow illustrated herewith. The car is very substantially built, with steel channels and yellow pine underframe, and has a monitor roof, which imparts to the car a substantial appearance. The car body has a motor-man's compartment in each end with outside doors and a passage through car. Large doors are provided at the center of both sides of the car for handling baggage or freight. Russell steel trucks are used with type of brake desired.

The noses are designed for either single or double-track



Combination Snow Plow and Express Car

service, and are all steel and operated by air. They are designed to remove with ease snow to a depth of 5 ft. and can be set either to slide on the rail or to be carried at any point 4 in. above the rail. They are also provided with wings at the rear of nose, which, when opened, will increase by 2 ft. the path of snow removed. These noses can be readily detached, and as the car is provided with M. C. B. automatic couplers it can be used as a locomotive or freight car.

Flangers may be added if desired for the removal of snow and ice to a depth of 2½ in. between the rails. These flangers like the noses, are operated by air under control of the motor-man. Levelers may also be attached to sides if desired.

### NEW HYDROELECTRIC POWER STATION IN TENNESSEE

J. G. White & Company, Inc., of New York, have been awarded the contract for the complete engineering and construction of a hydroelectric power plant for the Eastern Tennessee Power Company on the Ocoee River at Parksville, Polk County, Tenn. The dam will be of masonry and about 780 ft. long on the crest. The overflow portion will be about 110 ft. above mean water stage and will be of the usual ogee section. The non-overflow portion will be about 13 ft. higher.

The power house will be located on the downstream side of the non-overflow portion of the dam and will be an integral part of it. The substructure will be of concrete and will consist mainly of piers and arches below the dam. The turbines will be located at the elevation of the main floor and will discharge into the tail-race under the arches. The superstructure will consist of brick or stone walls with enclosed steel columns.

The power equipment will consist of four tandem-horizontal turbines with three-phase generators of 3000 kw, with the necessary step-up transformers and switching equipment for the control of the apparatus. Each generator will have mounted on its shaft an exciter having a capacity sufficient for its excitation. The estimated cost of the installation is approximately \$2,000,000.

### LONDON, BRIGHTON AND SOUTH COAST RAILWAY ELECTRIFICATION

At the half-yearly meeting of the London, Brighton and South Coast Railway Company, held in London last month, the Earl of Bessborough, the chairman, referred to the experience obtained with single-phase electric traction on the company's South London line, and to the extensions of that system to the Crystal Palace lines. He said that there had been continued success with the electrical train services on the South London line, and a further portion of the suburban railways was now in course of equipment for electrical working. The large increase in the number of passengers which took place even at the early stage of the South London services had been uninterrupted, while there was still nothing but praise for the system from the mechanical point of view. It was a little early to say much about the comparative cost of electrical and steam working, but they had made a beneficial arrangement with regard to the very important item of current, and so far as could be foreseen there was nothing else likely to throw any extraordinary expense upon them. In these circumstances the board felt sure the proprietors would endorse its decision to extend the system.

The present scheme consists of the equipment of the railway from Peckham Rye, where a junction was made with the South London Railway, through Tulse Hill to the Crystal Palace, and from Battersea Park, where the South London Railway was joined again, through Clapham Junction, Balham, and Streatham Hill to West Norwood, where the first-mentioned line was met. These lines formed a very important part of the company's suburban system, and served some of its most populous districts, most of which were intersected by the London County Council tramways. The improved services which electrification would make possible could not fail not only to bring back to the railway some of the traffic which had gone to the trams, but to be of general benefit to the districts, and in all probability to produce entirely new business. Moreover, the scheme would be of considerable advantage to the Crystal Palace, and the board had special regard to it at this moment because of urgent representations for improved services which had been made by the promoters of the Imperial Pageant. It was proposed to produce an Imperial Pageant at the Crystal Palace in the spring of next year, and the contracts for the railway works were fixed to be completed by that time.



# News of Electric Railways

## Opinion of New York Commission on Application of Manhattan Bridge Three-Cent Line

The Public Service Commission of the First District of New York has made public the opinion of Edward M. Bassett, of the commission, on which the decision of the commission to grant a certificate of public convenience and necessity to the Manhattan Bridge Three-Cent Line was based. The application was granted on July 12, 1910, as noted in the *ELECTRIC RAILWAY JOURNAL* of July 16, 1910, page 123. The hearings before the commission on the application of the company resulted in a large amount of testimony being introduced, and a summary of this testimony with particular reference to the cost of electric rail-  
 was construction and operation was published in the *ELECTRIC RAILWAY JOURNAL* of April 16, 1910, page 705. In his opinion Commissioner Bassett said in part:

"There is no surface car operation at present through the route mentioned. The new route would, however, include streets where other street surface railroads have franchises and are operated, although a large part of the new route, extending from the corner of Fulton Street and Flatbush Avenue extension to and across the Manhattan Bridge, is to-day entirely free both from tracks and from street surface car franchises.

"The cars of the Brooklyn Rapid Transit Company and of the Coney Island & Brooklyn Railroad operate from many outlying points in Brooklyn to the Manhattan terminals of the Brooklyn and Williamsburg Bridges and they have both applied for extension franchises that will permit them to operate from the general locality of the Flatbush Avenue station of the Long Island Railroad to the Manhattan terminal of the Manhattan Bridge, thus expressing their willingness to undertake this street surface operation. If they could obtain rights for this operation they would carry passengers from the outlying parts of Brooklyn to the Manhattan terminal of the Manhattan Bridge at a 5-cent fare. The applicant company will carry passengers a shorter distance, but will carry them to the North River at a fare presumably under 5 cents. If the Brooklyn Rapid Transit Company and Coney Island & Brooklyn Railroad would carry their street surface car operations to the Hudson River at a 5-cent fare, it would seem right to let them have the use of the thoroughfares sufficient for adequate service, but no willingness has thus far been expressed. To-day persons going from Flatbush Avenue station to Canal Street must pay two fares or else take the subway, which for a single fare will carry them to the corner of Canal and Lafayette Streets. This is a single point, however, on Canal Street, and to go east or west from it involves another fare or a considerable walk. The great convenience of the operation proposed by the applicant company is that passengers will be carried from downtown Brooklyn across Manhattan Bridge and across the Borough of Manhattan from east to west at a fare presumably less than 5 cents. No present line or lines furnish this facility.

"If the operation of the applicant company would monopolize the surface car operation of the bridge, it would be doubtful whether the applicant should be granted this certificate, inasmuch as its lines will not extend to the outlying parts of Brooklyn. The two tracks on which these cars will run will be capable of carrying surface cars of other lines, and moreover there are two pairs of tracks available for surface operation. The proposed line can, therefore, carry on its operations across this bridge without appreciably affecting the capacity of the bridge for other lines, whether surface, elevated or subway.

"A large amount of evidence was presented to the commission by existing companies which seek to prevent the granting of a certificate of convenience and a necessity for the purpose of proving that the cost of constructing and operating the proposed line will be so large that the fare will need to be greater than 3 cents. Without analyzing at this time these facts and figures which have been exhaustively considered, it is sufficient to say that the con-

clusion arrived at is that the cost of construction and equipment will be such that adequate operation of the same will be possible at a rate not exceeding 5 cents. Although this company is called the Manhattan Bridge Three-Cent Line, and although it proposes to operate at a 3-cent fare, it does not follow that the commission cannot, if the road is built, prescribe a lower fare if a lower fare is reasonable, or allow a higher fare in case operation at 3 cents is found unprofitable. The legislature has prescribed that the fare of a street surface railroad operating within the city shall not be more than 5 cents, but what is a reasonable rate within that limit is by law left to determination under the provisions of the Public Service Commissions Law. Anything that the commission should now determine regarding the proposed fare of the applicant company would not affect the power or duty of the commission to prescribe a reasonable rate hereafter."

After referring to the fact that the Three-Cent Line may be unable to secure the consent of property owners to the construction of its line and the right to operate on streets already occupied by other companies, Mr. Bassett says:

"It should be made emphatic that the public convenience and necessity are deemed to exist for the entire line from the Flatbush Avenue station of the Long Island Railroad in the Borough of Brooklyn to the Hudson River in the Borough of Manhattan, and that if the company should fail for any reason to secure operating rights for the whole route, it should not be allowed to operate a part. For instance, if it fails to secure operating rights to carry its passengers further west than the plaza of the Manhattan Bridge it should not be allowed to construct and operate its road to that point only. This would be accomplishing by indirection what the commission would refuse if applied for directly, because it would be even less for the public interest that the applicant company should stop its operation at the Manhattan terminal of the Manhattan Bridge than that the Brooklyn Rapid Transit system of Coney Island & Brooklyn Railroad could stop at that point, inasmuch as the two last named companies would at a fare not exceeding 5 cents carry passengers from many outlying parts of Brooklyn.

"After the applicant has obtained its franchise from the city, the consents of abutting property owners arranged for, its entrance into streets and parts of streets now occupied by other railroads for more than 1,000 feet assured, it will need to come to the commission for a certificate of permission and approval under the Public Service Commissions Law before construction and operation can begin. At that time the commission will make inquiries regarding the accomplishment of the requisite preliminaries."

## Transit Affairs in New York

In an interview which he gave before he sailed for Europe recently, Adrian H. Joline, one of the receivers of the Metropolitan Street Railway, New York, N. Y., is reported to have said:

"I am taking this opportunity for a few weeks' vacation because my business here in connection with the Metropolitan Street Railway is practically at a standstill owing to the absence from the city of some of the members of the Public Service Commission and the lawyers for the receivers. The Metropolitan Street Railway is in excellent shape and everything is running smoothly. During the term of the receivership, which is now nearly three years, there have been fewer accidents than ever before, proportionately to the population and the number of people carried, and as a consequence fewer damage suits. A great saving has been effected in this way.

