

# Electric Railway Journal

Vol. XLI

NEW YORK, SATURDAY, MAY 24, 1913

No. 21

PUBLISHED WEEKLY BY

## McGraw Publishing Company, Inc.

JAMES H. MCGRAW, President. C. E. WHITTLESEY, Secretary and Treas.  
239 West 39th Street, New York.

CHICAGO OFFICE.....1570 Old Colony Building  
PHILADELPHIA OFFICE.....Real Estate Trust Building  
EUROPEAN OFFICE....Hastings House, Norfolk St., Strand, London, Eng.

### TERMS OF SUBSCRIPTION

For 52 weekly issues, and daily convention issues published from time to time in New York City or elsewhere; United States, Cuba and Mexico, \$3.00 per year; Canada, \$4.50 per year; all other countries, \$6.00 per year. Single copies, 10 cents. Foreign subscriptions may be sent to our European office.

Requests for changes of address should be made one week in advance, giving *old* as well as new address. Date on wrapper indicates the month at the end of which subscription expires.

Copyright, 1913, by MCGRAW PUBLISHING COMPANY, INC.  
Entered as second-class matter at the post office at New York, N. Y.

Of this issue of the ELECTRIC RAILWAY JOURNAL, 8100 copies are printed.

**DIVISION POINTS FOR ELECTRIC LOCOMOTIVES** The proposed 440-mile electrification of the Chicago, Milwaukee & Puget Sound Railroad, of which accounts have been given in recent issues of the ELECTRIC RAILWAY JOURNAL, is unique in that with the present steam service it now includes several operating divisions, and it will be interesting to see the extent to which electrical operation will tend to combine them. Ability to do this is one of the incidental advantages of electrification and one which is by no means unimportant. When steam is used as a motive power there is every reason for limiting the length of divisions to not more than 150 miles, because the steam locomotive after traveling that distance is generally in need of attention to its machinery or boiler, and the fire has to be cleaned. This involves work which cannot be fairly imposed upon the modern fireman. With the electric locomotive, however, the only limit to its continuous run is the length of the electrified line. It is, of course, true that a crew would hardly be capable of staying on the engine for a distance much greater than 200 miles, but the fact that crews would have to be changed does not by any means involve the removal of the engine even temporarily from service. With a traffic composed largely of through freight the only reason for holding trains at division points, aside from the time required to change crews, is the necessity for inspection and setting out bad-order and local cars, and there seems to be no reason why an electric locomotive could not stay upon its train almost indefinitely. It could, in fact, do the necessary switching, at least at the head end, after the inspection of the train, and thus reduce the costly yards, prolific of delay, to the importance of elaborate sidings. In addition, the increased monthly mileage of locomotives on long runs is an important source of saving. This is shown by the present custom of using, where it is possible, double-crewed passenger engines on runs even 250 miles long.

## FORESTALLING CONSTRUCTION DAMAGE SUITS

The truthful camera has long been a friend of the live claim agent in giving indisputable exhibits of conditions at scenes of railway accidents and of the actual doings of supposedly bedridden claimants. However, the photographic practice of the Public Service Commission, First District, New York, shows that the camera may also be used successfully in forestalling or minimizing the expense of damage suits due to construction work. It is obvious that the construction of new lines, whether surface or non-surface, involves some disturbance of streets, sidewalks and buildings, with possible damages to owners of abutting property and injuries to pedestrians and occupants of vehicles. In the case of the Broadway-Lexington Avenue subway, for instance, the commission delegated one of its assistant engineers and its staff photographer to make photographs of each section even before it was let for construction. The engineer accompanies the photographer partly to point out what is to be recorded but chiefly to determine the exact location of each view. The plate therefore always shows the street, surveyor's station number and the date. It is customary to take general views of the paving and sidewalks as well as individual views of every house. In addition to these photographs, the customary progress views and special details of jobs are also secured. For the Broadway and Lexington Avenue subway alone 1400 views were made from Jan. 1 to April 1 of the current year. The effect of this wise policy has been the practical elimination of "fake" suits and the reduction of just claims to an equitable basis. In fact, the photographs have enabled the New York corporation counsel to settle many cases out of court.

**GENERALIZATIONS IN PROBLEMS OF ELECTRIFICATION** During the discussion on steam railroad electrification which occurred at the recent meeting of the American Institute of Electrical Engineers emphasis was laid by one of the members on the danger in generalizations. That the point was well taken was shown by the fact that the widest kind of divergence existed between the viewpoints of those taking part in the discussion. Indeed, the expressed opinions, often backed up by figures, ranged all the way from a belief that electrification under the cited conditions would produce vast economies to a conviction that the savings of the hypothetical electrifications would be less than the fixed charges on the overhead construction and equipment. Steam railroads as well as electrified lines work under such an extraordinary complexity of operating considerations imposed by local conditions that it is quite impossible to sum them up into a single example which could be said to apply to all cases even as an approximation of the widest latitude. A statement which was made before the meeting charged that 42 per

cent of the total engine-house costs were involved in the washing out of locomotive boilers. This might apply in the Dakotas and Montana, where it is not unusual to find engines being washed out or at least having the boiler water changed every half trip. But there are many favored localities where the water is so pure that, in round-house parlance, "the engines are washed out once a year, whether they need it or not." No less subject to wide variation is the price of fuel, which, as cited by one of the contributors to the discussion, may be oil at 70 cents a barrel, making an electric energy rate of  $\frac{1}{2}$  cent per kw utterly prohibitive. A similar situation obtains through the Alleghany Mountains, where coal of the finest quality may even be dumped on to the locomotive tender direct from the mine tippie. What interest in the fuel economy of electrification could exist under such conditions? Yet, in the Southwest, poor coal at \$5 a ton makes this very item of expense the most serious single one among all the operating costs. In the end every electrification problem will have to be studied by itself with no more consideration of results obtained elsewhere than will provide highly elaborated unit costs, which can be used only with the utmost caution.

#### BUS COMPETITION IN LONDON

The keen competition for traffic in London between motor buses and street cars, to which we have previously referred in these columns, has reached the stage where it is being considered in the House of Commons by a select committee which has been appointed to study the entire subject of street traffic in London. The special reason for the hearing now is partly the extreme congestion produced in the streets of London by the presence of large numbers of motor buses and partly the accidents both to pedestrians and to other vehicles caused by the reckless driving of the buses. The tramway managers have been called upon to contribute their testimony on the situation, and their contention is that if the present laws which greatly favor the motor bus are repealed the congestion and accidents will be greatly reduced.

At present, according to the testimony presented at the hearing, each tramcar has to pay an annual tax varying from £180 to £220, and the tramway is the only method of traction which is held responsible for road construction and maintenance, whereas the buses pay only the petrol tax of £43 a year. In this connection striking photographs were shown of street congestion which could be eliminated, or at least greatly reduced, if Parliament should only adopt a policy of not discouraging the system of traction on rails. Thus, in one view of a London street exhibited, there are shown five omnibuses and twenty taxicabs whose total seating accommodation could be provided by four tramcars.

The matter of unequal taxation, however, was not the only complaint made by the tramway managers against the buses, as they alleged unfair practices by bus drivers. Two methods in particular are specified; namely, "cutting in" and "nursing." "Cutting in" means the running of a motor bus between a tramcar and the curb at the time when passengers are about to board the car or alight. This practice naturally discourages timid people from using the

tramway. According to the British *Light Railway and Tramway Journal*, the method was graphically described by one of the tramway managers at the hearing in the following terms: "Elderly passengers and women are deterred from the tramcars at picking-up points by a motor bus being driven straight at them, the horn being sounded without apparent slackening of speed, the people scattering back to the pavement and the bus drawing up in such a way as to block completely all access to the platform of the tramcar. If the bus is proceeding in front of the tramcar it will keep on the tramway track, despite its normal inferiority of speed limit, and fail to draw up to the curb to pick up or unload, obliging the tramcar to stop behind it while this is done, if indeed it is not stopped so suddenly, and without notice, that a collision is occasioned. A bus will pass a tramcar on the off side and cut across its front so closely that only by the application of his brakes by the tramcar driver are serious collisions averted, and witness has numerous instances in his records where so close has been the risk taken that the step or the laths of the tramcar's lifeguard have been carried away by the bus."

"Nursing" is a very ancient custom of the London bus drivers and used to be employed with great efficiency in the days of horse buses by the old companies against any new company which might attempt to enter the field with a few buses. As directed against an electric car, the practice known as "nursing," as we understand it, is for two buses to "nurse" a tramcar by keeping close to it at the side, one just ahead of the car and the other just behind it. When the car stops the buses stop, and if the car should chance to get ahead they catch up to it. The first bus, as far as it can, takes on board the passengers who would otherwise board the car, and the second bus assists in the attack by frightening away those people who would cross the intervening street to take the car and takes on board those who do not board the first bus. The plan has enough of the sporting element in it to make it popular with the bus drivers, but whether its continuance in London streets will receive the sanction of the Parliament remains to be seen.

#### ESTIMATED INCREASE IN NEW YORK'S POPULATION

Delos F. Wilcox, chief of the franchise bureau, Public Service Commission, First District, New York, recently submitted to the Charities Conference some surprising figures regarding the population and subways of New York City. On the same basis as that used by the commission in estimating the traffic on the new subways in 1920, Mr. Wilcox estimated that in 1960 the population of the city would be 21,000,000 and its rapid transit systems would be carrying 21,000,000,000 passengers a year. The traffic resulting from such conditions would require 200 tracks through the business section, and the projected system provides for a maximum of only twenty-two tracks. These figures were based, we understand, on the estimate of the Public Service Commission that population between 1910 and 1920 will increase 35 per cent and traffic twice as much, or 70 per cent, these figures being determined by a study of vital and traffic statistics for the past decade. Mr. Wilcox has simply adopted the same ratio and extended it over the period up to 1960. Whether this past relation will

hold true for the coming fifty years we are unable to say, but though Mr. Wilcox's estimate seems almost incomprehensible it will at least stir up city authorities and citizens to make a searching inquiry into what the future problems of New York are as regards population and rapid transit development.

With the opening of the new subway lines a larger proportion of the passengers will be able to use through routes, and this will mean fewer rides at more than one 5-cent fare. This, in turn, will tend to offset the natural yearly increase in the number of rides per inhabitant. But to pay the fixed charges on the \$330,000,000 new capital involved in the construction of the proposed lines there must be, according to Mr. Wilcox, either an increase of 50 per cent in the population of the city or else a larger average per capita charge for rapid transit facilities. It is perfectly safe to figure on a larger per capita charge, although we do not know the exact mathematical relation which will exist between it and the increase in population. Of course, if the law of squares were assumed to continue indefinitely a time would eventually be reached when every man, woman and child would be spending all his time traveling. This is manifestly absurd. But it is reasonable to assume as the result of the growth of every large city the development of several or of many industrial centers, as in London, and in such a case it is inevitable that the traffic will increase in even greater ratio than the population. It is also logical to expect with the opening of new transportation facilities a shifting of population, the opening up of new areas, a consequent increase and decrease of land values and, to some extent, an economic waste in regard to public institutions established in the evacuated portions unless the old condition of congestion is allowed to return. So far as the railways are concerned, the franchises of those in the outlying sections of the city should increase in value, while the surface lines within the congested districts would continue to do most of the short-haul traffic but, on account of their physical limitations, would not be able to participate to the same extent as the rapid transit lines in the increased traffic.

Two points stand out prominently in this study of the future. One is the necessity of planning so far as may be as to what is to be done with this population for which transportation facilities are being provided and which these same facilities are helping to bring to the city. A thorough investigation should be conducted along all civic lines in order that the municipality may be prepared for its increasing numbers. The second question is one of finances and credits. During the last ten years the city population has increased 36.7 per cent, the per capita debt 81 per cent and the per capita taxes 30 per cent, owing to the fact that the larger a city grows the more it costs for governmental functions. If this condition continues, will the city's increasing margin of credit be more or less taken up by the additional expenses made necessary by the additional people? We believe, of course, that both of these conditions will be met when they arise, but there is no doubt that it is none too early for the prosecution of a systematic and continuous study of the best means for the city to solve the housing and financial problems made necessary by its rapidly increasing population.