"I do not believe that there is any known system that can be installed whereby conductors cannot 'knock down' a certain amount of money handled or collected, but the stealings of the conductors are infinitesimal in comparison to the stealings of the public. The pay-as-you-enter cars have overcome this public stealing to a great extent, but



not altogether. It is impossible for conductors to attend to their duties and at the same time arrest and eject every person who enters a car and takes a place well forward without having paid his fare. When the new cars were put on the Lexington Avenue line, some months ago, the public rushed to patronize them and many entered without depositing their fare. These are, however, minor details which will eventually be rectified to a great extent. At present the street railways in New York are in better shape than ever before, and with honesty on the part of the traveling public there is scarcely a line that would not pay well."

William R. Willcox, chairman of the Public Service Commission, has returned from Europe.

Judge Lacombe, in the United States Circuit Court, has denied the motion to compel Messrs. Joline and Robinson, receivers of the Metropolitan Street Railway, to pay the expenses and disbursements incurred by the Broadway & Seventh Avenue Railway, the Forty-second Street & Grand Street Railroad and the Thirty-fourth Street Crosstown Railroad in the suits to compel the Metropolitan Street Railway to pay all tax franchises and assessments. After referring to the decision in the case of the Harlem Railroad and the Fourth & Madison Avenue lines, in which it was held that these taxes should be paid by the lessee and not by the lessor, Judge Lacombe says that if the receivers are not bound to pay the taxes, they are certainly not bound to pay the costs in the proceedings.

**Meeting of the Central Electric Railway Association.**—The next meeting of the Central Electric Railway Association will be held at the Claypool Hotel, Indianapolis, Ind., on Sept. 22, 1910.

**Strike of Substation Employees.**—A strike of the employees in the substations of the Northern Electric Railway, Chico, Cal., caused the company to suspend service temporarily. The employees demanded an increase in wages and a reduction in the working day.

**Toledo Company Asked to Pay Paving Bills.**—On the evening of Aug. 11, 1910, the City Council of Toledo, Ohio, adopted a resolution, directing the Toledo Railways & Light Company to pay the city paving bills, which amount to \$41,908.92, immediately upon service of the resolution and its legal publication. It is said that if the company does not settle the bills action will be taken to declare certain franchises void.

**Electrical Exhibition in San Francisco Postponed.**—The date of the opening of the electrical exposition in the Coliseum, San Francisco, Cal., of which mention was made in the *ELECTRIC RAILWAY JOURNAL* of Aug. 13, 1910, page 276, has been postponed from Aug. 20, 1910, to Sept. 17, 1910. The exhibition will be held under the auspices of the Pacific Coast Electrical Exposition and will remain open eight days. D. M. Moses, 34 Ellis Street, San Francisco, Cal., is general manager of the exhibition.

**Fans in New York Subway Cars.**—On Aug. 10, 1910, Frank Hedley, vice-president and general manager of the Interborough Rapid Transit Company, New York, N. Y., exhibited a subway car equipped with overhead fans. Within the next few weeks the company will have about 50 cars equipped with fans in use, and if the public approves of their use, all of the cars in the subway will be so equipped before next summer at a total cost of about \$120,000. Mr. Hedley said that, of course, fans do not reduce the temperature, but by assisting the evaporation of perspiration, they do materially lower the apparent temperature, especially of persons standing beneath them.

**August Outing of the New England Street Railway Club.**—The August outing of the New England Street Railway Club will be held on Aug. 25, 1910. The start will be made in special cars from Brattle Street, Boston, Mass., near Adams Square, at 9:30 a. m. At 10:45 the party is due at the plant of the Fore River Shipbuilding Company, Quincy. At noon the special cars will be boarded for Nantasket, and at 1:30 p. m. a shore dinner will be served at Palm Garden, Paragon Park, Nantasket. The return to Boston will be made by steamers, leaving Nantasket at 2:40 p. m., 3:40 p. m., 4:40 p. m., 5:40 p. m., 6:40 p. m., 7:40 p. m. and 9:40 p. m. At Quincy those in attendance at the outing will be permitted to inspect the works of the Fore

River Shipbuilding Company. Tickets for the outing, which include a return ticket to Boston by steamer, are \$2 each. Members of the club are requested to notify John J. Lane, 12 Pearl Street, Boston, Mass., the secretary of the club, of their intention to attend the outing as soon as possible.

**Five Reasons Why Claim Agents Should Attend the Convention at Atlantic City.**—E. C. Carpenter, president of the American Street & Interurban Railway Claim Agents' Association is mailing a card 10 inches long and 7 inches wide, on which the following five reasons are given why claim agents should attend the meeting of the association at Atlantic City, N. J., in October: "(1) Seven 'live-wire' subjects, full of interest to you, are on the program. (2) The best kind of tact is contact. Get in touch with fellows who do something. (3) The broadening of your acquaintance among progressive men will alone be worth more than the cost of the trip. (4) If you are a man of ideas and willing to express them the convention wants you to bring your ideas and help the other fellow as well as yourself. (5) Another reason why we want you is because we know that you are not one of those who are ready to be superannuated and feel that they know everything about every phase of claim work, and have reached a point where an exchange of ideas will not benefit them."

**Street Railway Ordinances in Milwaukee.**—At the meeting of the joint committees on judiciary and railroads of the Common Council of Milwaukee, Wis., on Aug. 5, 1910, the ordinance requiring that cars be equipped with lifting jacks by Sept. 1, 1910, was recommended for passage. John I. Beggs, president and general manager of the Milwaukee Electric Railway & Light Company, said that 300 cars are provided with the jacks and that he had sufficiently anticipated the ordinance. The jacks weigh 100 pounds and are dead weight. The company is having four motor car wrecking outfits constructed of 3 tons each and when the auto cars are in operation there will be no need for lifting jacks on all cars. The ordinance providing for the more efficient and frequent cleaning of cars also was recommended, with an amendment that all cars must be swept at the end of each route. Mr. Beggs said that cars are disinfected every night, and that the company employs 54 men and 33 women who do nothing else than clean cars. It costs from 22 cents to 30 cents to clean each car in daily operation.

**Hearing on Proposed Elevated Railway in Philadelphia.**—A public hearing was given by Mayor Reyburn, of Philadelphia, on Aug. 11, 1910, at which the plans of the Philadelphia & Suburban Railroad for the construction of its proposed elevated and subway lines were considered. S. S. Neff, president; Robert Kelso Cassatt, Russell Thayer and Judge Beitler, represented the company; E. P. Gallagher represented business and labor organizations of the north-eastern section of the city, and W. F. Dixon and John J. Foran represented the Roxborough Business Men's Association. Mr. Thayer said that the ordinance which was submitted to the Council was drawn largely by the syndicate which has agreed to finance the company, and that the money to construct the road would be available if the grant as submitted was not emasculated in passage. In urging the plans of the company Mr. Neff said: "While the building of a subway on North Broad Street will be expensive, it presents no engineering problems which cannot be solved. The questions of probable outlay and income have been carefully analyzed by a syndicate of bankers, and the money to build the subway and elevated structures is secure if the ordinance passed is fair and reasonable. The elevated lines have been estimated on a basis of \$500,000 per mile, and subway construction at the rate of \$2,000,000 per mile, adding to this, of course, additional amounts for stations, terminals, property damages, engineering expenses, powerhouse and auxiliaries, equipment, car barn and shops and other necessities essential to the operation of a system of the size proposed. The construction and operation of our system would also benefit the steam railroads. It would not be unreasonable to predict that upon the completion of the proposed road that the steam railroads handling suburban traffic in the Frankford, Wayne Junction, Chestnut Hill and Germantown districts would be willing to turn all of this business over to us."



# Financial and Corporate

## New York Stock and Money Market

August 16, 1910.

The improvement in prices and in the market movement generally which was noted last week continued until the latter part of the week. Then depression set in and continued until Tuesday. During the closing hours on Tuesday, however, a vigorous and general advance in prices began. There was no special news to which the changes in the market could be attributed. Fractional advances are recorded for the week in Brooklyn Rapid Transit and Interborough, but there has been nothing significant in the movement of the tractions.

Quotations in the money market were: Call, 1¼ to 1¾ per cent; 60 days, 2¾ to 3 per cent; 90 days, 3½ to 3¾ per cent.

### Other Markets

In Philadelphia interest lags in tractions. On Monday small fractional losses were sustained by both Rapid Transit and Union Traction, and for the week the market for these issues closed 2/8 up and 1¼ up, respectively.

A gain of several points for the week is recorded in Boston Elevated, but aside from this there is no significant movement in tractions. The other traction issues remain practically constant.

In Chicago there has recently been a moderate demand for Chicago Railways Series 2, inspired by prospects of a consolidation with the Chicago Consolidated Traction on favorable terms.

In Baltimore, perhaps the most important sale in tractions has been 3000 Knoxville Traction 5s at 102½. United Railways issues remain practically unchanged with only small sales recorded.

Quotations of various traction securities as compared with last week follow:

|   | Aug. 9. | Aug. 16. |
|---|---------|----------|
| American Railways Company.....                        | a42     | a43½     |
| Aurora, Elgin & Chicago Railroad (common).....        | a50¼    | *50¼     |
| Aurora, Elgin & Chicago Railroad (preferred).....     | a90     | 90       |
| Boston Elevated Railway.....                          | 123     | 126¼     |
| Boston & Suburban Electric Companies.....             | *15     | *15      |
| Boston & Suburban Electric Companies (preferred)....  | *74     | *74      |
| Boston & Worcester Electric Companies (common)....    | a10     | a10      |
| Boston & Worcester Electric Companies (preferred).... | 36½     | 36       |
| Brooklyn Rapid Transit Company.....                   | 75¾     | 77¾      |
| Brooklyn Rap. Transit Company, 1st pref. conv. 4s.... | 82¼     | 82¾      |
| Capital Traction Company, Washington.....             | a129    | *129     |
| Chicago City Railway.....                             | a195    | a185     |
| Chicago & Oak Park Elevated Railroad (common)....     | *3¼     | *3¼      |
| Chicago & Oak Park Elevated Railroad (preferred)....  | *7¼     | *7¼      |
| Chicago Railways, ptcptg., ctf. 1.....                | a65     | a75      |
| Chicago Railways, ptcptg., ctf. 2.....                | a16½    | a16¾     |
| Chicago Railways, ptcptg., ctf. 3.....                | a11     | a12      |
| Chicago Railways, ptcptg., ctf. 4s.....               | a5½     | a6       |
| Cleveland Railways.....                               | *91½    | *91½     |
| Consolidated Traction of New Jersey.....              | a72     | *72      |
| Consolidated Traction of N. J., 5 per cent bonds....  | a103    | *103     |
| Detroit United Railways.....                          | *45     | *45      |
| General Electric Company.....                         | 143¼    | 145      |
| Georgia Railway & Electric Company (common)....       | 107¾    | 106¼     |
| Georgia Railway & Electric Company (preferred)....    | a85     | a86      |
| Interborough-Metropolitan Company (common)....        | 17½     | 17½      |
| Interborough-Metropolitan Company (preferred)....     | 47¾     | 48½      |
| Interborough-Metropolitan Company (4½s).....          | 78¾     | 78¾      |
| Kansas City Railway & Light Company (common)....      | a25½    | a25      |
| Kansas City Railway & Light Company (preferred)....   | a79½    | *79½     |
| Manhattan Railway.....                                | *128    | 130½     |
| Massachusetts Electric Companies (common)....         | a15½    | a17½     |
| Massachusetts Electric Companies (preferred)....      | a82     | 81       |
| Metropolitan West Side, Chicago (common)....          | a20     | a20      |
| Metropolitan West Side, Chicago (preferred)....       | a60     | a65      |
| Metropolitan Street Railway.....                      | *15     | *15      |
| Milwaukee Electric Railway & Light (preferred)....    | *110    | *110     |
| North American Company.....                           | 68      | 69½      |
| Northwestern Elevated Railroad (common)....           | a21     | a18      |
| Northwestern Elevated Railroad (preferred)....        | a65     | a60      |
| Philadelphia Company, Pittsburg (common)....          | a43½    | a45      |
| Philadelphia Company, Pittsburg (preferred)....       | a42¾    | a42      |
| Philadelphia Rapid Transit Company.....               | a19¾    | a19¾     |
| Philadelphia Traction Company.....                    | a82½    | a83      |
| Public Service Corporation, 5 per cent col. notes.... | a96     | *96      |
| Public Service Corporation, ctf. 5.....               | a99     | *99      |
| Seattle Electric Company (common).....                | *109    | *109     |
| Seattle Electric Company (preferred).....             | *98½    | *98½     |
| South Side Elevated Railroad (Chicago).....           | a61     | a60      |
| Third Avenue Railroad, New York.....                  | *10½    | 8½       |
| Toledo Railways & Light Company.....                  | 7       | *7       |
| Twin City Rapid Transit, Minneapolis (common)....     | *106½   | *106½    |
| Union Traction Company, Philadelphia.....             | a44¾    | a45½     |
| United Rys. & Electric Company, Baltimore.....        | a14¾    | 14½      |
| United Rys. Inv. Co. (common).....                    | 27      | 31       |
| United Rys. Inv. Co. (preferred).....                 | *54     | *59½     |
| Washington Ry. & Electric Company (common)....        | a33     | *33      |
| Washington Ry. & Electric Company (preferred)....     | a87½    | *87½     |
| West End Street Railway, Boston (common)....          | a88     | a88      |
| West End Street Railway, Boston (preferred)....       | *100    | *100     |
| Westinghouse Elec. & Mfg. Company.....                | 61      | 60½      |
| Westinghouse Elec. & Mfg. Company (1st pref.)....     | *125    | *125     |

a Asked. \* Last Sale.

## Value of Property of the Chicago Consolidated Traction Company

At the meeting of the local transportation committee of the City Council of Chicago, Ill., on Aug. 12, 1910, the following letter from Bion J. Arnold and George Weston, the traction valuation commission, was read giving the valuation of the property of the Chicago Consolidated Traction Company as found by them:

"Accepting the legal construction put on the franchises of the Consolidated Traction Company by Walter L. Fisher, special traction counsel, and Howard W. Hayes, assistant corporation counsel of Chicago, we find the values of the Consolidated Traction Company's property to be as hereinafter shown. These values are based upon the same general premises established by the valuation commission which valued the properties of the Chicago Union Traction Company and the Chicago City Railway in 1906, of which commission we were members.

"We have, however, found the property in such physical condition that we found it necessary to make certain deductions for deferred maintenance in arriving at our physical valuation. The figures follow:

|   | With paving    | Without paving |
|---|----------------|----------------|
| Value of physical property as a going concern....                       | \$4,078,057.69 | \$3,446,549.88 |
| Value of intangible property as a going concern                         | 751,325.77     | 751,325.77     |
| Total value of physical and intangible property as a going concern..... | \$4,829,383.46 | \$4,197,875.65 |

Deductions due to ordinance requirements:

|   |           |           |
|---|-----------|-----------|
| (a) Robey street on account of isolation of tracks due to prior expiration of ordinance | 3,277.68  |           |
| (b) Removal of tracks from streets at expiration of ordinances as required.....         | 91,063.00 | 94,340.68 |

Total values after deductions.....\$4,735,042.78 \$4,103,534.97

"At the request of Mr. Fisher we have valued the property of the Consolidated Traction Company, eliminating all franchise and paving values, and including only such property as could be utilized in the rehabilitation of the property, and find this value to be \$3,037,818.56.

"Since the completion of our valuations representatives of the Chicago Railways have made contentions which, if they are found legally sound by the city's attorneys, will somewhat increase the above-mentioned intangible values. These contentions are now being considered and the results, if they affect the valuations, will be given you shortly."

Between this estimate of the value of the property of the company and one made by A. L. Drum, one of the receivers of the company, there was a difference of more than \$1,200,000. Mr. Drum said that \$868,629 should be added to the value of the intangible property of the company and that \$350,000 should be added to the value of the tangible property. Mr. Arnold declared that, even granting all of Mr. Drum's contentions, the only increase in valuations would be \$203,800 in the physical values and \$257,846 in the intangible properties.

Taking their estimate of \$3,037,818.56 as the value of the tangible property, Messrs. Arnold and Weston added about \$400,000 for paving and more than \$500,000 to the value of the tracks and equipment, bringing the total to \$3,957,454. This valuation was accepted by W. W. Gurley on behalf of the reorganization committee of the Chicago Consolidated Traction Company at a meeting of the subcommittee of the local transportation committee on Aug. 15, 1910. On Aug. 29, 1910, there will be a meeting of the City Council to pass the Consolidated Traction ordinance. With the acceptance of this ordinance the Chicago Railways will bind itself to take over the property of the Chicago Consolidated Traction Company, rehabilitate the property of the company and establish through routes over the lines of both railway companies.

## New Jersey Commission Disapproves Bond Issue for the Burlington County Traction Company

The application of the Burlington County Traction Company, Mt. Holly, N. J., the successor of the Burlington County Railway, which was sold under foreclosure recently, to issue \$166,250 of bonds was denied on Aug. 8, 1910, by the Public Utility Commission of New Jersey. The Burlington County Railway having been sold under foreclosure for \$120,000, the commission held that it would be contrary to law to issue bonds for more than that sum.



**Ardmore (Okla.) Traction Company.**—The court has signed an order authorizing the sale of the property of the Ardmore Traction Company by C. L. Byrne, receiver, to H. S. Pattison and C. D. Moore, El Reno, Okla., and Geo. S. Cravens, Milton, Ia., for \$50,000. The minimum price fixed by the court for the property at the sale on May 2, 1910, was \$60,000.

**British Columbia Electric Railway, Vancouver, B. C.**—The British Columbia Electric Railway reports earnings as follows for the year ended June 30, 1910, as compared with the previous year: Gross receipts for 1910, \$2,981,617, as compared with \$2,298,778 for 1909; expenses, renewals and maintenance for 1910, \$1,741,778, as compared with \$1,027,116 for 1909; net earnings for 1910, \$1,239,839, as compared with \$1,027,116.

**Meadville & Cambridge Springs Street Railway, Meadville, Pa.**—J. C. Chaplin, D. R. Hill and W. H. Parke, who recently requested the holders of the \$300,000 of first mortgage 5 per cent bonds of the Meadville & Cambridge Springs Street Railway to deposit their bonds with the Colonial Trust Company, Pittsburgh, Pa., as depository, have issued a statement in which they say: "The property is in danger of foreclosure, and there are certain suits now pending and other suits which have been instituted by which the security of the aforesaid bonds may be impaired." Interest on the bonds of this company was defaulted on Dec. 1, 1909.

**Philadelphia (Pa.) Rapid Transit Company.**—There have been called for payment at 105 and interest on Aug. 15, 1910, at the office of the Pennsylvania Company for Insurances on Lives and Granting Annuities, Philadelphia, Pa., \$26,000 of the 4 per cent collateral trust bonds of 1917, issued by the Philadelphia Traction Company.

**Philadelphia & Western Railway, Philadelphia, Pa.**—A mortgage for \$4,000,000 by the Philadelphia & Western Railway to the Philadelphia Trust, Safe Deposit & Insurance Company, trustee, has been recorded in Philadelphia, Westchester, Media and Norristown. At the same time a mortgage for \$20,000,000 to the Trust Company of America, trustee, was canceled. The bonds secured by the mortgage are first mortgage 5 per cent gold bonds, dated July 1, 1910, and due July 1, 1960. There are to be issued presently \$2,000,000 which have been purchased by Edward B. Smith & Company, Philadelphia. Proceeds of the sale of the bonds will be used to build an extension to Norristown.