## RECEIVERS TO END STRIKES

Aside from the exhibition of bad faith on the part of the representatives of the union employees in backing out of their first arbitration agreement, the Cincinnati strike is noteworthy in another respect. It has ended in a settlement brought about, according to common report and belief, largely by means of the threat of a receivership for the railway companies involved if they did not immediately resume operation. Perhaps this is putting the case too strongly, but, to quote one of the most important organs of local public opinion, "It was generally conceded among members of the two committees [representing the company and the employees in the final negotiations] that the suit brought by the Mayor on behalf of the city was the factor that gave impetus to the efforts on the part of the two contending parties to enter into a settlement. It caused the traction company, it was said, to make concessions which it had persistently refused to make prior to this action."

The Mayor's suit was initiated by a petition filed in the Court of Common Pleas by the city solicitor asking that receivers be appointed for the Cincinnati Traction Company and the Cincinnati Street Railway Company. The theory upon which the petition was based was that the city was suffering injury from the failure of the company to operate its cars and that this fact was sufficient to give the city standing in an equity court. There must also have been the belief that receivers as officers of the court could accomplish what the company's officials had been unable to do because of the violent opposition of street mobs.

It is decidedly unfortunate that this remarkable suit was not carried to a conclusion, for if a public service corporation can be thrown into the hands of a receiver in the event of a strike of its employees and in spite of its utmost efforts to operate it is time that we knew it. On the other hand, if the proceedings in this case would, as we believe, have been promptly thrown out of court or blocked by higher tribunals, it is a misfortune that this did not happen. Up to this time in American jurisprudence a receiver has been a person appointed by the court to conserve a property and to protect the rights of its owners and creditors. The Cincinnati proceeding, however, was more in the nature of the action known to South American justice as the appointment of a "depository," who usually has scant regard for property rights.

The best that can be said of the case as it stands is that the public, and more especially organized labor, have been led to believe that a threat of receivership proceedings is the only thing necessary to force the quick surrender of a public service company against which a strike has been called. This being so, it does not require the vision of a prophet to see how frequently labor leaders will be able to induce supine city officials to duplicate the performance of the Cincinnati Mayor. Before this gets to be a habit it is earnestly to be hoped that the questions involved will be threshed out and the fact (if it is a fact) clearly established that such a proceeding as the one begun in Cincinnati has no legal or equitable standing in the courts. The latter, we believe, will stand for justice and will not be misled by specious and demagogic reasoning as to what may be alleged to be the "most popular" course to pursue.

# Rolling Stock Maintenance in Buffalo

An Extended Campaign Is Being Conducted by the Mechanical Department to Remodel the Equipment and to Reduce Maintenance Costs—An Unusually Complete System of Records Has Been Developed as One Means to That End

The present year is a very busy one for the mechanical department of the International Railway Company, as the extensive purchase of near-side cars by this company has made it possible to remodel a large number of the older cars at the Cold Spring shops. There are on the pay roll



Buffalo Car Maintenance—City Car as Rebuilt for Interurban Service on Lockport Line

of the mechanical department at the present time a total of 438 men, of whom 236 are employed in the shops. Others are located at the various carhouses as follows: Cold Spring, 58; Hertel, 37; Forest Avenue, 25; Broadway, 38; Walden, 22; Seneca, 22.

The company operates nearly 750 cars, of which at present 45 are in the shop undergoing repairs or awaiting attention. The cars in operation from the different carhouses are as follows: Cold Spring, 208; Broadway, 176; Hertel, 89; Forest Avenue, 85; Walden, 62; Seneca, 80; Niagara Falls, 44; Lockport, 19; Niagara Falls, Ontario, 6. In addition about fifty cars are assigned to the various carhouses but not operated.

The Cold Spring shops, which were described in detail in the issue of the *ELECTRIC RAILWAY JOURNAL* for July 7, 1906, are located on Main Street at the corner of Balcom Street, about 2½ miles from the center of the city. At the shops is done the repair work on all of the cars of the system in addition to a great deal of reconstruction. The shops comprise a number of separate buildings, all of liberal size, the shops having been largely extended in 1906 by moving the truck shop and carpenter shop into a carhouse which stood alongside of the main shop building.

#### RECENT RECONSTRUCTION WORK

Among the more extensive jobs now going through the shops the largest is the remodeling of twenty cars from the Niagara Falls interurban line. These cars formerly had smoking compartments and were arranged in the style customary with interurban cars. The partitions have now been removed, and the bodies have been refinished inside and out. New leather-covered seats replace the rattan seats used in the old cars, and tungsten lamps with ornamental fixtures will provide illumination. The bodies have been placed on high-speed Brill No. 27 M. C. B. trucks equipped with GE-74 motors, and the G. E. type M multiple-

unit system of control has been installed. The remodeled cars will operate on the Lockport interurban line.

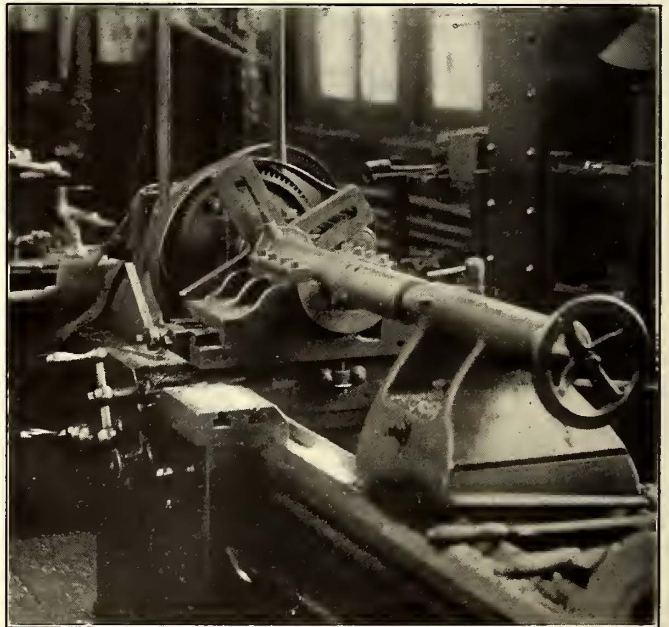
Another large job is the rebuilding of twenty prepayment cars from the Buffalo city lines for use on the Niagara Falls interurban line. These were originally 48 ft. over all, the length over corner posts being 32 ft. 5 in. Short standard interurban platforms replace the long city platforms. In addition to the changes in platforms and a general refinishing inside and out, transoms of crucible steel are being placed under the bodies instead of the built-up transoms of flat steel which were formerly used. These cars have GE-57 motors, with three-turn armature coils. There are four motors to each car, the gear ratio being 28 to 57. The controllers are of the GE K-35 type. As remodeled, each car weighs 27 tons complete.

Forty-two cars which are operating in Tonawanda, Kenmore and Lancaster are also being overhauled, painted and equipped with heavy crucible steel transoms.

In addition to the very large jobs mentioned above a number of interesting pieces of special work are also going on at present. Among these is the remodeling of an older form of maximum traction truck used on a large number of cars. These have been provided with center bearings, supported by heavy flat-steel side frames connecting the pedestals. The motor is outside-hung while the brake rigging is inside-hung. Some of these remodeled trucks have been in operation for a number of months and are giving great satisfaction. Scrapers of original design are also being installed on all of the new near-side cars. This device was developed in order to fit into the limited clearance between the wheels and platform knees.

#### INSPECTION AND RECORDS

The equipment of the rolling stock is inspected on a



Buffalo Car Maintenance—Engine Lathe Used with Jig for Boring Armature Bearings

1000-mile basis and cars are taken in every 100,000 miles for a general overhauling. Very complete records of inspections are kept on cards of special design. These are 5 in. x 8 in. in size, and different colors are used for the several parts of the equipment. Separate cards are used

as follows: car-body record, giving a history of the body with complete details of the equipment and a history of the painting; truck record, giving a history of the truck, a list of the cars in which it was installed and a list of overhauls with the corresponding mileages; armature

motors and armatures. A lubrication record for each car is kept on a  $4\frac{1}{4}$ -in. x  $7\frac{1}{4}$ -in. card having horizontal columns for car and armature bearings and vertical columns for the days of the month, a card being used by each car for each month. A small card,  $2\frac{3}{4}$  in. x  $4\frac{3}{8}$  in. and printed on both



Buffalo Car Maintenance—View of Corner of Cold Spring Machine Shop, Showing Air Lift and Jib Crane Used for Handling Axles

record, showing the number of cars, trucks and motors in which the armature operated, the number of removals and reasons for these, the mileages covered and the repairs

sides, is used by the train crews in reporting car defects. A list of over 100 possible defects is given. When a car goes through the shop it is accompanied by a  $6\frac{1}{4}$ -in. x



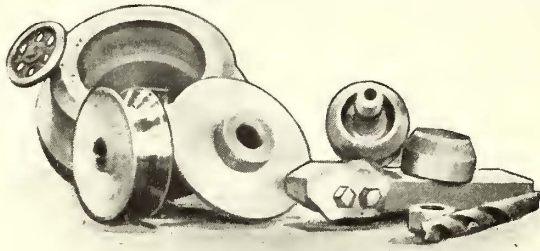
Buffalo Car Maintenance—View at Most Congested Point in the City, Showing New and Old Types of Car

made; inspection and overhauling record, giving a complete overhauling history of each car with corresponding mileages; wheel record; axle record; gear record; series of trouble records, including car body, trucks and hand-brake rigging, air brakes, motor compressor and governor,

$7\frac{1}{2}$ -in. shop record card on which are entered the times of entering and leaving each shop, together with an account of the work done.

In addition to the card records, several composite records are made on blueprints for posting. One of these is the

car-painting record. By this system it is possible to assemble the complete car-painting record for four years on a chart less than 2 ft. x 3 ft. in size. The chart is divided into twelve vertical spaces, each of which is subdivided into columns for the car numbers and for each year. The painting record is made by means of abbreviations as follows: A, car burnt off, painted and varnished; B, car painted and varnished; C, car "cut in" and varnished; D,

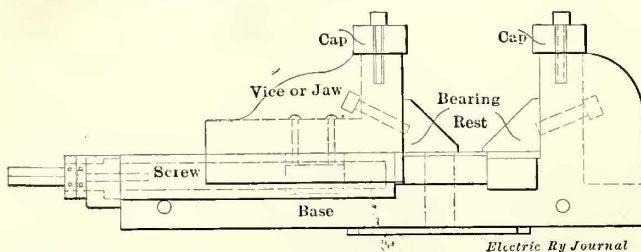


#### Buffalo Car Maintenance—Tools and Jigs for Finishing Trolley Wheels

car "touched up" and varnished. In the spaces are recorded, by means of these abbreviations, the painting operation and the date. By this means the superintendent can have always before him the exact status of the painting work, and as many copies of the chart can be made as is found desirable.

Another useful chart is that of cars pulled in for repairs. This chart is of the same size as the other, and it is divided up into vertical columns for the car numbers and for records of causes of trouble. There is one space for each day of the week, a new chart being required weekly. An index to fifty-one causes of trouble gives a key number for each cause and these key numbers are used in entering the records. In the index are vertical columns for recording the totals of troubles from each source for each day and for the week. The columns can be totaled vertically also to obtain the total number of defects for each day. In this chart the various types of cars are arranged separately with provision for totaling weekly the number of each type pulled in.

A very convenient set of blueprints,  $7\frac{1}{2}$  in. x  $9\frac{3}{4}$  in. in size, has been prepared to show at a glance the standard parts of truck equipment. These are arranged in loose-leaf notebook style. There are books for gears, coiled springs, double elliptic springs, half-elliptic springs and wheels. By means of the sheets with the accompanying indexes, details of each part of the equipment can be seen at a glance, and information regarding the standard parts of a given equipment is immediately available.



#### Buffalo Car Maintenance—Jig Used for Boring Armature Bearings in Engine Lathe

To determine the adequacy of the forces in the several carhouses a chart has also been recently prepared to show the number of cars maintained per man and the different classes of work required on the cars assigned to the several carhouses.