**Portsmouth Street Railroad & Light Company, Portsmouth, Ohio.**—Twenty \$1,000 first mortgage 5 per cent 10-year gold bonds of the Portsmouth Street Railroad & Light Company, dated 1906, have been called for payment at par and interest at the office of the Bankers' Trust Company, New York, N. Y., on Oct. 1, 1910. The authorized issue of bonds under the mortgage is \$250,000. Of this amount \$175,000 is outstanding.

**United Railways Investment Company, San Francisco, Cal.**—The principal and interest of the \$200,000 of Series D 6 per cent notes of the United Railways Investment Company of 1908 maturing on Aug. 15, 1910, will be paid on and after that date at the office of the New York Trust Company, New York, N. Y., or at the office of the United Railroads of San Francisco, San Francisco, Cal., on the presentation and surrender of such notes and of the collateral accompanying the same.

**West Penn Traction Company, Pittsburgh, Pa.**—The report of the West Penn Traction Company for the year ended June 30, 1910, follows: Gross receipts, \$1,069,288; operating expenses and taxes, \$640,452; net earnings, \$428,835; fixed charges and amount required to pay 5 per cent per annum on preferred stock of West Penn Railways for six months ended June 30, 1910, \$299,293; net income, \$129,542; amount required to pay 6 per cent per annum on \$1,625,000 of 6 per cent cumulative preferred stock of the West Penn Traction Company for the six months ended June 30, 1910, \$48,750; surplus, \$80,792.

**Worcester (Mass.) Consolidated Street Railway.**—The new \$5,000,000 mortgage of the Worcester Consolidated Street Railway, given in favor of the Old Colony Trust Company, Boston, Mass., as trustee, to secure an issue of 4½ per cent first and refunding mortgage bonds has been filed for record.

## Traffic and Transportation

### Pittsburgh Railways Will Comply with Recommendations of the Railroad Commission

The Pittsburgh (Pa.) Railways has notified the Railroad Commission of Pennsylvania that it will comply with the recommendations of the commission looking toward improved service insofar as it can. It complains, however, that the obstructive attitude of the municipal authorities of Pittsburgh prevents it from complying with all of the recommendations. The recommendations of the commission were published in the *ELECTRIC RAILWAY JOURNAL* of July 2, 1910, page 56. The reply of the company to the commission, made public by that body on Aug. 11, 1910, follows in part:

"This company is proceeding as rapidly as possible to follow out and conform to the recommendations of the commission, and, early in June, contracted for 50 double-truck trail cars, seating 60 passengers each, for delivery in October. It will be impossible to secure in time for service during the latter part of this year the recommended 50 additional closed motor cars and their equipment, but the company will proceed to contract for the same and place them in service promptly upon their completion.

"The company is using every endeavor to distribute the cars on the routes according to the amount of travel throughout the entire day and has a department giving the amount of travel on the various routes constant study and attention.

"The company will make annual additions to its rolling stock as recommended, and would state that nearly 600 cars have been added to its equipment during the past eight years. The company considers it to its advantage to replace as rapidly as possible and where conditions permit the old 28-seat type of cars with a larger and more capacious car.

"The results from the operation of short runs have been far from satisfactory. The company will, however, as recommended, experiment with them. Applications have been made to the several municipalities for consent to changes required in the tracks for the operation of short routes and larger cars, and in some instances consent has been given, in others postponed and a few withheld; but continuous progress is being made in this direction.

"All cars are regularly and thoroughly cleaned every day and are disinfected at such times as are deemed necessary, depending upon the weather, the season of the year and the routes over which they are operated.

"The company has commenced the erection of a large addition to its shops, to be completed during the early fall, and is making additions to its power plants and to its substations for increasing its power facilities and as necessitated by the continual addition to the equipment.

"In the congested portion of the city the standing of automobiles on the sides of some of the principal streets adds materially to the difficulty of prompt passage through such streets, both by all other vehicles as well as by the trolley cars.

"Application has been made to various municipalities for additional franchises, but the company has been given to understand that Pittsburgh will grant no additional franchises until such time as the city has its report from experts employed on transportation matters. Thus far the company has not been able to secure from the city authorities the approval of its plans for change of routes, or tracks, or matters deemed by the company necessary for the improvement of its service. The company has, however, a request from the Mayor for a conference between the representatives of the city and the company with reference to perfecting plans for the routing and re-routing of cars of the company.

"The company is willing to join in every effort to eliminate grade crossings of steam railroads, but the municipalities invariably refuse to help in a material way in any such improvements.

"Early in the fall the company will have provided space for storing from 300 to 400 additional cars within about 10 minutes' time from the congested portion of the city.

"The company desired to follow your recommendations



and comply with the same. Its officers, however, have been unable to secure, for any plans or arrangements suggested by them, the approval of or serious consideration by the officials of the city, who are disposed to postpone action on all matters pertaining to the improvements in your recommendations until they receive the reports of their experts. In the meantime they are engaged in an active publicity and legislative campaign regarding various franchises of the company. Our rights have been recognized and their existence unquestioned heretofore by the city for from 25 years to 50 years and the company is satisfied they are unassailable.

"In any case, this question of 'these existing franchises' is entirely independent of the 'improving of the service,' and unless the municipal authorities will consider them separately and independently no material progress can be made for several years.

"Many improvements proposed by the city on its streets, which involves extensive changes to the roadbed and railway of the company have been postponed owing to municipal legislation which has been declared invalid. Until such legislation is re-passed the company will be unable to proceed with improvements recommended by the commission and desired by the company and communities interested."

#### Company Sustained in Lawrence Fare Case

The Railroad Commission of Massachusetts has rendered a decision on the petition of citizens of Lawrence relative to fares and service on the Boston & Northern Street Railway in Lawrence.

The petitioners requested an extension of the free transfer privilege, additional car service and an extension of trackage. The decision says:

"It appears that for 5 cents a passenger may, by means of a transfer, ride on the Haverhill line within the limits of the city of Lawrence and to what is known as Pleasant Valley, in Methuen, a maximum distance of 9.27 miles; and on the Lowell line to the junction of Lowell road on the company's private way in the town of Methuen, a maximum distance of 9.20 miles, and both facilities are accorded the residents of the Prospect Hill district, so-called, in Lawrence.

"A consideration of these transfer privileges, taken in connection with the statement of the number of passengers carried on the Prospect Hill-Beacon Street line between the end of the line and the junction of East Haverhill and Prospect Streets leads us to the conclusion that no recommendation ought to be made with respect to additional transfers. The same statement, together with the evidence at the hearing, convinces us that no recommendation should be made with respect to additional car service.

"With respect to an extension of the trackage from the present terminus of the line on Allston Street, a method is provided by statute for obtaining extensions of locations.

"Without indicating what our conclusion might be upon any application addressed to us for approval of the action of the Board of Aldermen of the City of Lawrence, it is enough to say that the contour of the territory and the volume of anticipated traffic disclose no conditions to warrant a recommendation at this time upon the petition before us. It is therefore ordered, that the petition be dismissed."

**Collision on Niagara Road**—Nine persons were injured in a head-on collision between two cars of the Niagara Gorge Railroad, Niagara Falls, N. Y., on Aug 15, 1910.

**New Park Opened in Pennsylvania**—The Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa., has opened Red Ridge Park, near Chambersburg, to the public.

**Service Between Stockton and Sacramento**—The Central California Traction Company, San Francisco, Cal., has established regular service over its recently completed line between Stockton and Sacramento.

**Passenger Fined for Assaulting a Conductor**—James E. Burke, Mayor of Jeffersonville, Ind., recently fined Harrison Francis, New Albany, Ind., \$35 for assaulting a conductor of the Louisville & Southern Indiana Traction Company, following a dispute over fares.

**Accident Near Columbus**—One person was killed and eight persons were injured in a head-on collision on Aug.

11, 1910, between two cars of the Scioto Valley Traction Company, Columbus, Ohio, near Rogers station, which is midway between Groveport and Canal Winchester.

**Transfers in Newark**—G. J. Roberts, first vice-president of the Public Service Corporation of New Jersey, Newark, N. J., has replied as follows to the communication from the Board of Works of Newark, dated Aug. 5, 1910, requesting the company "to extend transfer privileges in accordance with city ordinances": "So far as I am aware, we are issuing transfers in accordance with our franchise obligations."

**Traffic During Conclave in Chicago**—The Chicago (Ill.) Railways reports earnings of approximately \$250,000 during the six days of the Knights Templar Conclave in Chicago recently, an average of more than \$40,000 per day, an increase of more than 16 per cent as compared with the same period last year. The company carried daily more than 800,000 fare passengers and more than 600,000 transfer passengers, a total of nearly 1,500,000 passengers daily.

**Offer of Company in Washington Fare Case**—The Railroad Commission of Washington is considering an offer made by the Puget Sound Electric Railway, Tacoma, Wash., to grant a 25-cent round trip fare to Puyallup, provided 32-ride \$4 commutation books are bought to replace the present 50-ride books, which are sold for \$7. The 32-ride book will be good only one month. Besides this a 10-ride family commutation book would be issued by the company at the rate of 15 cents per ride, good any time within 30 days from the date of issuance, and transferable. The ordinary cash fare, one way, would remain at 20 cents. The litigation over the fare between Tacoma and Puyallup would be dropped if a settlement of the matter on the basis of the offer of the company is reached.