#### MEETINGS OF FOREMEN

G. W. Dunlap, superintendent of equipment of the company, is making a special effort to reduce the cost of

maintenance by eliminating the causes of trouble. In addition to the data given by the very complete records described above, he has recently instituted the practice of having monthly meetings of all carhouse and shop foremen. A large room has been fitted up especially for this purpose, and in connection with the conferences exhibits of defective equipment are studied. For example, if it is found that a certain type of motor gives trouble due to loose armature coils, the construction of the armature is studied in detail and suggestions are made as to how the coils may be kept tight. By having a number of experienced men concentrating attention on the matter the best conclusion is likely to be reached at once. This practice is very similar to that followed in large manufacturing organizations where committees of representatives from all departments concerned decide upon important details of manufacture. Mr. Dunlap states that already armature and other troubles are being cut down as a result of these meetings. Obviously, they serve not only for their intended purpose but also that of keeping up a spirit of sympathetic co-operation between the shop men and operating men. The men take a pride in having their suggestions considered, and if they are adopted this pride is greatly enhanced.

#### ALUMINUM UNDERGROUND CABLES IN EUROPE

The use of aluminum underground cables in Europe seems to be developing, according to E. d'Hoop, of the Brussels Tramways Company. Eight street railways say they have them in use, of which one employs aluminum cables only for high-tension alternating current. On the other hand, cable manufacturers mention numerous examples of the adoption of these cables for both high tension and low tension. The proportional area of the useful section of aluminum cables in comparison with copper cables of the same conductivity approximates 1.65. The useful section of cables used for low tension frequently exceeds 1000 sq. mm, the maximum mentioned reaching 1700 sq. mm. The Siemens-Schuckert firm reports the installation of an underground feeder, with a single aluminum conductor for a single-phase current at 60,000 volts, on the Muldenstein-Bitterfeld section of the Prussian State Railways. No practical drawbacks to the use of aluminum cables have been experienced. The making of the joints and connections, however, necessitates the exercise of special care, owing to the low conductivity of the oxide of aluminum which may form on the surfaces of the pieces to be connected. The ends to be joined should be cleaned most carefully, branch sleeves of large contact surface being used and the joint made as rapidly as possible so as to limit the effects of the air. The fear has been expressed that, owing to the greater capacity of aluminum cables, the increased effects of resonance may cause piercing of the insulation in case of a sharp break in the circuit, but so far nothing of the kind appears to have occurred with those companies which have these cables in use.

The opportunity of using aluminum cables, in comparison with copper, depends principally on pecuniary considerations and the relative market prices of the two metals. It is clear, however, that there is an advantage in using aluminum for large direct-current feeders. In some instances the economy thus secured exceeds 14 per cent. According to a formula worked out by the Copenhagen Tramways, the use of aluminum is advantageous when the price of aluminum in dollars per ton is lower by 10.10 times the price of copper, minus 145.5. This formula evidently assumes the parity of the price of lead, iron hooping and the other materials used in the manufacture of cables. Independently of the question of price, aluminum cables have the advantage in the case of very high tensions, when it is necessary to augment the section of the conductors in order to increase the dielectric rigidity.

# Arbitration of Operating Expense Charges in Cleveland

Proceedings Before a Board Composed of C. N. Duffy, A. B. du Pont and Judge John M. Killits, Appointed to Arbitrate Differences Between the Cleveland Railway and the City in Regard to the Allowances per Car Mile for Maintenance, Renewals and Depreciation and for Other Operating Expenses

The board of arbitrators in the Cleveland Railway case met in the Federal Building, Cleveland, on May 19, to consider the testimony bearing on the car-mile allowance for operating expenses and maintenance, depreciation and renewal charges. The three arbitrators composing the board are C. N. Duffy, vice-president and comptroller Milwaukee Electric Railway & Light Company; A. B. du Pont, engineer for the city street railroad commissioner of Cleveland, and Judge John M. Killits, of the United States Circuit Court, Toledo. In addition to the two main issues concerned, Mayor Baker of Cleveland asked that the board arbitrate several other questions.

OPENING STATEMENT OF H. J. CRAWFORD FOR THE COMPANY.

H. J. Crawford, of Squire, Sanders & Dempsey, made the opening statement in which he set forth the questions to be arbitrated as follows:

(A) Should the present allowance for operating expenses, as defined by the ordinance, be increased, and, if so, in what amount?

(B) Should the present allowance for maintenance, renewals and depreciation be increased, and, if so, in what amount?

The proceeding was started by a letter from the company to the City Council, written April 14, 1913, in which it was stated that the expense of repairs, renewals and replacements in the last three years had exceeded the allowances prescribed by the franchise for these purposes. These expenses have been ordered or authorized by the city street railroad commissioner and the Council. The company, therefore, requested that the allowance for these purposes be increased to an average per annum of 7 cents per car mile, to be charged to maintenance expense accounts at such varying rates during the twelve months as might seem to the Council or the commissioner to be proper.

It was also stated that the other expenses of operation had exceeded 11½ cents per car mile during the last year and would also exceed this amount, the company thought, during the coming year. The Council was therefore asked to increase the allowance to 12½ cents per car mile so as to enable the company "to meet the legitimate expenses of operation, insurance, accident and damage claims," "to make good any deficit" now existing and "to prevent any deficit" in the future on account of operating expenses.

This request was refused by the Council, and the company thereupon asked for an arbitration to determine the amounts per car mile that should be allowed, and named Mr. Duffy as its arbitrator. Mr. du Pont was appointed subsequently by the city. Judge Killits was appointed as the third arbitrator by Judge Day, of the United States Circuit Court, Cleveland.

Section 21 of the Tayler ordinance provides that the car-mile allowances may be increased or decreased from time to time by agreement between the city and the company. It also provides that the intent with regard to the sum authorized by Section 20 to be set aside for maintenance, depreciation and renewals is to enable the company to maintain, renew, replace, preserve and keep its railway system and property and all extensions, betterments and permanent improvements in good condition, repair and working order, being an average for the entire system of 70 per cent of its reproduction value.

Continuing, Mr. Crawford stated that the allowance fixed by the ordinance was ample for the conditions existing when the ordinance was passed, but that on May 1, 1910, the platform employees of the company requested an increase of wages. This was denied by the company, and under the agreement then existing between the company and the employees an arbitration resulted, the outcome of which was a decision by the arbitrators allowing a very substantial increase. The scale prevailing before the arbitration was as follows: First year, 23 cents per hour; second year, 25 cents; third year and thereafter, 26 cents. The award of the arbitrators fixed the scale at 27 cents per hour for all men in the employ of the company less than one year and 30 cents per hour for all who had been in the employ more than one year. The award was made on June 18, 1910, and became effective as of June 16, 1910, and thereafter the allowance had been insufficient to meet the actual operating expenses. Two days after the award the company sent a letter to the Council stating that the arbitration had been made in accordance with the provisions of the contract with the employees and that the resulting increase of about 15 per cent in wages rendered necessary an increase in the car-mile allowance for operating expenses. The city was asked to take the matter up at an early date. The Council, however, refused to make an increase in the allowance.

On Jan. 23, 1911, the company took the matter up with the Council again, stating that for the preceding four months the operating expenses per car mile had been as follows: September, 11.76 cents; October, 11.82 cents; November, 12.51 cents; December, 12.34 cents; average, 12.11 cents. The company therefore asked that the allowance be increased by 1 cent per car mile from Sept. 1, 1910, until the cost of operation indicated that it should be decreased or again increased.

On May 1, 1911, the Council passed a resolution authorizing an increase in the allowance for operating expenses from 11½ cents to 12½ cents per car mile from May 1, 1911, to Jan. 1, 1912, when the rate without further action by the Council should again become 11½ cents. The deficit in the operating fund on Jan. 1, 1911, was \$40,902. On Jan. 1, 1912, it had been reduced by reason of the increase to \$2,954. The company wrote to the city street railroad commissioner on Feb. 17, 1912, stating that the report for January showed that operating expenses had exceeded the allowance of 11½ cents per car mile by \$35,233. This created a deficit in the operating fund for the month of 1½ cents per car mile, and the company asked an increase sufficient to enable it to make good the deficit then existing in the fund and to prevent future deficits. The Council, by resolution adopted on March 11, 1912, denied the application. On Jan. 1, 1913, the deficit had increased to \$203,542, while on April 1, 1913, it amounted to \$286,834.

STATEMENT OF MAYOR BAKER FOR THE CITY

Mayor Newton D. Baker, in making an opening statement for the city, said that the contract could not be approached like any other street railway contract. It was a unique contract made by a disinterested arbitrator brought in originally by official relations to the property and the company, but the arbitrator had devoted far more effort than would spring from any official interest to give peace

to a community and establish a standard as a model to prevent disagreement. Ten years of conflict preceded the settlement.

The first proposition laid down by Judge Tayler in the settlement ordinance was that the people who had the money in the enterprise were entitled to have the integrity of the property preserved. The second was that, as the enterprise was no longer an experiment but was of assured stability and without speculative hazard, these people were entitled to a sure return limited in amount, but that they were not entitled to any speculative interest. The third proposition was that that was all the interest held by the people who had their money in the property. The only other question was that of service. After the financial interest, as outlined, was provided for, all the rest was a matter to be regulated by the people to be served.

Mr. Baker said that when the ordinance was drafted for submission to Judge Tayler two or three differences arose. It was seen to be necessary that the people should have some way of inspiring the company to render the best service, and that if the power to spend money without limit or regulation was granted the question of the rate of fare would be in the hands of those who controlled the company. F. H. Goff, who was an arbitrator in the first settlement between the company and the city, suggested that the expenditures of the company could be regulated by the insertion of an amount in the ordinance. Since the amount was subject to change, the actual figure inserted was regarded at the time as immaterial.

Mr. Baker said that, in addition to the main questions involved, the city wanted to have the board of arbitrators chart the future. It wanted to know whether the limits were arbitrary or whether they could be altered. It also desired to have some questions of accounting settled. It therefore raised the question of whether the company was willing to have these questions considered in the arbitration.

Mr. Crawford then said that it was entirely agreeable to the company to have the city submit the additional questions.

Mr. Baker then added that the city asserted that there was now in the interest fund \$700,000 or more, and this, if so, would lead automatically to a reduction in the rate of fare. Another question was based upon the assertion of the city that the company had no right to exceed the ordinance allowances for operating expenses, maintenance, depreciation and renewals. He also said that the company had no right to set up other reserve funds than those stipulated in the ordinance. Explaining this point, Mayor Baker said that any surplus unexpended for operating expenses should be placed to the credit of the interest fund. The company claimed that it had the right to take out of the allowance for operating expenses arbitrary sums per car mile and accumulate them in funds for damage claims and insurance, and at the end of the year had the right to carry these sums forward if not expended, and thus to augment the funds. The effect of this position of the company was that at present it had accumulated in the accident fund \$144,000 and in the insurance fund \$63,000.

Another question raised by Mayor Baker upon which the city wanted to have the arbitrators pass was that at the time of the sale of the property of one of the low-fare lines \$189,000 stock of the Cleveland Railway held by the Municipal Traction Company was placed in the name of Horace E. Andrews, as trustee, and had been so held from that time until now. Dividends had been paid regularly on this stock. In the judgment of the city, that was part of the capital assets of the company, and that stock, it maintained, should be sold and the proceeds applied to the capital account or to betterments which were not charged to the capital account. The dividends that had been paid on this stock, the city held, should be paid into the interest

fund. The books of the company also showed an account "surplus of old companies" and the city wanted a decision as to the proper disposition of this money.

Mayor Baker also said that the company had made a contract to buy power from the Cleveland Electric Illuminating Company. That led to the discontinuance of some minor power generating plants, and the company desired to scrap these and charge the proper sum to the maintenance, depreciation and renewals account in a single year. The power contract with the Illuminating company was to extend over a period of ten years, and as it was this contract which made possible the retirement of the generating plants, the city maintained that the company ought to extend the operation of retiring the value over the full period of ten years.

In concluding, Mayor Baker said that the city tried fighting the company for ten years, and it wanted now to try agreement for a while. It wanted to see if the company and the city could not get along better by agreement than by contest. The people wanted to have the integrity of the property assured. They wanted to have the dividend assured without diminution. They wanted the best service that could be given and wanted to pay what was necessary so that it could be furnished. For some years prior to this settlement it cost the company less than 11½ cents per car mile to operate its cars. For the last two or three years, according to the present method of operation, the costs, for some reason, had been higher, reaching almost 12 cents. The city had not the slightest objection to an allowance of 12 cents. If the maintenance charges were insufficient, the city wanted to make them sufficient. It was not approaching the issue with any spirit of contest but in an earnest desire to settle the questions.

#### ATTITUDE OF THE COMPANY TOWARD THE CITY

Mr. Crawford then made a short additional statement, calling attention to Section 47 of the ordinance, and stated that the record would show that the company had acceded to every request of the city in connection with the operation of the system. He said that the city reserved absolute control of the service of the company and that the company was obliged to give what service the city directed. The contention of the company was that it could make only such expenditures as were directed by the city and that every expenditure had been approved by the city. It only asked that the city pay the necessary cost for the service that the city required. The cost of service had increased since the ordinance became effective. If the wages of trainmen had not been increased, the amounts fixed in the ordinance would be adequate now. This proceeding was brought to secure again the allowance of 12½ cents per car mile which the Council gave once but withdrew. The company asked for no strained construction of the ordinance but simply for an interpretation that would carry out the spirit of the contract.

Mayor Baker said that while the contract of the company with its employees was not superior to the contract with the city, the city did not now object to the wages paid to motormen and conductors.

Mr. Crawford, in introducing the records bearing on the history of the case, quoted from a letter written by G. M. Dahl, former city street railroad commissioner, to the company on March 8, 1910, directing the company to continue the same system of accounts that had been used during the receivership of the property and the brief control of the Municipal Traction Company. A letter from H. J. Davies, secretary of the company, written to Mr. Dahl on March 14, 1910, said that in so far as the system of bookkeeping which had been in operation during the receivership of the Municipal Traction Company conformed to the system of the American Street & Interurban Railway Accountants' Association it would be continued, of course, because the ordinance required that the books be kept in



the manner prescribed by that association. If the receivership method of accounting contained anything additional to the association's plan that seemed either to Mr. Dahl or to the company to be good, it would continue that also.

Mr. Crawford showed that as late as 1911 a committee of the Council was advised that the company was setting funds aside out of operating expenses for damage claims and insurance.

#### DISCUSSION ON ACCIDENT RESERVE FUND

On May 20 Henry J. Davies, secretary and treasurer Cleveland Railway, presented Table I, showing operating expenses and wages of passenger conductors and motormen per car mile during the ten months beginning March 1, 1910.

Months	Operating Expenses	Wages of Passenger Conductors and Motormen
March .....	11.03	5.65
April .....	11.27	5.69
May .....	11.12	5.67
June .....	11.62	6.15
July .....	11.72	6.54
August .....	11.76	6.56
September .....	12.00	6.61
October .....	12.00	6.67
November .....	12.64	6.67
December .....	12.43	6.65

An increase in wages of trainmen became effective on June 16, 1910, and this change accounted for the increase in operating expenses per car mile in the following months. The average operating expenses for the entire year of 1911, Mr. Davies testified, were 12.07 cents, and the wages of passenger trainmen were 6.68 cents per car mile. These figures for the entire year 1912 were respectively 12.19 cents and 7.71 cents. During the first three months of 1913 the figures were respectively 12.69 cents and 6.47 cents. Mr. Davies thought that the costs would not be as high for the rest of the year 1913, as a smaller number of car miles would be run and there were operating expenses in the winter months that did not have to be met in the summer, such as those for the heating of cars.

Mr. Davies testified that the city street railroad commissioner, representing the city, received the same detailed monthly report as the directors of the company. The commissioner also received a daily report of earnings and of car miles run and special reports on other subjects from time to time, also duplicates of all vouchers, including those covering receipts, payments and journal entries. Mr. Davies went into details concerning the charges to operating expense accounts for the accident and reserve funds. He said that the purpose of the accident reserve was to provide for the liabilities as the liabilities accrued and the accidents occurred. The company charged 0.8 cent per car mile each month on account of accidents, and the sums so determined were carried to a reserve account, against which all expenditures were charged. This was done because, in his judgment, it was not only permitted but required by the franchise itself. Under Section 15 of the franchise the company was obliged to keep in its office, open to inspection, accurate accounts of all moneys expended and of all liabilities incurred in the operation of its property. Among the liabilities were liabilities on account of accidents. The liability arose as soon as the accident happened, if there was a liability. Another reason for setting up that reserve was that the company had received instructions from the city street railroad commissioner in March, 1910, a few days after his appointment, to put in force the system of accounting that had been in use and in effect during the receivership. That system had been approved by Judge Tayler, who drafted the ordinance or a part of it, and included an accident reserve. The receivers continued the system that had been in effect during the operation of the railroad by the Municipal Traction Company, that company also setting up an accident reserve. That practice had also been followed by

the Cleveland Electric Railway Company before the lease of its property to the Municipal Traction Company.

Judge Killits asked if the city objected to this practice.

Mr. Baker said that the city was not objecting to the practice within the periods. It objected to the carrying of the balances over, and it did not concede that the appropriate amount was set aside each time.

Mr. Crawford said the company was always willing to discuss the amount. It might be too great or too small. It was the principle for which the company was contending. The ordinance referred to "any surplus" in the hands of the company "remaining unexpended" at the end of each year. There was no surplus unless there was a reserve great enough to take care of the contingent unliquidated liabilities of that year. There had been an intelligent attempt to determine what would represent the unliquidated liabilities, and it had been found by experience that 0.8 cent per car mile was too low, if anything, and in April the company had paid out 0.86 cent. The amount now in the fund was only \$144,000 to meet all unsettled obligations since March 1, 1910. All accidents that happened prior to March 1, 1910, by the express provisions of the ordinance, were capitalized. He added that the company was not standing for any arbitrary amount. It was standing for the principle of a reserve to care for the unliquidated liabilities. In March, 1910, the first month under the new ordinance, the company paid only 0.2 cent per car mile, and that represented largely the expenses of the claim department. At the close of the year 1912, however, suits aggregating \$600,000 were outstanding in the courts.

In answer to a question from Mr. Duffy, Mr. Crawford said that suits against the company could be brought within four to six years of the time of accident, or, in the case of a minor, at any time up to the age of maturity.

The accident expenses during the period of control by the Municipal Traction Company were 0.96 cent per car mile, while during the receivership they amounted to 0.87 cent per car mile. The interests of the company and the city were absolutely identical in this matter. The whole theory of the account was that there should be taken from the earnings a sufficient amount to pay the expenses in every year. There could be no surplus until the expenses were paid. If the amount reserved was too high, the stockholders could not have the balance; it was part of the property. If provision was not made for the contingent liabilities, the property was impaired. Failure to provide for these liabilities would be a falsification of the books.

Mayor Baker made an extended argument in reply on behalf of the city, contending that the ordinance did not provide specifically for a reserve fund of this nature. He said that those who drafted the ordinance were perfectly familiar with all the conditions of street railway operation and that they made a definite provision for certain funds. If they had desired to make a reservation for damages, they knew how to do it. The amount involved was relatively small. On Jan. 12, 1913, John J. Stanley, president of the company, wrote the City Council that the claim department estimated that the losses and claims outstanding could be settled for about \$60,000, but that Mr. Davies thought this amount was low. With a total of 28,000,000 car miles run per year, an increase in operating expenses of 1 cent per car mile would mean \$280,000, so that if there should be a catastrophe, such as that which occurred when a car went through an open draw, through no fault of the company Mr. Baker understood, the intent of the ordinance was that the company should go to the Council and say that while the amount was enough under ordinary conditions, it was not enough in such an emergency. The car riders must pay the cost. The ordinance required that the balance should be transferred to the interest fund.

Mr. Crawford said that it was perfectly natural for the claim department to underestimate the amount for which

outstanding cases could be settled. In December last the amount in the fund was \$150,000, and it was smaller now than then. One accident some years ago cost \$90,000. If the reserve fund was transferred to the interest fund, the company had not provided for its liabilities. He did not care what the amount was so long as it was of a reasonable size to provide for the liabilities.

Mr. Davies, testifying further, said that the ordinance set forth that a balance sheet should be prepared. To fail to set up all liabilities was to represent to stockholders and future investors that the property of the company was sufficient to meet all liabilities. If the reserve for accident expenses was wiped out at the end of every year, the balance sheet would be false. The effect of such a course would be to make the car riders of the future pay for the accidents of to-day. An accident might grow out of causes that preceded it. The only right way to provide for accidents, and the ordinance required that provision be made for this expense, was to set up a reserve. In the trial balance certain prepaid accounts were shown, such as for water rent. There was no express provision in the ordinance for setting up prepaid accounts, but it would not be proper to charge the cost of prepaid water rent against the operations of only one month. There was less authority under the ordinance for setting up prepaid accounts than for maintaining a reserve fund for damages.

Mr. Davies said that in the three calendar years 1910, 1911 and 1912 the company had more than 42,000 reports of accidents and 9769 claims were presented for those three years. Of those claims 6900 were settled; that is to say, out of the 42,000 accidents settlements had been made of about one-sixth. Of course the number of claims would increase as the years passed. Last year there were 13,650 accidents, 3183 claims and 2340 settlements. Most claims were pressed promptly, but often serious ones were delayed, and some suits had been filed on the last day before the statute of limitations would apply. Most other companies set up as a reserve a percentage of their gross receipts, but the 0.8 cent per car mile in Cleveland was not nearly as much as the 4 or 5 per cent of the gross receipts that other companies set up.

#### INSURANCE RESERVE

At the afternoon session on May 20 Mr. Davies described the insurance reserve, which amounted now to about \$63,000. The company had been charging to operating expenses and crediting to insurance reserve \$4,500 each month to provide for fire, fidelity, burglary and hold-up insurance. The \$4,500 was to pay premiums, but the reserve above the actual amount expended was to provide for insurance not covered by the policies. The company carried on cars full value, on all buildings 80 per cent of the value, on all electrical machinery and power houses, Mr. Davies thought, 90 per cent of the value. The insurance reserve was to take care of these differences and the possibility of an insufficient amount of insurance in some locality.

The deficit in the operating expense account on Feb. 28, 1913, was \$259,592. This covered the entire period of the ordinance. Mr. Davies outlined the difference between maintenance or renewals and depreciation and said that in Cleveland, according to the ordinance, all three had to be provided from substantially 5 cents a car mile. That reserve had been over-spent. On Feb. 28, 1913, there was a deficit in the reserve of \$323,597. On March 31, 1913, the deficit was \$349,462.

The company submitted to the city street railroad commissioner and through him to the City Council a statement of renewals that it thought ought to be made with estimates of their cost. If he approved them, he asked the Council to approve. Mr. Davies thought that in all such cases the Council had required the renewal to be made and the cost to be charged to betterments and to the maintenance, renewal and depreciation reserve in proper pro-

portions. These proportions were determined by consultation between the commissioner and the company or its engineers after the work was finished. Since the ordinance had been amended not merely renewals but ordinary maintenance charges were approved by the commissioner and the Council. The recollection of Mr. Davies was that the Council gave the commissioner authority to approve maintenance expenses up to the amount of \$5,000 without going to the Council. Charges were made for depreciation when property had been worn out, abandoned, sold or gone out of use. The reproduction value of those items of property was charged against the maintenance, renewal and depreciation reserve and the property account on the books reduced by the amount of charges to reserve. The company was about to face the necessity of some charges due to the abandonment of its power equipment as the result of a contract made last year with the Cleveland Electric Illuminating Company for the purchase of power.

Mr. Crawford said that one of the questions which the city asked to be arbitrated was how the \$800,000 value of these abandoned steam plants should be charged off. This was not a renewal or replacement. It was the scrapping of a plant. The city had not realized the necessity of putting the plants out of commission and had helped the company to make its contract.

Mr. Davies said that the power equipment did not stand on the books at \$800,000 but at the value placed upon it by Judge Tayler. The company proposed to write off this equipment at its reproduction cost, less its scrap value, in accordance with Section 27 of the ordinance. The witness also expressed the opinion that to provide for the deficit now existing and for the needs of the immediate future the operating allowance per car mile should be increased 1 cent. If the company could operate on 11½ cents and run 28,000,000 or 29,000,000 car miles a year, the present deficit of \$286,000 might be wiped out in about a year. If, however, it cost 12 cents to operate, as the indications were that it would, about two years would be required. The increase per car mile for the maintenance, renewal and depreciation account to take care of the deficit and care for the immediate future, in the opinion of Mr. Davies, should be 2 cents per car mile. As the deficit was \$349,000, this increase would wipe out the deficit in a little more than half a year, exclusive of the value of the abandoned power plant.