**Public Service Railway Folder**—The Public Service Railway, Newark, N. J., has recently issued a folder in which the most interesting points of its several divisions are described and illustrated. Separate maps are presented of the system as a whole extending from Jersey City, opposite New York, to Philadelphia; of Jersey City, Hoboken and New York, showing the many steamship and pier connections between those cities; and likewise a map of similar connections between Camden and Philadelphia. There is also included a map of Newark, showing its principal places of public interest. The folder states that the Public Service Railway operates about 675 miles of track through 101 separate municipalities, including every important city in New Jersey except Trenton. The population served is about 1,750,000, and constitutes about three-quarters of the total number of people in the State.

**Arbitration in Toronto**—As mentioned in the ELECTRIC RAILWAY JOURNAL of July 23, 1910, page 164, the negotiations between the committee of employees and the management of the Toronto (Ont.) Railway over a rearrangement of working hours and wages resulted in the appointment of a board of conciliation consisting of J. P. Mullarkey, Montreal, representing the company; John G. O'Donoghue, Toronto, acting for the men, and Judge J. A. Barron, Stratford, appointed by the other two members as chairman of the board. For several weeks the board has been sitting at Toronto. After the board finished taking evidence the members endeavored to obtain concessions from both sides. Mr. Mullarkey has returned to Montreal, and Judge Barron has undertaken the task of effecting a settlement. To this end he has lately been in conference with William MacKenzie, president of the company.

**Finding of the Massachusetts Board of Arbitration**—The board of arbitration, consisting of E. C. Foster, New York, N. Y.; W. P. Hayes, Springfield, Mass., and C. S. Hamlin, Boston, Mass., which has been considering the matter of wages to be paid to the employees of the New England Investment & Security Company, has agreed upon the following daily scale: First six months, \$2.20; second six months, \$2.30; second year, \$2.40; third year, \$2.45; fourth year, \$2.50; fifth year and after, \$2.67½. The daily wages paid formerly by the company follow: First six months, \$2.05; second six months, \$2.15; second year, \$2.20; third year, \$2.25; fourth year, \$2.30; fifth year, \$2.35; sixth year, \$2.40; seventh year and after, \$2.50. The scale of daily wages authorized by the trustees of the company,



which the men refused to accept, follows: First six months, \$2.15; second six months, \$2.15; second year, \$2.25; third year, \$2.35; fourth year, \$2.40; fifth year, \$2.50; sixth year and after, \$2.60.

**Reply of Baltimore Company in Fare Case.**—The United Railways & Electric Company, Baltimore, Md., has replied through its attorney, J. Pembroke Thom, to the complaint of residents of Ellicott City, filed with the Public Service Commission of Maryland, that the fare between Baltimore and Ellicott City is excessive. The company does not admit the jurisdiction of the commission to reduce the existing fare. The maximum fare between the two points is 15 cents, including transfer privileges in Baltimore. The fare was thought to be excessive on account of the 10-cent fare charged on the Catonsville line and on account of the fact that the residents of Catonsville get the benefit of a commutation book which makes the trip cost about 7.5 cents. It was also claimed that the fare over the railroads to Ellicott City is less than that charged by the United Railways & Electric Company. The United Railways & Electric Company informed the commission that it operates 10 times as many cars between the two points as the railroad and that it is necessary to make the additional charge, particularly as the passengers are conveyed to any part of the city by transfer, a privilege which is not afforded by the railroad. The United Railways & Electric Company also showed that there was no comparison with the conditions on the Catonsville line. The bulk of traffic on the Ellicott City line originates at Ellicott, while on the Catonsville line there are several points at which traffic originates. The company admits the sale of commutation tickets to the residents of Catonsville, but claims that the making of this rate has proved to be a mistake. The revenue per capita is decreasing, while the expense per capita is increasing. One item in the increase, it was pointed out, is the increase in the cost of labor and material.

**Aldermen of Syracuse Against No-Seat-No-Fare Ordinance.**—The special railroad committee of the Common Council of Syracuse, N. Y., which has been considering the adequacy of the service furnished by the Syracuse (N. Y.) Rapid Transit Railway and the petition of some 7000 citizens for the passage of a no-seat-no-fare ordinance, has reported to the Council that it has had satisfactory assurances from C. Loomis Allen, vice-president and general manager of the company, that the service is being constantly improved; that the corporation counsel of Syracuse has advised against the enactment of a no-seat-no-fare ordinance, and that the proper method to pursue to secure relief from alleged inadequate street railway facilities is to appeal to the Public Service Commission of the Second District of New York. After reviewing the result of its conferences with Mr. Allen and giving its experience in Jersey City and Trenton, which it visited to investigate the working of the no-seat-no-fare ordinances adopted in those places, the committee says: "This committee has called for an opinion from the corporation counsel of Syracuse as to the advisability of this Council passing such an ordinance, and from the opinion of Mr. Magee we learned that such an ordinance would not only be unenforceable, but an attempt at its enforcement might seriously affect the peace of the community, and even if the same could be enforced might result in even greater inconvenience and greater annoyance to the public sought to be relieved thereby. With these facts before us we would be unjust and unfair to the 7000 persons who had petitioned the Council for such an ordinance, and likewise to all other citizens of Syracuse if we followed the suggestions of the petition and passed an ordinance seemingly in the public interest, when we honestly believed that such an ordinance would be unenforceable. We do not question the good faith and sincerity of the petitioners; on the contrary we appreciate that they have grievances which should be relieved, and that speedily, but we must act upon the facts as we find them. We believe that the Public Service Commission of this State is the proper tribunal to which the people of our city may appeal for relief, and we have no doubt that the proper proceeding to that end may be taken by the city authorities and that our citizens may then have the opportunity of presenting their claims and obtaining relief." The Council as a whole subsequently voted to adopt the report of the committee.

## Personal Mention

**Mr. G. R. Millican**, Evansville, Ind., has been appointed superintendent of the Owensboro (Ky.) City Railroad, to succeed Mr. C. R. Ray, resigned.

**Mr. H. R. Manning**, who has been traveling freight agent of the Oregon Electric Railway, Portland, Ore., has been appointed chief clerk of the company.

**Mr. J. F. Turner**, superintendent of the Fresno (Cal.) Traction Company, has been appointed superintendent of the Power, Transit & Light Company, Bakersfield, Cal.

**Mr. S. R. Strong**, who has been connected with the auditing department of the Oregon Electric Railway, Portland, Ore., has been appointed traveling freight agent of the company.

**Mr. E. Chester Ecker** has been appointed superintendent of the Westport division of the Kansas City Railway & Light Company, Kansas City, Mo., to succeed Mr. R. K. Kirkpatrick, resigned.

**Mr. Thomas Pumfrey**, chief engineer of the International Railway, Buffalo, N. Y., has resigned from the company to accept the position of engineer of maintenance of way of the Portland Railway, Light & Power Company, Portland, Ore.

**Mr. Frank C. Halverson** has been appointed traveling inspector of the Tacoma Railway & Power Company, Tacoma, Wash. Mr. Halverson entered the employ of the company in 1900 as a conductor. He has recently been road officer with jurisdiction over the cable line and the Point Defiance line of the company.

**Mr. G. W. Merrill** has resigned as superintendent of the Sacramento Electric, Gas & Railway Company, Sacramento, Cal. Mr. Merrill had been connected with the company for 17 years, and for the last four years had acted as superintendent of the company. He was presented with a silver dinner set by the employees as a token of esteem.

**Mr. Dean Treat**, chief train dispatcher of the Milwaukee Northern Railway, Cedarburg, Wis., has been appointed superintendent of the Sterling-Dixon Eastern Electric Railway, Sterling, Ill., reporting to Mr. F. A. Maxwell, assistant general manager of the company. Mr. Treat was connected with the Grand Rapids, Grand Haven & Muskegon Railway, Grand Rapids, Mich., at the time Mr. E. B. Kirk and Mr. J. Pulliam were with that company.

**Mr. George Flett**, managing director of Dick, Kerr & Company, London, Eng., whose death was chronicled in this column last week, was also a director of the Metropolitan Amalgamated Railway Carriage & Wagon Company, Ltd.; Patent Shaft & Axletree Company, Ltd.; the Projectile Company; British Aluminum Company, Ltd.; Rio de Janeiro Tramway, Light & Power Company; Mexican Light & Power Company, Ltd.; Monterey Railway, Light & Power Company, and the British Engineering Company of Egypt.

**Capt. Robert McCulloch**, president and general manager of the United Railways, St. Louis, Mo., is the subject of an interesting sketch in a recent issue of the *St. Louis Post-Dispatch*. Capt. McCulloch is quoted as follows: "A nickel to-day is worth less to the United Railways than it was 10 years ago. The use of the transfer is responsible for this. In 1900 we got 3.48 cents out of every nickel. It was a little higher during the World's Fair year, but it has been getting less every year, until last year all we got out of a nickel was 3.35 cents, and it will continue to grow less."

**Mr. N. C. Pilcher**, who has been appointed general manager of the Sherbrooke (Que.) Street Railway, assumed the duties of that position on Aug. 15, 1910. Mr. Pilcher has been manager of the Port Arthur & Fort William Electric Railway, Port Arthur, Ont., since November, 1908. Previous to accepting the position of manager of the Port Arthur & Fort William Electric Railway, Mr. Pilcher was connected with the Canadian General Electric Company in its factory and its engineering department. He was also connected with the Montreal (Que.) Street Railway for five years and with the Birkenhead (Eng.) Corporation Tramways and the National Telephone Company, London, Eng.