Mr. Davies thought that the property of the company, barring the sudden depreciation of the power plants, was in fully as good condition, judged as a whole, as on March 1, 1910. He thought, however, that 5 cents per car mile was not sufficient to keep the property in good state of repair, even in the 70 per cent condition contemplated by the ordinance, and to provide also for the depreciation that was going on all the time.

Judge Killits asked if this had not been done in the last three years. The witness said that the company had nothing left to pay for depreciation. All of the money had been spent for maintaining and renewing the property. Thus no provision had been made for the depreciation of the property added since March 1, 1910, from the sale of bonds or capital stock and for that which would be added from now until the termination of the grant or any renewal of it. The ordinance provided that the company should make such extensions, additions and permanent improvements as the Council might order or approve and that the company might sell capital stock or bonds to get funds to provide for and make these extensions, betterments and permanent improvements. It was assumed, therefore, necessarily that the capital issued for that purpose would be exactly equal to the cost of the new property, but one section of the ordinance seemed to contemplate that that property, as well as the property that the company acquired on March 1, 1910, should be maintained in such a condition that it would be worth 70 per cent of its cost, and Mr.

Davies found no provision in the ordinance for taking care of the depreciation on that property down to the average condition in which the property had to be kept.

Mr. Baker said that the only provision on that subject was the reserved right of the municipality of recapture at 110, either during the continuance of the grant or at the end. Mr. Davies replied that that might be sufficient if the city exercised its option before the expiration of the present grant.

Mr. Duffy asked if the purchase of the property then would protect the 30 per cent. The witness said it would if the property were bought at the end of the present grant, but the purchaser then would be 30 per cent shy of his investment, having paid 100 per cent.

Mr. Baker said that the terms of the franchise included the accumulated surplus as a part of the property. After the first ten years of operation under the ordinance the company was permitted to put the highest rate of fare into effect and keep it there for fifteen years, and when the Chamber of Commerce committee asked Mr. Davies to work out his estimate of what the company would be able to make under these conditions, he showed that by increasing the number of fares 4 per cent per year compounded—8 per cent had been the history of the company's increase—with the gross earnings at 4.15 cents per fare, the maximum rate in the ordinance, and the operating and maintenance expenses, taxes and interest at 3.64 cents per fare, there would be a surplus of 0.51 cent on each fare, or at the end of the grant of twenty-five years, 1934, a surplus in money of \$25,436,000.

Replying, Mr. Davies said that, assuming that extensions and betterments had been added that cost \$1,000,000 a year and were capitalized at \$1,000,000, and assuming that the company was permitted to maintain that property in such a condition that its value would be but 70 per cent of its cost, there was a depreciation unprovided for in the ordinance in round numbers of 30 per cent of the cost, which, on \$1,000,000, would be \$300,000, or if that should continue for ten years it would be \$3,000,000. He did not remember whether the Chamber of Commerce committee gave him the basis on which to make the figures, or whether it asked him to assume a basis of his own and make the figures, but he stated after submitting the table mentioned by Mayor Baker that he did not feel like dignifying it by calling it even an estimate. He thought he spoke of it as rather a guess, and he did not think it was entitled to very much weight with the committee. He thought he pointed out that if Cleveland increased in population at the rate assumed in the table, and if the fares increased in the ratio of population, they would both be enormous in twenty-five years.

After cross-examination on the subject of the extent of the control permitted the city street railroad commissioner under the ordinance, Mr. Davies said he thought that every dollar that was expended for operating expenses was subject to the approval of the commissioner. Certainly, the company gave him the opportunity to have knowledge of it.

#### INSURANCE CARRIED

At the morning session on May 25 the examination of Mr. Davies was continued.

Mr. Davies said that the company was the first that had nearly all of its property insured by the factory mutual companies, and they took the property because the car-houses had been protected with automatic sprinklers and the car yards with monitor nozzle equipment. Part of the protective devices had been put in since the ordinance went into effect and had been authorized by the Council as betterments.

Neither the accident nor the insurance reserve funds were held in cash or were invested, but both had either been spent for betterments or used as working capital.

Amplifying his testimony of the previous day, Mr. Davies said he wanted to make it clear that the company had over-

expended the maintenance, renewal and depreciation reserve in the past three years. There was what was called in the ordinance a deficit in the maintenance, renewal and depreciation reserve of substantially \$350,000. That represented an amount that was spent for maintenance and renewal in excess of the 5 cents per car mile. The expenditures per car mile for maintenance and renewals in the past three years had amounted to 5.32 cents per car mile. That did not include the large depreciation on power plants which ought to be taken care of this year. That would raise the amount of expenditures or add to the maintenance expense a little more than 6 cents per car mile. The depreciation on the power plants would amount to 1 cent a car mile on the car miles of the past three years.

The insurance reserve ought to be sufficient to protect the company against loss or to reimburse it for any loss that might occur in a single fire, and that would be in the neighborhood of \$250,000 or \$300,000. With that reserve or a reserve a little larger than that, the company could, if it chose to do so, carry no insurance at all with insurance companies, but carry its own insurance.

The increase in the maintenance allowance ought to be continued until the retirement of the power plants was accomplished and possibly for a longer time than that, until the experience of the company in the matter of maintenance and renewal and depreciation should indicate that the amount of the new allowance was too large and might be safely reduced.

Mayor Baker asked various questions bearing on the maintenance, renewal and depreciation fund and the provision in the ordinance relating to a 70 per cent condition of the property. Mr. Davies testified that he understood that the property should be kept in a condition at least as good as 70 per cent, but that the city might ask for a reduction in the maintenance allowance if its condition exceeded 70 per cent. There were provisions in the ordinance by which the city might acquire the property at a fixed price. If the condition of the property was better than 70 per cent of its cost, the city for that fixed price would get a property whose physical value was nearer to the price the city would have to pay than if the condition of the property were but 60 per cent or even 70 per cent of its cost. It was not possible to keep any property at a 100 per cent condition, but there was a point below 100 per cent where the maximum use could be obtained.

In reply to a question by Mr. du Pont, Mr. Davies said that no interest was charged for the use of the amount in the maintenance fund for other general purposes of the company. He thought that a reserve for renewal or depreciation should not be kept in cash and that it would not be efficient management to have it in the bank even at 4 per cent interest.

Mr. Davies also said that there seemed to be a difference in the instructions of the classification of accounts between the account for insurance expense and the account for accident expense. In regard to insurance there was a provision that if the company carried any part of its own insurance or the whole it ought to provide for it by a reserve. In the instructions in regard to injuries and damage accounts there was a provision that, if the company desired, it might set up a reserve. If the company were operating under its own franchise and the city had no supervision, it would have been the desire of the company to set up such a reserve. Whether it could do so without conferring with the city might be a question, but as soon as the company came into possession of the property under the ordinance Mr. Dahl, city street railroad commissioner, expressed to the company a desire that it keep the accounts as they had been kept under Receiver Bicknell and that involved the retention of the accident reserve account.

A report of the continuation of the hearing will be published later.

# Illinois Traction System's Freight House at Springfield, Ill.

The Terminal Facilities for the Electric Railway's Freight and Express Business at Springfield Have Been Developed from a Remodeled Store in the Business District to a Large Building Specially Remodeled and Equipped with Every Facility

A positive sign of the healthy increase in traffic on electric railways is the continual demand for larger terminal facilities. This is especially applicable to the Illinois Traction System since it passed from the constructive stage to that of operation. Up to 1909 the energies of the management were largely directed to building new lines. Following that year a close study of the existing property was made with a view toward improvements providing greater economy in operation. New and heavier equipment has been purchased, sidings have been extended to accommodate longer trains, additional feeders and substations have been installed, and greatly increased track and freight-house capacity has been built at practically all the important stations.

The additions to terminal facilities were necessary particularly on account of the increase in freight and express

came evident that additional facilities were absolutely necessary if the company expected to handle the normal increase in traffic. The addition to the facilities which was made at that time more than quadrupled the original ground area and included a new passenger station and running repair shop with traffic facilities for both, as well as storage tracks for carload freight and held-over equipment. The new arrangement permitted the turning over of the old track and buildings which had been used for both passenger and freight traffic to the latter department for its sole use. It was evident at that time, however, that additional freight facilities would have to be acquired within a short time, and with this in view the traffic department kept on the lookout for a new location.

In 1911 information was received that the planing mill which occupied a large building across Ninth Street from



Springfield Freight House—View Showing Entrance Doorways and Receiving Platform

traffic. In fact, the situation at each point limited the volume of business handled, and the only way to show a gain in the gross was to enlarge the freight houses and to install a greater house-track capacity.

The present Springfield terminal is located within three blocks of the heart of the wholesale and retail districts and may be approached by way of paved streets from any direction. This central location as well as the quick deliveries which it permits is largely responsible for the increase of traffic at this point. The first station in Springfield consisted of a remodeled storeroom in the business district. This was soon outgrown and a plot of ground 120 ft. x 158 ft. in size was leased at the corner of Eighth and Monroe Streets, the present terminal location. Here, too, a store building was remodeled for a passenger station, but there was still sufficient room on the property to provide a loading platform and a small freight house. As the latter class of traffic grew, additions were made to the platform area from time to time, and it finally became necessary to remodel a building which had been used as a running repair shop to obtain additional freight-house space.

This arrangement served from 1905 to 1908, when it be-

the existing terminal property had outgrown its quarters and was considering moving. The location of this building as well as its arrangement made it very desirable for freight-house purposes. At about the close of that year a long-term lease was obtained upon the building together with a lot fronting on Monroe Street which provided an approach. The building was of brick construction, two stories in height and 90 ft. x 158 ft. in plan. After a careful survey of the property it was found that three tracks could be laid inside the building, which would provide space for eight cars, and with a small amount of switching it was possible to double this capacity.

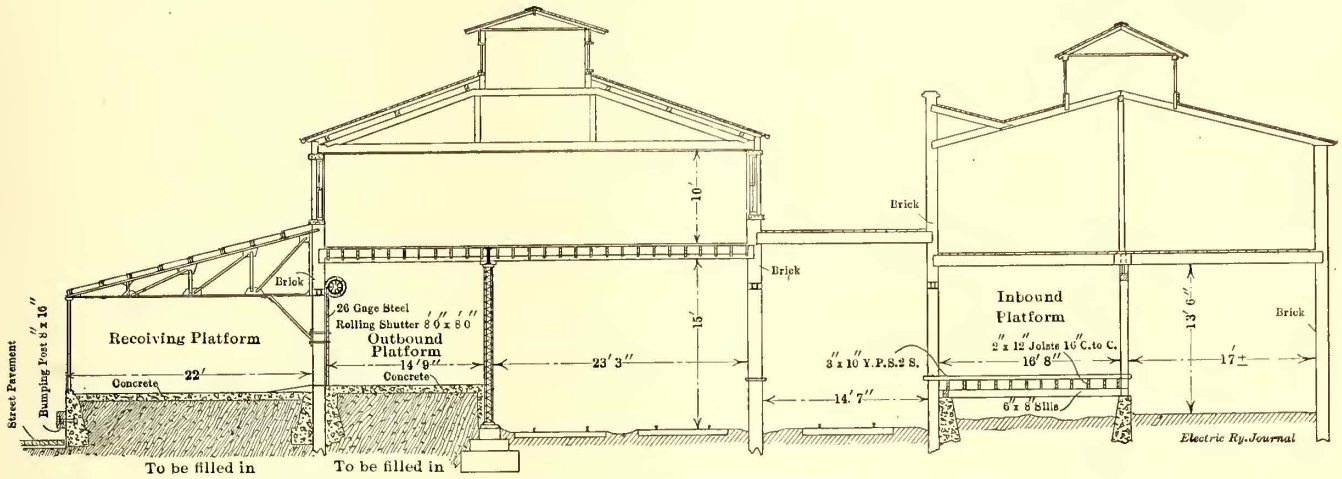
The work of remodeling the old buildings included the removal of cross partitions and rearranging the columns which supported the second floor. It was also necessary to brick up a number of windows, cut new openings for freight-receiving doors on Ninth Street and remove portions of the partitions between the different sections of the building. A plan and section of the remodeled building are shown in the illustrations.

The freight-receiving platform is located on the Ninth Street side. A permit has been obtained from the city which authorizes the construction of the receiving platform

on the sidewalk area, thus allowing trucks to be unloaded from the street pavement. By providing a canopy over this platform it is protected from the weather and made available for temporary storage purposes. The receiving platform inside the building is provided with a small office for freight checkers and weighers, and a 6-ton platform scale is situated just outside so that the beam can be extended

the front and rear of the building was provided adjoining the inbound platform. A sliding door at each end of this driveway permits this section of the building to be inclosed at night.

Access to the second floor, which has been divided into office space for the different operating department heads, is effected by way of a stairway at the corner of Adams and



Springfield Freight House—Cross-Section Through Building, Showing Platforms and Tracks

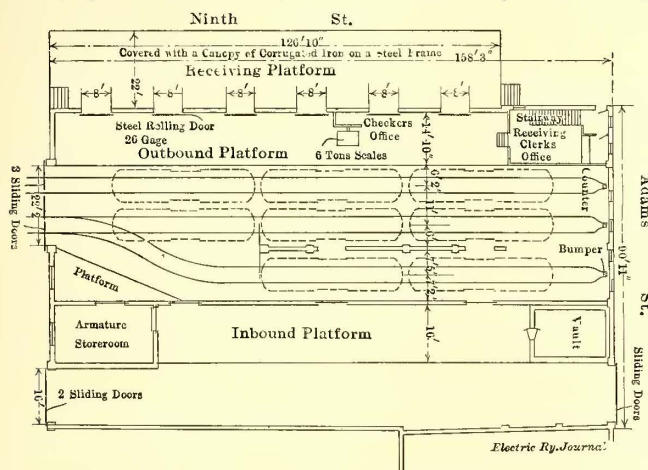
into the office. Six openings 8 ft. square and provided with rolling steel doors are so spaced as to offer as slight a hindrance to truckers in passing from the team side of the platform to the cars as possible. Three large sliding doors inclose the track entrance at night, offering protection to hold-over freight.

As the inbound freight is of considerably smaller volume than the outbound, it was unnecessary to provide a platform area for the former equal to that required for the latter. Although this arrangement permits only two cars to unload directly on the inbound freight platforms, the cars are set so that the doors are exactly opposite and aprons may be used in trucking between cars on each of the three tracks. The inbound platform is of timber construction, 15 ft. wide by 108 ft. long. The building at one end of this platform is occupied by an armature storeroom, 29 x 16 ft. in size, which is utilized by the running

Ninth Streets. This same entrance also serves as a means of access to the local freight agent's office, which is situated at one end of the platform used for receiving inbound freight.

Seventeen office rooms are provided on the second floor over the Ninth Street section of the building and along the Adams Street front. Heretofore the operating officials of the interurban railway have been located in different buildings at the Springfield terminal, and some of them have had their offices in Decatur and Champaign, Ill. This new arrangement offers quarters for the whole operating staff at Springfield and will greatly facilitate intercourse between the different departments.

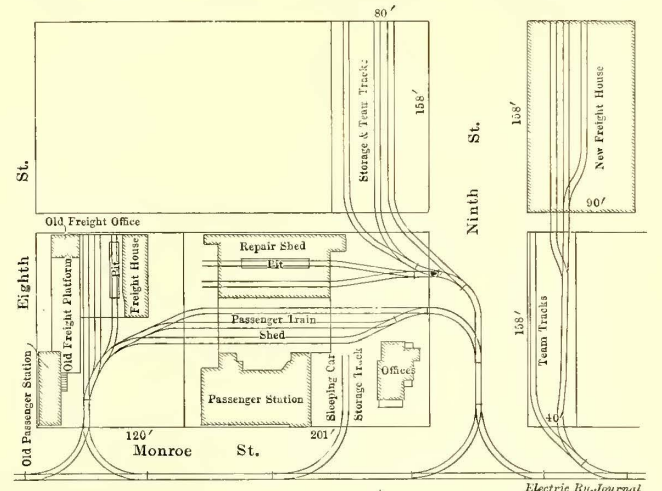
The plans and specifications for remodeling the building were prepared by the track and roadway department of the Illinois Traction System under the supervision of L. B.



Springfield Freight House—Floor Plan of Building, Showing General Arrangement

repair department at this terminal. A space, 13 x 20 ft., at the opposite end of the platform is inclosed by a 15-in. solid concrete wall which extends from the ground level to the ceiling on the second floor. This serves as fireproof storage space for the records of the traffic, land and claim departments.

A driveway, 16 ft. in width, with an entrance at both



Springfield Freight House—Ground Plan of Terminal, Showing Location of Buildings

Martin, engineer maintenance of way, and the actual work of remodeling was done by the owner of the building, from whom the company has obtained a long-term lease. The whole improvement represents an expenditure of approximately \$15,000, which is considerably under that which would have been required if it had been necessary to build a new building.

# Discussion on Steam Railroad Electrification

The Annual Meeting of the American Institute of Electrical Engineers Held on May 20—Two Papers Were Read Dealing with Economies Effected by Electrification Under Conditions of Light Traffic

At the annual meeting of the society held on May 20 a paper entitled "Trunk Line Electrification" was read before the American Institute of Electrical Engineers by Charles P. Kahler. He outlined the steam railroad conditions in the West and gave an idea of some of the results which would occur with electric operation of the steam railroads. One important point brought out was the characteristic of the electric locomotive to operate on overload for short periods and thus be able to haul heavier freight trains over the undulating grades on most steam railroads than was possible with a steam locomotive. Data were given showing the distribution of steam railroad engine service and that it was possible to keep a steam locomotive in service only a small portion of its time. This was not the case with electric locomotives, which had no fire-boxes or boilers to be cleaned and otherwise cared for.

In an example taken, it was shown that only about half as many locomotives would be required to handle a given traffic by electric operation as by steam operation. The line was 467 miles in length and divided into three engine districts. The grades averaged 18 ft. to the mile. The electrical equipment was based upon the use of the 11,000-volt, fifteen-cycle, single-phase system. The equipment necessary with steam was 140 locomotives. With electricity it was sixty-four locomotives and fourteen motor cars. The cost of electrification was \$9,972,000 exclusive of the credit for the steam equipment, which, at 70 per cent of new value, was credited at \$2,012,000, making the net cost of the electrical equipment \$7,960,000. Maintenance of equipment per annum was charged for steam operation at \$1,025,879 and for electrical equipment at \$619,041, and the total operating expenses showed a saving of \$940,000 by the substitution of electricity.

While the financial showing made for electric operation was good, attention was called to the fact that the most important objection to the electrification of steam railroads was the heavy first cost. It was also shown that the purchase of power from central station power companies and co-operation with them in the matter of building high-tension transmission lines would considerably reduce the first cost of electrification.

PAPER BY MR. HOBART

H. M. Hobart, of the General Electric Company, also read a paper on 2400-volt railway electrification. It was largely a comparison of costs of steam and electric equipment for a hypothetical case of a mountain division 96 miles in length. The cost per 100 ton miles with steam was 18.1 cents and with electricity was 11.6 cents. Mr. Hobart also pointed out the decreasing tendency in such undertakings to consider an independent power plant necessary for an electrified division. The power requirements of a railway were such that energy could usually be purchased more cheaply than it could be generated. In consequence, railroad companies need concern themselves only with the rolling stock and the distribution system. The author also pointed out the relatively small amounts of power required in railway operation and illustrated this point by reference to the Butte, Anaconda & Pacific Railway, which was electrifying 90 miles of track with the 2400-volt system. The equipment comprised fifteen freight locomotives and two passenger locomotives, each locomotive weighing about 80 tons.

Although the undertaking involves the transportation annually of 5,000,000 tons of ore over a distance of some 26 miles, the energy consumption annually will be less than 20,000,000 kw-hr.

## DISCUSSION

The discussion was opened by F. J. Sprague, who as chairman of the railway committee acted as chairman of the session. He called attention to the fact that although the authors of the papers had approached the problem of electrification from widely different standpoints, they had reached somewhat the same conclusion. He himself considered electrification under the fifteen-cycle, single-phase system and under conditions which had never been made commercial in this country somewhat doubtful in practice, as it was hardly likely that any commercial power station would supply fifteen-cycle current except through the introduction of frequency changers. This would place the proposed system on a parity with direct-current operation without its advantages. Mr. Sprague referred to a written communication regarding the possibilities of electrification on the Pacific Coast, citing a case in which it had been shown that a mountain division of a Western railroad could have been electrified with marked improvement to its service and a great promise of financial return.

A. H. Armstrong, General Electric Company, said that since the investments in railroads which were made at the present time were not based as much upon the traffic of to-day as upon the traffic which later would develop, so the electrification of steam railroads should be considered with a view to the traffic of five, ten or even fifty years from the present time. No system of electrification should be handicapped by reason of the meager tonnage existing, and it was also necessary to consider the possibility of commercializing various new devices which might make possible systems not hitherto commercially practicable. He then spoke of the work which was being done in the development of the mercury-arc rectifier, which had grown from a glass tube having a capacity of 10 kw or 15 kw into a steel device capable of handling 1000 kw or more. There was, in fact, no apparent maximum to the capacity of this type of apparatus. If the development of the rectifier was to influence electrification, the direct-current locomotive was pre-eminently the locomotive of the future. With a rectifier mounted on the locomotive there was provided a better, more reliable and more powerful machine than the equivalent equipped for straight single-phase operation. Rectifiers could, he said, be installed in substations, replacing the rotary converter. The question of location depended upon the volume of traffic, and he considered that the natural place for the rectifier was not on the locomotive using a single-phase trolley but in the substation, thus cheapening the latter and increasing its efficiency some 4 or 5 per cent. This arrangement would soon be used with a certain 2400-volt d.c. system. It was a grave question whether the single-phase trolley locomotive and rectifier could, on account of complication, telephone and telegraph disturbances and the like, compare in first cost of the complete system and in general reliability with the high-voltage d.c. system using a rectifier in the substation itself. When the 2400-volt electrification of the Butte, Anaconda & Pacific had been planned it had been considered desirable to see what could be done with still higher d.c. potentials, and 5000-volt d.c. apparatus had been designed, built and tested with gratifying results. In closing, Mr. Armstrong said that one of the locomotives for the above-mentioned line had been equipped with a 1000-kw rectifier as an experiment and that it had afforded a satisfactory showing.

The next speaker was F. E. Wynne, Westinghouse Electric & Manufacturing Company, who took exception to

some of the details given in both of the papers, saying that the over-all figures given for efficiency between power house and line—namely, 89 per cent for general train service and 78 per cent for express train service—should be decreased from 7 to 10 per cent. He also said that a daily mileage of 44 for a Mallet locomotive was hardly high enough. His records, which were averaged over periods of more than one year, showed a minimum of 48 miles and a maximum of 75 miles, including one month out of service for general overhauling. He thought that the total number of electric locomotives specified for the 96-mile electrification was very high as it reduced the average mileage per locomotive to 75 or 80.

E. R. Hill, of Gibbs & Hill, expressed his gratification at the logical manner in which electrifications were being carried out. His firm, he said, had had occasion to figure on a number of mountain-grade electrifications, and in general the substitution of electricity had made a very satisfactory showing, not only through economical operation but also through increasing the speed and reliability of the service and thus improving the earning power of the property.

W. S. Murray, New Haven, said that it was necessary to place a territory upon a proper steam basis before the matter of its electrification should be taken up, as certain local conditions were often improperly handled by the steam roads when the question of electrification was brought up. It was possible, he said, that steam locomotives of the future might be of a totally different character and that oil burners and automatic stokers might make it difficult for electrical engineers to prove their case.

A. H. Babcock, Southern Pacific Railway, in a written communication, said that generalization with reference to trunk line electrification was extremely dangerous. On the Pacific Coast he had found that the saving due to electrification was by no means enormous and would not defray, except after the expiration of many years, the cost of the substitution. Power companies were by no means prepared to furnish electric current at competitive prices, and with the fuel oil on the Pacific Coast at the ordinary market rates of 70 to 80 cents a barrel an energy rate greater than 5 mills per kw-hr. was utterly prohibitive. Moreover, he said, the annual load factor, although given in one of the papers as 60 per cent as a minimum, seldom rose above 20 per cent as a matter of fact. As a rule, the total energy charge could be wiped out of the annual statement without making a material difference in the conclusions, so small a part did it play in the annual operating cost when the fixed charges and other elements of operating expense were taken properly into account. In conclusion, he said that since his experience has been confined exclusively to the Pacific Coast, he could not attempt to generalize without exposing himself to embarrassment.