**Mr. C. K. Durbin** has been appointed general manager of the Federal Light & Traction Company, New York,



N. Y., which was organized recently with a capital stock of \$11,000,000, to control and operate electric railway and electric light properties in Aberdeen, Wash.; Sheridan, Wyo.; Rawlins, Wyo.; Montrose, Col.; Hobart, Okla.; Albuquerque, N. M.; Las Vegas, N. M., and Tucson, Ariz. From January, 1903, until June, 1910, Mr. Durbin was vice-president and secretary of the United States Light & Traction Company. From November, 1889, until Sept. 1, 1900, Mr. Durbin was superintendent of the Denver (Col.) City Tramway. His connection with the Denver City Tramway, however, dated from June, 1888, when he was appointed auditor of the company, his term of service beginning at the time street railway development in Denver was started. During the time that he acted as superintendent of the Denver City Tramway Mr. Durbin had experience with horses, steam dummies, the cable and electricity. Mr. Durbin was particularly successful at Denver in his management of the employees by making the service attractive and lucrative to them.

#### OBITUARY

**Gen. Adoniram Judson Warner** died at his home in Marietta, Ohio, on Aug. 14, 1910. Gen. Warner was born in Wales, N. Y., on Jan. 13, 1834. He was educated at the New York Central College and at Beloit. After the close of the war he built steam railroads and electric railways. He assisted in constructing the first underground electric railway in Washington, D. C.

**Joseph I. Irwin**, president of the Indianapolis, Columbus & Southern Traction Company, Seymour, Ind., died at his summer home near Windemere, Ont., on Aug. 13, 1910. Mr. Irwin was born on a farm near Columbus, in 1824. In 1845 he became a clerk in Columbus. Ultimately he became a prominent banker and electric railway promoter. The Indianapolis, Columbus & Southern Traction Company's line was financed by Mr. Irwin, and members of his family comprise the board of directors of the company.

**George Riley, Sr.**, manager of the *Pacific Miner*, was killed in a railroad wreck on the Northwestern Pacific Railroad near San Rafael, Cal., on Aug. 8, 1910. Mr. Riley was on his way home to Petaluma. For a number of years Mr. Riley was Pacific Coast manager for the *Engineering and Mining Journal*, New York, N. Y., but resigned that position about five years ago to enter the service of the Calkins Newspaper Syndicate, as advertising manager for their technical papers. Afterward he was manager of the *Pacific Rural Press* and only recently took charge of the *Pacific Miner*. Mr. Riley was president of the Petaluma Chamber of Commerce. He leaves a widow and two children.

The **Portland Railway, Light & Power Company, Portland, Ore.**, has adopted a new transfer. Under the new system all transfers have the date printed in large red letters across their faces. A detachable coupon shows whether the transfer was issued in the morning or the afternoon. Four dials indicate the quarter hours. The one nearest to the time of issue of the transfer is punched. The change is said to have been necessitated mainly because of controversies arising between conductors and passengers as to the time for which tickets were punched.

The **Public Service Commission of the Second District of New York** has served upon the New York State Railways, Rochester, a complaint regarding the alleged refusal of the company to carry certain newspapers in packages upon its cars in Rochester. The complainant alleges that the company has filed its tariff with the commission stating that newspapers in packages printed and issued in Rochester will be carried on all cars at 25 cents per 100 lb., and that this tariff is now in effect. Subsequent to the time this tariff became effective the New York State Railways has continued to carry all such newspapers at that rate, but has refused to carry any other newspapers. The complainant states that he is the circulation manager or distributing agent for certain out-of-town newspapers, and has contracts with them by which he receives a certain percentage of the sales made in Rochester, and that the discrimination in the new tariff affects no one but himself as he is the only person interested in having newspapers carried on cars outside of the Rochester newspapers.

## Construction News

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

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

#### RECENT INCORPORATIONS

**\*Cave Valley Railway, West Liberty, Ohio**—Incorporated to build a railroad to be operated by steam or electricity in the vicinity of West Liberty. Headquarters, West Liberty. Capital stock, \$100,000. Incorporators: Henry W. Holly, F. M. Leach, Charles H. Potter, W. F. Wood and S. R. Collier.

**Oklahoma Public Service & Interurban Lines, Stillwater, Okla.**—Chartered in Oklahoma to build and maintain steam and electric railroads in Oklahoma and Kansas. The lines proposed are from Stillwater to Morrison, a distance of 14 miles; north from Stillwater to Perkins, 10 miles; from Stillwater to Glencos, Merrimac, Jennings and Sapulpa, 79 miles; Stillwater to Coyle, Langston and Guthrie, 45 miles. Headquarters, Stillwater. The total estimated cost of the proposed system is \$6,000,000 and the company is capitalized at \$100,000. Directors: Claude Powell, R. A. Sturgeon and Louis James Lampke, Stillwater; A. G. Lampke, George Washington Tucker, Jr., H. L. Drullard and H. G. Lytle, New York, N. Y. [E. R. J., June 11, '10.]

#### FRANCHISES

**Stockton, Cal.**—The Board of Supervisors has granted the application of the Central California Traction Company for a franchise through Fair Oaks to give it access to the Atchison, Topeka & Santa Fé Railroad and direct connections for fruit shipments.

**Chatham, Ill.**—The Village Board has granted a franchise to the St. Louis, Springfield & Peoria Railroad, Peoria, to construct a track through the village paralleling the Chicago & Alton Railroad track. This company is said to be a subsidiary company of the Illinois Traction System. [E. R. J., Jan. 15, '10.]

**Hammond, La.**—The City Council has advanced to a third reading the franchise ordinance permitting the Hammond (La.) Interurban Railway to build a street railway in Hammond. [E. R. J., June 25, '10.]

**Great Barrington, Mass.**—The Selectmen have granted the Berkshire Street Railway, Pittsfield, the location asked for in its petition for the building of the Canaan and Egremont branches. The company has also been granted a franchise by the Aldermen of Pittsfield for a line on Elm Street.

**Grand Forks, N. D.**—The City Council has granted to the Grand Forks Street Railway a 50-year franchise for the construction of a new line in Grand Forks.

**\*Greenville, Ohio**—S. A. Price and associates have been granted a 50-year franchise for a 5-mile street railway in Greenville.

**McKeesport, Pa.**—The City Council has extended the time limit in the franchise ordinance of the Pittsburg, McKeesport & Westmoreland Railway from 25 years to 50 years.

**New Castle, Pa.**—The franchise held by the New Castle, New Wilmington & Sharon Electric Railway in New Castle expires Sept. 23 and the company will ask for an extension of time. [E. R. J., July 23, '10.]

**Philadelphia, Pa.**—The Delaware County & Philadelphia Electric Railway, Clifton Heights, formed to build a double-track system through Alden and Lansdowne to the Sixty-ninth Street terminal, has forfeited its franchises through non-compliance with their terms.

#### TRACK AND ROADWAY

**Pacific Electric Railway, Los Angeles, Cal.**—This company has let the contract to Mayberry & Parker, Los Angeles, for the erection of a 60-ft. combination railway and highway bridge near Naples.

**Union Elevated Railroad, Chicago, Ill.**—On Aug. 12, 1910, the Board of Supervising Engineers, Chicago Traction, announced that specifications had been prepared and



bids would be asked within a few days for shifting 19 columns of the elevated loop structure which now interfere with the clearance necessary for through routing of cars as specified in the traction rehabilitation ordinances of 1907.

**Peoria & Southern Railway, Peoria, Ill.**—This company has begun the preliminary survey of its line between Peoria and Pekin. This line when completed will be operated as a branch of the Illinois Traction System. [E. R. J., Feb. 29, '10.]

**San Jose (Cal.) Railroad**—This company advises that it plans to build 16 miles of new track.

**Sterling-Moline Traction Company, Sterling, Ill.**—The directors of this company, formed to build an interurban railway between Sterling and Prophetstown, recently met and elected the following officers: W. E. Tuller, Morrison, president; C. A. Sturtevant, Erie, vice-president; Joseph Wright, Rock Falls, secretary; C. E. Windom, Sterling, treasurer; A. G. Van Petten, Sterling, general manager. Contracts submitted by the Northwestern Construction Company were taken under advisement by the directors. [E. R. J., Aug. 6, '10.]

**Cincinnati, Madison & Western Traction Company, Indianapolis, Ind.**—This company is reported to have begun work on a section of its proposed electric railway between Hanover and Madison. From Hanover the line will be extended to Scottsburg, where it will connect with the lines of the Indianapolis & Louisville Traction Company, with which interests the Cincinnati, Madison & Western Traction Company is said to be identified. J. E. Greeley, Louisville, president. [E. R. J., Nov. 20, '09.]

**Waterloo, Cedar Falls & Northern Railway, Waterloo, Ia.**—This company has nearly completed the grading of its extension to Waverly. Track laying is to begin about Sept. 1, and the new line is scheduled to be completed by Dec. 1.

**Manhattan City & Interurban Railway, Manhattan, Kan.**—This company has asked the people of Manhattan to vote it \$20,000 in bonds to assist in building to Fort Riley and also expects to make a similar request of Ogden township.

**\*Athens, Maine**—It is stated that preliminary steps are being taken by the people of Athens and Skowhegan for the formation of a company to construct a line between these places. An appropriation of \$15,000 has been voted in Athens and a committee composed of J. E. Chapman, F. B. Rollins, C. R. Oliver, Waldo Sanders, George Ayer and George C. Hight has been appointed to promote the line from that end.

**Portland, Gray & Lewiston Railroad, Lewiston, Maine**—This company is said to be making considerable progress in the building of its proposed 30-mile electric railway between Auburn and Portland. Nearly 7 miles of grading have been finished, and a 100-ft. reinforced concrete bridge over the Little Androscoggin River has been completed. Work on a 22-ft. arch bridge over the Royal River is under way. The general work of construction is under charge of Samuel Ferguson, and the bridge work is being done by Fred T. Ley Company, Springfield. The line is being built by W. Scott Libbey and Harry M. Dingley. Lewiston. [E. R. J., Apr. 30, '10.]