F. W. Carter, London, in a written communication, called attention to the omission from the papers of the consideration of power used in accelerating after stops. He said also that insufficient regard had been given to the limitations which the traffic department might impose. The average weight of train had been given as 80 per cent of the maximum, but since very many light trains would certainly go forward at the instance of the traffic department without reference to the ultimate capacity of the locomotive, the number of freight trains in actual service at any time would be nearly as great with electric operation as with steam. He also took exception to the costs for maintenance of single-phase locomotives, saying that the single-phase electrical equipment had been found to cost approximately three times as much as for corresponding direct-current equipment.

A written discussion submitted by H. Y. Hall and G. W. Welch took up in detail the costs of installation, operation and maintenance given in both papers, based on Western conditions, finding in general that an insufficient allowance

for first cost and maintenance had been made. In both papers a favorable showing for a very general case had been made, but if the same figures had been applied to any of the concrete cases known to the writers they would have resulted in disappointment to the investors. In addition to using unduly low costs for overhead construction and substation equipment and reducing electric operating costs correspondingly, the papers had considered steam locomotives only two-thirds as powerful as those now in regular service, and these comparatively small steam locomotives had been priced at approximately the same figure paid for the largest type ever built. The estimated steam operating costs were correspondingly high, and, in general, the costs of steam operation had been magnified while the costs of electric operation had been to some extent minimized.

#### ELECTION OF OFFICERS

Prior to the technical discussion the regular annual meeting of the Institute was held and the report of the election of Institute officers was made. C. O. Mailloux was reported by the tellers to have received the largest number of votes for that office and was, in consequence, declared elected as president of the society.

### AMERICAN RAILWAY ENGINEERING COMMITTEE ON ELECTRICITY

The following members of the committee on electricity of the American Railway Engineering Association have been appointed to serve for the current year:

George W. Kittredge (chairman), chief engineer New York Central & Hudson River Railroad; J. B. Austin, Jr. (vice-chairman), superintendent Long Island Railroad; D. J. Brumley, engineer maintenance of way Illinois Central Railroad; R. D. Coombs, consulting engineer, New York; A. O. Cunningham, chief engineer Wabash Railroad; L. C. Fritch, chief engineer Chicago Great Western Railroad; George Gibbs, chief engineer electric traction Long Island Railroad, consulting electrical engineer Pennsylvania Railroad; G. A. Harwood, chief engineer electric zone improvements New York Central & Hudson River Railroad; E. B. Katté, chief engineer electric traction New York Central & Hudson River Railroad; C. E. Lindsay, division engineer New York Central & Hudson River Railroad; W. S. Murray, consulting engineer, New Haven, Conn.; A. F. Robinson, bridge engineer Atchison, Topeka & Santa Fé Railway System; Frank Rhea, commercial engineer General Electric Company; J. W. Reid, bridge engineer Chicago & Alton Railroad; J. R. Savage, chief engineer Long Island Railroad; M. Schreiber, engineer maintenance of way Public Service Railway, Newark, N. J.; W. I. Trench, division engineer Baltimore & Ohio Railroad; H. U. Wallace, vice-president Northern Colorado Power Company, Boulder, Col.; A. G. Shaver, signal engineer Chicago, Rock Island & Pacific Railway; Walt Dennis, assistant engineer Chicago, Rock Island & Pacific Railway.

The following outline of the work of the committee for 1913 has been prepared:

1. Continue the consideration of the subject of clearances.
2. Report on the effect of electrolytic action on metallic structures and the best means of preventing it.
3. Continue the preparation of a standard specification for overhead transmission line crossings.
4. Continue the investigation on electrolysis and insulation.
5. Report on maintenance organization with relation to track structures.

The change of the motive power to electricity on the street railway lines in Queretaro, Mexico, will shortly be consummated, according to a statement given out by Manuel Rubio Arriaga, president of the street railway company in that city.

OPERATING COSTS OF SELF-PROPELLED CARS

At the fifth annual meeting of the International Railway Fuel Association held at the Hotel Sherman, Chicago, May 21 to 24 inclusive, S. T. Dodd and B. H. Arnold, engineering department General Electric Company, presented a paper on the development of self-propelled cars of the steam, compressed-air, storage battery and internal combustion types. The paper was largely historical in nature but contained also some new operating costs for the gas-electric cars of the General Electric Company, of which fifty are now in regular daily service. The authors said that these cars were being operated by former locomotive engineers, who had been instructed by an expert operator from the manufacturing company. They recommended daily inspection to see that no parts had become deranged and that all adjustments were correct. For any car, regardless of mileage, a more thorough inspection should be made at least every ten days, and where there is long mileage an inspection should be made at least every 2000 miles. A large return in insurance against failure would be obtained by keeping on hand \$200 or \$300 worth of small repair parts. The authors presented the accompanying Tables I and II, giving operating costs of the Frisco lines, and Table III, of the Dan Patch line. Earlier operating figures of the latter line were published in the Jan. 27, 1912, and Oct. 12, 1912, issues of this journal.

Table I is a consolidated statement, July 1, 1912, to Dec. 31, 1912, covering the direct cost of operation and repairs of fourteen cars operating under varying grade and climatic conditions.

TABLE I—FRISCO LINES—COST OF OPERATING GAS-ELECTRIC PASSENGER MOTOR CARS

Revenue motor car miles.....	251,627	
Revenue trailer car miles.....	114,164	
Total passenger car miles.....	365,791	
Per cent. of time trailers hauled.....	40.3	
Gal. fuel (naphtha) used per motor car mile.....	0.721	
Gal. fuel (naphtha) used per passenger car mile.....	0.496	
Total Cost of Six Months	Average Cost per Motor Train Mile	
Wages of crews.....	\$19,840.96	\$0.0788
Fuel (naphtha).....	11,857.68	0.0471
Lubrication (gas engine).....	1,553.28	0.0062
Cleaning supplies and miscellaneous expenses.....	2,545.91	0.0101
Running and shop repairs.....	7,769.73	0.0309
	\$43,567.56	\$0.1731

The foregoing figures include extensive classified repairs given to two cars and all the running and shop repairs on the other cars.

Table II shows more detailed information on the performance of six of the foregoing cars. They were all on runs averaging 166 revenue miles daily; four hauled trailers regularly and each carried a full motor-car train crew.

TABLE II—FRISCO LINES—COST OF OPERATING GAS-ELECTRIC PASSENGER MOTOR CARS.

Revenue motor car miles.....	181,438	
Revenue trailer car miles.....	127,605	
Total passenger car miles.....	309,043	
Per cent. of time trailers hauled.....	70.3	
Average working weight of motor cars, tons.....	51.5	
Average load of motor cars (estimated), tons.....	3.5	
Average working weight of trailer cars, tons.....	23.5	
Average load of trailer cars (estimated), tons.....	2.5	
Gross weight motor trains, tons.....	73.3	
Total gross ton miles.....	13,296,820	
Gal. fuel used per motor trail mile.....	0.751	
Gross ton miles per gal. fuel.....	97.6	
Total Cost for Eight Months	Average Cost per Motor Train Mile	
Wages of crew.....	\$14,417.09	\$0.0794
Fuel (naphtha).....	8,666.42	0.0477
Lubrication (gas engine).....	1,356.49	0.0075
Cleaning, supplies and miscellaneous expenses.....	1,586.89	0.0088
Running repairs and labor.....	2,908.46	0.0160
Running repairs and material.....	1,242.28	0.0067
	\$30,187.63	\$0.1661

The actual revenue mileage only is shown, as no allowance is made for turning or other non-revenue mileage. The runs cover varying speeds and grades. The maximum

grade, 2.3 per cent, occurs on the Bolivar-Chadwick run, where a trailer is hauled regularly. On this run there is one stretch of 2 per cent grade for a distance of 4 miles. The table is a consolidated statement for eight months from July 1, 1912, to Feb. 28, 1913, covering the direct cost (no classified repairs made during interval) of six cars, operating between Muskogee and Westville, Okla.; Lawton, Okla., and Quanah, Tex.; Sherman and Dallas, Tex.; Chadwick and Bolivar, Mo.; Kansas City and Clinton, Mo., and Clinton and Enid, Okla.

As an example of the performance on an interurban line with a very fast schedule, Table III was submitted. The trailers hauled consist of a mixture of passenger, freight and work cars. The cost of heating supplies and main-

TABLE III—DAN PATCH LINE—MINNEAPOLIS, ST. PAUL, ROCHESTER & DUBUQUE ELECTRIC TRACTION COMPANY—COST OF OPERATING GAS-ELECTRIC MOTOR CARS FROM JAN. 1 TO AUG. 31, 1912.

Total motor car miles.....	216,498		
Total trailer car miles.....	75,948		
Total car miles.....	292,446		
Per cent of time trailers hauled.....	35.5		
Number of motor cars in service.....	8		
Length of line, miles.....	37.34		
Maximum grade, per cent.....	1.5		
Schedule time for express trains.....	1 hr. 17 min.		
Average distance between stops for express trains, miles.....	3.734		
Schedule speed of express trains, m.p.h.....	29.1		
Schedule time for local trains.....	1 hr. 35 min.		
Average distance between flag stops for local trains, miles.....	1.067		
Schedule speed of local trains, m.p.h.....	23.6		
Gal. fuel used per motor train mile.....	0.758		
Gal. fuel used per car mile.....	0.527		
	Total Cost for One Year	Average Cost per Motor Train Mile	Average Cost per Car Mile
Wages of crew.....	\$12,056.95	\$0.0557	\$0.0412
Fuel (naphtha).....	17,622.26	0.0814	0.0603
Lubrication (gas engine).....	1,141.56	0.0052	0.0039
Journal oil.....	77.77	0.0004	0.0003
Supplies and car heating.....	1,389.03	0.0064	0.0047
Maintenance of electrical equipment.....	1,949.81	0.0090	0.0067
Maintenance of cars and trucks.....	1,394.56	0.0065	0.0047
Shop expense of heating.....	3,507.77	0.0162	0.0120
	\$39,139.71	\$0.1808	\$0.1338

tenance of equipment includes also the cost of these trailers. The longest maximum grade of 1.5 per cent is about 2 miles; there is one stretch where the grade averages 1.37 per cent for a distance in excess of 4 miles. In addition to the station stops, there are two compulsory stops at railroad crossings at grade and one drawbridge stop.

NATIONAL COMMITTEE ON ELECTROLYSIS

The joint national committee on electrolysis will meet for the first time at the headquarters of the American Institute of Electrical Engineers in the Engineering Societies Building, New York, on May 27, at 3 p. m. The committee will consider the subject of electrolysis and if possible agree upon some basic principles or method of procedure to be followed in the case of electrolytic dispute. The American Electric Railway Association, the American Railway Engineering Association, the National Electric Light Association, the American Telephone & Telegraph Company and the American Institute of Electrical Engineers have each appointed three representatives, and it is expected that the representatives of the American Water Works Association, the Natural Gas Association of America and the American Gas Institute will be announced shortly.

It is the purpose to organize the committee at the first meeting and to outline some definite plan of action. The delegates appointed by each of the national bodies invited to participate in the conference are as follows: American Electric Railway Association—R. P. Stevens, Lehigh Valley Transit Company, Allentown, Pa.; Prof. A. S. Richey, Worcester Polytechnic Institute, Worcester, Mass.; Calvert Townley, Westinghouse Electric & Manufacturing Company, New York. American Railway Engineering Association—E. B. Katté, New York Central & Hudson River Railroad Company, New York; D. J. Brumley, Illinois Central Railroad, Chicago, Ill.; W. I. Trench, Baltimore & Ohio Railroad, Baltimore, Md. National Electric Light Associa-



tion—Philip Torchio, New York Edison Company; L. L. Elden, Edison Electric Illuminating Company, Boston; D. W. Roper, Commonwealth Edison Company, Chicago, Ill. American Telephone & Telegraph Company—H. S. Warren, American Telephone & Telegraph Company, New York; F. L. Rhodes, American Telephone & Telegraph Company, New York. American Institute of Electrical Engineers—B. J. Arnold, Chicago, Ill.; F. N. Waterman, New York; Paul Winsor, Boston, Mass.