**Washington, Frederick & Gettysburg Railway, Frederick, Md.**—Plans are being prepared for the early extension of this company's line from Thurmont to Emmittsburg and Gettysburg. The line from Frederick to Thurmont, now operating by steam, is to be electrified.

**Boston & Eastern Electric Railroad, Boston, Mass.**—This company has deposited \$10,000 with the City Treasurer as a guarantee of good faith and to bear the cost of the Transit Commission of the work of surveying portions of Boston Harbor. [E. R. J., May 28, '10.]

**Escanaba (Mich.) Electric Street Railway**—It is stated that this company is taking definite steps to extend its line from Gladstone to Rapid River, via Kipling and Masonville. Surveys will be made at once.

**West Jersey & Sea Shore Railroad, Camden, N. J.**—This company has placed in operation a double-track line between Anglesea and Wildwood.

**New York & North Shore Traction Company, Mineola, N. Y.**—This company placed in operation, on Aug. 12, its newly completed extension between Whitestone, Bayside and Flushing.

**Forty-Second, Manhattanville & St. Nicholas Avenue Railway, New York, N. Y.**—Judge Lacombe granted, on Aug. 13, in the United States Circuit Court, the application of Frederick W. Whitridge, receiver for this company, for authority to build a loop running from Manhattan Street along Twelfth Avenue to 129th Street, east on 129th Street for about 340 ft. to a connection with the line again on Manhattan Street near the Fort Lee Ferry, with the consent of the local authorities. The improvements are to cost \$35,000.

**Black River Traction Company, Watertown, N. Y.**—The Public Service Commission, Second District, has granted the petition of the Black River Traction Company for permission to extend its line in Watertown from the intersection of Pearl Street and Water Street through Pearl Street, a distance of 3150 ft. The company has obtained the necessary consents of property owners and a franchise for such construction from Watertown.

**Northern Ohio Traction & Light Company, Akron, Ohio**—Announcement has been made that this company will make improvements on Howard Street entailing an expenditure of about \$25,000. Heavy rails will be laid on steel ties and the track will be put in first-class condition.

**People's Railway, Berlin, Ont.**—This company advises that it has awarded the contract to F. W. Maxwell, Port Hope, for the construction of the 3-mile section of its projected railway, between Berlin and Bloomingdale, on the main line to Guelph. The contract has also been let from Berlin to New Hamburg, a distance of about 14 miles, to D. B. Campbell, Latchford, Ont. The Acme Construction Company is now grading between Bloomingdale and Guelph. This work was begun four weeks ago and is progressing favorably. The grading will be completed between Bloomingdale and New Germany shortly, and the remainder will be completed by Dec. 15. Thomas Robbins, Galt, Ont., has received the contract to do all the concrete work along the line, including the three large piers and two abutments for the Grand River, east of Berlin. The company expects to place engineers on the line north from Guelph within 10 days, to survey the line from Guelph to Elora, Fergus and Arthur; and also complete the survey from Guelph to Hespeler and Puslinch Lake, which, when the line is completed, will give the company a direct route from the south, partly over the Galt, Hespeler & Preston Railway and thence over the People's Railway to Guelph. The company plans to open a park next summer between Berlin and New Hamburg on the main line, where there is a lake covering about sixty acres. [E. R. J., June 25, '10.]

**Chambersburg & Western Electric Railway, Chambersburg, Pa.**—An effort is being made to revive the projected Chambersburg & Western Electric Railway, which was incorporated a few years ago to build an electric railway from Chambersburg to Mercersburg via St. Thomas. About \$75,000 has been subscribed thus far.

**Huntingdon, Lewiston & Juniata Valley Traction Company, Huntingdon, Pa.**—This company, which proposes to build an electric railway from Huntingdon to Mount Union and Lewiston, has placed a mortgage on record for \$1,500,000 in Huntingdon. [E. R. J., May 7, '10.]

**Johnstown (Pa.) Traction Company**—The citizens of Prospect have petitioned for an extension of the Johnstown Traction Company's line to that community.

**York (Pa.) Railways**—This company has received from the Secretary of State a certificate of authority to make certain extensions of its tracks in York.

**Amarillo, Tex.**—N. A. Brown, holder of the franchise for a street railway west from Polk Street to San Jacinto Heights, is said to have announced that all material to be used in connection with the building of the lines has been ordered. The line is to be completed within 90 days. [E. R. J., June 25, '10.]

**Utah Light & Railway Company, Salt Lake City, Utah**—This company, which has just placed in operation its line from Midvale and Sandy, will shortly begin surveys to Draper, and thence through Utah valley to Nephi, with branches to Provo canyon and Utah lake. At Lehi a survey will run to Saratoga Springs on the north shore of the lake. At Pleasant Grove a short cutoff line will be surveyed over the Provo bench to the Provo canyon.



**Chicago & Wisconsin Valley Railroad, Madison, Wis.**—A subscription of \$60,000 is being solicited among land-owners and others affected to assist this company in its proposal to build an electric railway around Lake Monona. The proposed line will cater to summer resort business, and will be an extension of the line to be built from Madison to Stevens Point. Allen T. Russell, Chicago, Ill., general manager. [E. R. J., Aug. 6, '10.]

### SHOPS AND BUILDINGS

**Connecticut Company, Bridgeport, Conn.**—This company has completed its new car houses in Bridgeport. They are two large one-story buildings, one for repair shops, etc., north of the railroad station facing on Congress Street, with a second story on that side for quarters for its employees. The second building will be built east of the railroad station and will be used chiefly for storage for open and closed cars in season. The buildings will cover an area 241 ft. x 331 ft.

**Chicago, South Bend & Northern Indiana Railway, South Bend, Ind.**—Bids are now being received by this company for the erection of a passenger and freight station in Elkhart. The building will have an interior finish of marble. [E. R. J., July 30, '10.]

**Louisville & Eastern Railroad, Louisville, Ky.**—This company will build a station at the fair grounds of the Shelby County Fair Association, near Shelbyville, Ky.

**Milford, Attleboro & Woonsocket Street Railway, Milford, Mass.**—This company leased property on Main Street, Milford, where it proposes to erect a freight and express station.

**Dartmouth & Westport Street Railway, New Bedford, Mass.**—Plans are being prepared by this company for a freight station to be located at Sixth Street and Bedford Street, Fall River. The building will be similar to the station in New Bedford.

**Morris County Traction Company, Morristown, N. J.**—It is stated that this company is considering plans for the erection of a car house and repair shops on a site adjoining its power station at Dover.

**Portland (Ore.) Railway, Light & Power Company**—It is stated that this company is considering plans for the erection of a large warehouse and ticket office on the Columbia River at Vancouver.

**Oregon Electric Railway, Portland, Ore.**—This company is said to have purchased a site opposite the present site of its depot in Salem for terminal grounds and for warehouse purposes.

### POWER HOUSES AND SUBSTATIONS

**Durham (N. C.) Traction Company**—This company expects to begin work during the next few days on an addition to its power plant, 36 ft. x 100 ft. All the electrical equipment for this addition has been purchased.

**East Liverpool Traction & Light Company, East Liverpool, Ohio**—This company has purchased a building located at Yellow Creek which will be remodeled and equipped as a power station.

**Pittsburg, McKeesport & Westmoreland Railway, McKeesport, Pa.**—It is announced that this company is preparing plans for a power plant, 40 ft. x 40 ft., to be built on a site adjoining its car house in Westmoreland County. At present the company rents power from the West Penn Railways.

**Philadelphia (Pa.) Rapid Transit Company**—This company has contracted with the Delaware County Electric Company and the Beacon Light Company, Chester, subsidiary corporations of the Philadelphia Electric Company, to supply power for its lines in Delaware County.

**Sheboygan Light, Power & Railway Company, Sheboygan, Wis.**—This company has recently ordered the following power-station apparatus: One 750-kw, mixed-pressure turbine from the General Electric Company, surface condensers, circulating pumps, air pump, etc., from the Wheeler Condenser & Engineering Company; one 250-hp Sterling boiler from the Babcock & Wilcox Company, and Jones stokers from the Under-Feed Stoker Company of America.

## Manufactures & Supplies

### ROLLING STOCK

**United Traction Company, Reading, Pa.**, is said to be in the market for 10 new cars.

**Citizens' Light & Transit Company, Pine Bluff, Ark.**, is said to be considering the purchase of several new cars.

**Boston (Mass.) Elevated Railway**, it is reported, is about ready to order 100 semi-convertible surface cars and 30 or 40 new elevated cars.

**Knoxville Railway & Light Company, Knoxville, Tenn.**, has placed an order with the General Electric Company for 10 G. E.-67 two-motor equipments.

**Mahoning & Shenango Railway & Light Company, New Castle, Pa.**, has ordered 12 city cars and six interurban cars from the Niles Car & Manufacturing Company.

**Niagara, St. Catharines & Toronto Railway, St. Catharines, Ont.**, is in the market for four semi-convertible cars of the prepayment type, 40 ft. to 45 ft. long, over all, and seating 44 people.

**Sheboygan Light, Power & Railway Company, Sheboygan, Wis.**, has purchased two interurban passenger cars from the Cincinnati Car Company, and one 50-ft. snow plow from the Russell Car & Snow Plow Company. General Electric motor equipments will be installed on these cars.

**Michigan United Railways, Lansing, Mich.**, noted in the *ELECTRIC RAILWAY JOURNAL* of July 16, 1910, as considering the purchase of 30 double-truck city cars, has placed the order for these cars with The J. G. Brill Company. The company has also ordered one special office car for the interurban system and two express trailers from the McGuire-Cummings Manufacturing Company.

**Metropolitan Street Railway, Kansas City, Mo.**, reported in the *ELECTRIC RAILWAY JOURNAL* of July 2, 1910, as having ordered 25 closed pay-as-you-enter cars from the Cincinnati Car Company, has specified the following details for these cars:

|   |               |                               |
|---|---------------|-------------------------------|
| Bolster centers, length,                      | 21 ft. 10 in. | Curtain fixtures....Forsythe  |
| Length of body....47 ft. 2 in.                |               | Curtain material....pantasote |
| Width over sills....8 ft. 7 in.               |               | Fenders .....Eclipse          |
| Sill to trolley base.8 ft. 10 in.             |               | Hand brakes .....Peacock      |
| Height from top of rail to sills .....33¼ in. |               | Heating system .....Consol.   |
| Body, steel sides, wood frame                 |               | Headlights .....Dayton        |
| Interior trim..quartered oak                  |               | Motors .....4-West.           |
| Underframe .....composite                     |               | Push button signal,           |
| Air brakes,                                   |               | battery system                |
| Nat. Brake & Elec.                            |               | Registers ..... International |
| Bolsters, body ....cast steel                 |               | Roofs .....turtle back        |
| Bumpers,                                      |               | Sash fixtures .....Dayton     |
| Hedley anti-climbers                          |               | Seats, style.....H. & K.      |
| Car trimmings .....bronze                     |               | Seating material .....rattan  |
| Control system.K-35 one end                   |               | Trucks .....Standard O-50     |
| Couplers.Ry. Co.'s std. radial                |               | Ventilators ....Pullman type  |
|   |               | Wheels....34-in. forged steel |

### TRADE NOTES

**Vulcan Steam Shovel Company, Toledo, Ohio.**, will build a plant at Evansville, Ind., to cost \$200,000.

**Green Engineering Company, Chicago, Ill.**, has moved its Chicago office to the Steger Building, 39 Jackson Boulevard, where it will occupy the entire thirteenth floor.

**Dodge Manufacturing Company, Mishawaka, Ind.**, held the annual outing of its employees on July 30 at Winona Lake, Ind. The program included numerous athletic events, for which prizes were awarded to the winners. More than 2,000 people attended.

**Automatic Ventilator Company, New York, N. Y.**, announces that it has the contract to equip with automatic ventilators the 20 new cars which are being built by the Pressed Steel Car Company for the elevated lines of the Philadelphia Rapid Transit Company.

**American Railway Advertising Company, Evansville, Ind.**, has filed articles of incorporation with a capital stock of \$250,000 for the purpose of manufacturing and selling machinery, devices and appliances for continuous motion adver-



tising in street and interurban railway cars and other places. The directors are: E. C. Henning, G. T. Henning and Frank A. Larkin.

**Ackley Brake Company, New York, N. Y.**, reports that it has recently received orders for Ackley brakes from the West Ham Corporation Tramways, West Ham, Eng.; Manila Electric Railroad & Light Company, Manila, P. I.; Brisbane Tramways Company, Brisbane, Queensland; Cie des Tramways Electriques Genevoise, Geneva, Switzerland; Rio de Janeiro Tramways, Light & Power Company, Rio de Janeiro, Argentina; Caracas (Venezuela) Tramways. Large shipments of Ackley brakes have also been made during July to Yokohama, Berlin, Paris, London, Basle, Switzerland, and Oran, Algeria.

**Root Spring Scraper Company, Kalamazoo, Mich.**, has moved into its new brick building, 60 x 120 ft., at 525, 527, 529 West North Street, Kalamazoo. The building is modern in every detail, and is fully equipped with machinery to facilitate the manufacture of the Root railway spring scrapers. The company announces that its business for the past year was the best in its history. A shipment of scrapers was recently made to the Grand Rapids (Mich.) Railway for use on the 20 pay-as-you-enter cars just purchased by that company. When these scrapers are installed every car operated by this company will be equipped with this device. Another order was recently received for scrapers for equipping the 30 new cars just ordered by the Michigan United Railways from The J. G. Brill Company.

**Charles G. Norris, Lea Recorder Company, Manchester, England**, is on a visit to this country to present to American manufacturers the advantages of the Lea recorder for measuring boiler feed water, air pump discharges, discharges from pumps, wells, sewage, etc. The recorder is employed extensively abroad in power stations and electrical works for these purposes, among the users being the London County Council, which has eight of them; the Corporation Electrical Works at Manchester, Glasgow, Edinburgh, Belfast, the Great Eastern Railway, J. G. White & Company, Limited, Worthington Pump Company, etc. Mr. Norris has engaged temporary headquarters at Room 823 United Engineering Societies Building, 29 West Thirtieth Street, where he has the apparatus on view, and has himself taken a room at the Engineers' Club.

**Western Electric Company, New York, N. Y.**, has recently opened an office in Milwaukee. It is located at No. 378 East Water street, and is in charge of A. C. Keene. Four stories and a basement are devoted exclusively to displaying and storing the company's telephones and power apparatus and its electrical supplies. The Western Electric Company reports that gross sales for the seven months to June 30, have been at the rate of \$61,000,000 per annum. Sales for this period show an increase of 48 per cent over the same period of the fiscal year ended Nov. 30, 1909. Officials of the company expect that the year's business will not vary materially from the \$61,000,000 mark, which compares with \$46,000,000 of gross in 1909, an increase of \$15,000,000. The company now has about 22,000 employees on its pay-roll, an increase of nearly 4,000 since Jan. 1, 1910.

#### ADVERTISING LITERATURE

**Hess-Bright Manufacturing Company, Philadelphia, Pa.**, has issued a sheet on ball bearings and their correct use. It is particularly devoted to adapter bearings.

**Jesse C. Coogan, Milwaukee, Wis.**, has issued a supplement to bulletin No. 5, which points out the principal advantages of the Coogan system of hot water heating for different situations.

**Kontinentale Bremsen-Gesellschaft m. b. H., Lankvitz-Berlin, Germany**, has published in German a description of the Ackley adjustable brake, for which it has the German agency.

**U. S. Metal & Manufacturing Company, New York, N. Y.**, has issued its 1910 catalog describing Diamond steel poles and fittings for electric railway, power, telegraph and telephone lines.

**Dodge Manufacturing Company, Mishawaka, Ind.**, has issued a bulletin entitled "How to Save Fuel," which describes the applications of the Dodge Eureka water softener and purifier.

**Brown Hoisting Machinery Company, Cleveland, Ohio**, has issued a catalog entitled "Modern Ore and Coal Handling Machinery," which contains illustrations of some of the more recent installations of Brownhoist machinery.

**General Electric Company, Schenectady, N. Y.**, has recently issued bulletin No. 4760, illustrating and describing a line of direct current instruments constructed upon the D'Arsonval principle, and designed for switchboard use.

**Joseph Dixon Crucible Company, Jersey City, N. J.**, has issued an attractive booklet of envelope size on its paint for steel cars, which contains color chips showing the four colors in which Dixon's silica-graphite steel car paint is made.

**H. M. Byllesby & Company, Chicago, Ill.**, have reprinted in pamphlet form an article from the *Bankers' Magazine* of July, 1910, entitled "Engineering and Commercial Skill Applied to the Operation and Management of Public Service Corporations," which outlines briefly the Byllesby organization.

**General Electric Company, Schenectady, N. Y.**, has printed in full Judge Lowell's opinion filed in the United States Circuit Court, District of Massachusetts, July 30, 1910, in the oil switch case, involving the Hewlett & Emmet patent, No. 800,916, in which the General Electric Company was the complainant and Frank O. Hartman, et al., defendants.

**Pettingell-Andrews Company, Boston, Mass.**, has printed a handy pamphlet, giving a large number of useful wiring tables, wire markings, fusing currents for different wires, comparative conductivities, electrical symbols for wiring plans, wiring formulas and many miscellaneous tables. Instructions are also given relative to the installation and care of electrical machinery, motor wiring diagrams and lamp data.

**Under-Feed Stoker Company of America, Chicago, Ill.**, has issued the third number of the *Publicity Magazine*, which is devoted to the interests of the Jones stoker. The publication contains, besides other interesting reading matter, an address entitled "Furnace Draft in Its Relation to Smoke Prevention," delivered by Sylvester S. Howell, before the fifth annual convention of the International Association for the Prevention of Smoke, at Minneapolis, Minn., June 30, 1910.

**C. A. Wood Preserver Company, Austin, Tex.**, has printed a booklet composed principally of testimonial letters from users of its C. A. Wood preserver. Among the railways using this preservative are the Denver (Col.) City Tramway Company, the Freeport (Ill.) Railway, Light & Power Company, the Los Angeles (Cal.) & Redondo Railway Company, the Mobile (Ala.) Light & Railroad Company, the Greenville (S. C.) Traction Company, Durham (N. C.) Traction Company, and Austin (Tex.) Electric Railway Company. An interesting feature of the book is a genealogical tree, showing the more important compounds derived from coal tar.

#### NEW PUBLICATIONS

**The Watt-Hour Meter.** By W. M. Shepard and A. G. Jones. Technical Publishing Company, San Francisco, 1910; 179 pages; illustrated. Price, \$2 net.

This book is intended particularly for sellers of power for lighting and industrial purposes. Simple explanations are presented of power measurement methods and of the different types of watt-hour meters, such as induction, commutating and mercury flotation. A large part of the work is devoted to meter maintenance and testing. A chapter on rates discusses the practice of four large companies in as many different parts of the United States.

**Statistik der Elektrizitätswerke in Osterreich.** (Austrian Central Station Statistics.) Published by Elektrotechnischen Vereines in Wien, Vienna; paper, 32 pages. Price, 2,5 kroner (approximately 50 cents).

These statistics include the principal data on the 700-odd central stations of Austria which serve about 1500 communities. Information is furnished with regard to the electrical equipment and system of each plant, the extent of the lighting and power networks, power generating and selling costs, population, etc. This work should be a valuable aid to those contemplating the sale of electrical equipment in Austria.