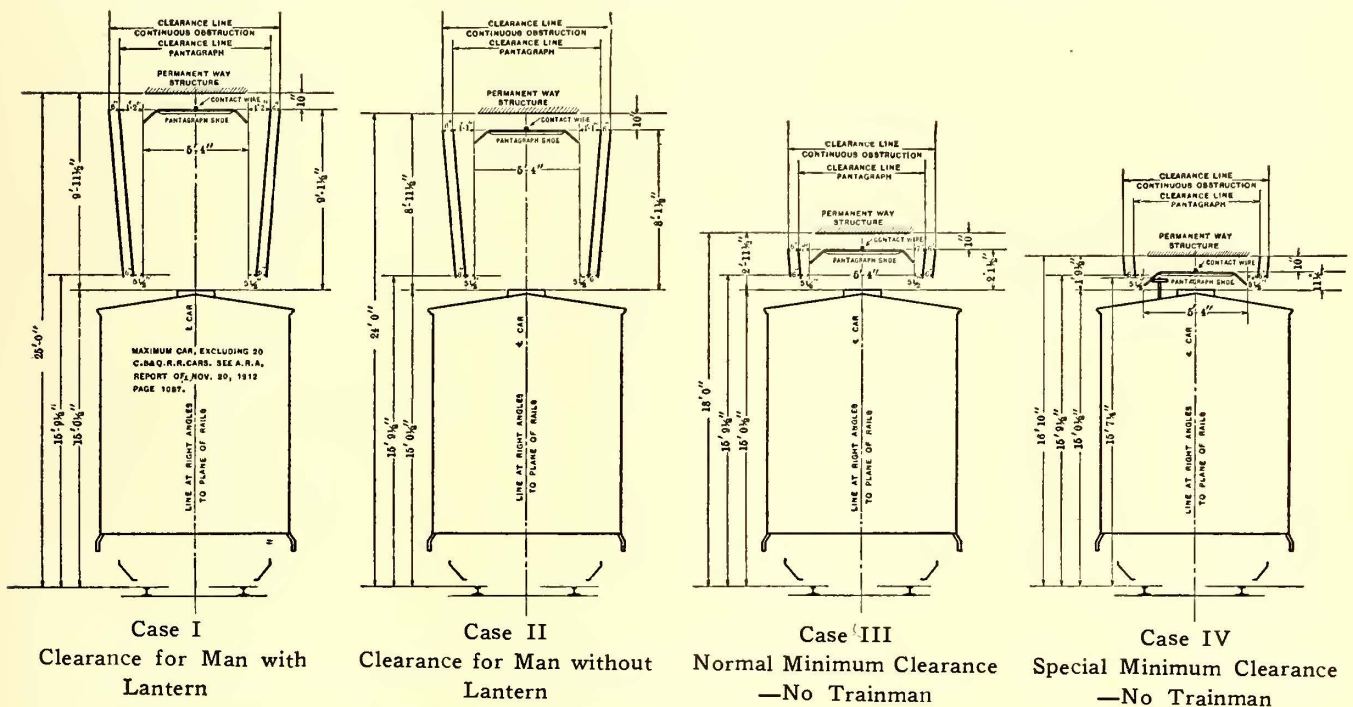
**THIRD-RAIL AND OVERHEAD CLEARANCES**

At a meeting on May 21 of the American Railway Association a report was received from the committee on electrical working. This committee consists of George Gibbs (chairman), chief engineer of electric traction Long Island Railroad; J. D. Isaacs, consulting engineer Southern Pacific Company; L. C. Fritch, chief engineer Chicago Great Western Railroad; J. H. Davis, electrical engineer Baltimore & Ohio Railroad; E. B. Katté, chief engineer electric traction New York Central & Hudson River Railroad; A. S. Bald-

meaning of the notation on the standard clearance diagram of the association which reads, 'These lines may be located to fit special conditions, as they do not affect clearances of third-rail above these points,' is not entirely clear inasmuch as the 'points' are not indicated. The reference is intended to apply to the points AS and AE, 10 7/8 in. above the track. As a matter of fact, however, the location of these lines above AS and AE has no bearing upon third-rail structure clearances but was incorporated in the diagram as information regarding the prevailing practice in the construction of certain rolling equipment and bridge gusset clearances above the position of third-rail structures.

**CLEARANCES FOR OVERHEAD WORKING CONDUCTORS**

"In its report of Oct. 19, 1908, the committee presented preliminary data for certain clearances required for the installation of overhead electrical working conductors but stated that the figures were based upon limited experimental data and were given for general information only and should not be considered final. Traction systems using overhead contact wires are now being introduced quite generally, and suitable standards for clearances for these



win, chief engineer Illinois Central Railroad, and E. H. McHenry, formerly vice-president New York, New Haven & Hartford Railroad. The report says:

**THIRD-RAIL WORKING CONDUCTOR CLEARANCES**

"Your committee has no changes to suggest in the standard limiting clearance lines for third-rail working conductors which have been adopted by the association, but proposes, after conference and agreement with the American Railway Engineering Association and the American Electric Railway Engineering Association's committee, to submit at a future meeting of this association a recommendation for the prolongation of certain of the clearance lines within the space between their termination and the nearest running rail.

"In advance, however, of a definite recommendation, your committee suggests that the equipment clearance lines, BE, CE, DE, EE, FE, terminating at a point 15 in. from the track gage line, be continued horizontally to a point within 6 in. of the track gage line and 2 1/2 in. above the top of track rail. This prolongation is intended to prevent the extreme encroachment of rolling equipment upon the space outside of and near the track, and which on some roads is required for devices attached to the permanent way. Your committee's attention has been called to the fact that the

systems are of growing importance, both from the standpoint of interchangeability in the essentials of such traction systems and as bearing upon the clearances for rolling stock and permanent way.

"Your committee, therefore, proposes taking up the various technical questions involved with the electrical working committees of the American Railway Engineering Association and the American Electric Railway Engineering Association, with the view of presenting at a later date to this association a full report with recommendations covering the essential clearance requirements for overhead electrical conductors. In advance, however, of the final report, your committee has thought it advisable to give herein its preliminary conclusions, from present information, of the limiting conditions to be met in operation with the existing rolling stock dimensions and locations of overhead permanent way obstructions. This information will, it is hoped, prevent further encroachment upon the space required for the installation of overhead conductors by the building of cars of a height exceeding the recommended standard of the committee on maintenance.

"Conditions to Be Met.—In the overhead trolley-wire electric systems current is conveyed to the trains by the contact of a collector (pantograph) with an electrically

charged wire stretched over the center line of the track and maintained, by suitable supports, at the proper height. The limiting conditions which fix the location of the contact wire (or overhead working conductor) are, first, the safe clearance over rolling equipment and, second, the required space for insulation and supports under fixed structures, such as bridges.

"Rolling Equipment Heights.—For the purpose of fixing car clearances, the replies to the American Railway Association Circular No. 1022 accompanying the report of the committee on maintenance, dated Oct. 21, 1912, were used. The maximum freight car shown (of which there are only ten in use) has a height of 15 ft. 7¼ in. from rail to top of running board. Another lot of ten is given with a height of 15 ft. 4¾ in. Both of these lots are owned by the Chicago, Burlington & Quincy Railroad Company and neither can pass generally over the railways of the country, because of limiting tunnel and bridge structures. Aside from these twenty cars, none is listed in the tables which exceeds a height of 15 ft. ½ in. to top of running board, and the committee on maintenance has recommended that in future the height of running board on a standard car shall not exceed 13 ft. 6 in. Your committee on electrical working believes, therefore, that 15 ft. ½ in. may safely be considered as the maximum equipment height, present or future, which must be provided for in fixing the limitations for the location of overhead contact wires.

"In the diagram presented with this report four limiting service conditions are shown as follows:

CASE 1.—CLEARANCE REQUIRED FOR TRAINMAN WITH LANTERN

	Feet	Inches
Distance between wire and structure.....	0	10
Reach of 6-ft. trainman.....	7	8
Lantern.....	1	0
Clearance.....	0	5½
Total clearance above car.....	9	11½
Height of car.....	15	0½
Height of permanent way structure.....	25	0

"To meet the condition of maximum clearance requirement in Case 1, where men give signals from the top of cars, a distance of 9 ft. 11½ in. must be allowed from the car to the overhead structure, or clearance of 25 ft. between top of track rails and permanent way structures, such as bridges and viaducts over the track.

CASE 2.—CLEARANCE REQUIRED FOR TRAINMAN WITHOUT LANTERN

	Feet	Inches
Distance between wire and structure.....	0	10
Reach of 6-ft. trainman.....	7	8
Clearance.....	0	5½
Total clearance above car.....	8	11½
Height of car.....	15	0½
Height of permanent way structure.....	24	0

"Case 2 is only permissible where men pass over or ride on cars solely for the purpose of setting brakes and are prohibited from giving signals from the top of cars, and to meet this condition a distance of 8 ft. 11½ in. must be allowed from the car to the overhead structure, or a structure clearance of 24 ft.

CASE 3.—NORMAL MINIMUM CLEARANCE WITHOUT TRAINMAN ON CARS

	Feet	Inches
Distance between wire and structure.....	0	10
Desirable clearance between rolling stock and wire.....	2	1½
Total clearance above car.....	2	11½
Height of car.....	15	0½
Height of permanent way structure.....	18	0

"Case 3 shows 2 ft. 11½ in. as the minimum desirable clearance for normal construction, where men are excluded from the top of cars.

CASE 4.—SPECIAL MINIMUM CLEARANCE REQUIREMENTS

	Feet	Inches
Distance between wire and structure.....	0	10
Distance between rolling stock and wire.....	0	11½
Total clearance above car.....	1	9½
Height of car.....	15	0½
Height of permanent way structure.....	16	10

"Case 4 is given as representing the minimum clearance

which should be used where joint steam and electric operation is involved, and requires a distance of 1 ft. 9½ in. from car to overhead structure and a structure clearance of 16 ft. 10 in. from the rail. If the railway is operated by electric power only and steam locomotives are excluded, the above clearances may be somewhat reduced, allowing the electrical conductor to be installed under structures having a height of 16 ft. 6 in. above top of rail.

"Side Clearances.—The diagram indicates also the limitations for continuous and non-continuous side structures, which should be adhered to in order to provide clearance for the pantograph contact device on the car or locomotive.

"Inclines.—In places where it is necessary to change the normal height of the contact wire (to clear overhead obstructions) the maximum rate of incline in the wire approaching and leaving low points should be: (a) For train speeds lower than 40 m.p.h., 2 ft. in 100 ft.; (b) for train speeds above 40 m.p.h., 1 ft. in 100 ft. Proper transition curves should be provided at all vertical intersections in the overhead conductor."

NOTES TO DIAGRAM

The following notes were appended to the diagram:

"Momentary obstructions such as signal blades may approach pantograph clearance line.

"Sway of pantograph based on 1-in. difference in height of car springs, ½ in. difference in elevation of track rail and sway of 6 in. either side at 22 ft. above top of rail for pantograph itself.

"These diagrams show minimum clearances; additional clearances will be required to provide for special features of design, sag between points of support as affected by length of span and temperature changes, and also for steady strains, pull-offs, etc., if any.

"All heights to be measured at right angles to plane of rails at center line of track."

## CONSULTING ENGINEERS DISCUSS RAILWAY VALUATION

The forthcoming valuation of the railway properties under the jurisdiction of the Interstate Commerce Commission was discussed at an informal dinner of the American Institute of Consulting Engineers held on Thursday evening, May 22, at the Engineers' Club, New York. Frank J. Sprague, vice-president, was chairman in the absence of President Noble.

Mr. Sprague brought up for discussion the resolutions which the Institute had forwarded to the Interstate Commerce Commission calling attention to the great importance of the proposed valuation and the consequent need for an advisory board of engineers qualified in all the various phases of railroad inception, financing, construction and operation. The reply made to these resolutions by the chairman of the Interstate Commerce Commission stated that the personnel of an advisory board would be soon announced and that all other men to be employed in the division of valuations would be selected through the medium of the civil service as the work developed.

W. J. Wilgus said the work involved the valuation of a quarter million miles of road capitalized at eighteen to twenty billions of dollars and serving one hundred million people. The investors and public should feel that the results of this gigantic task would be absolutely fair. Some people believed that ultimately the valuation would be used as a basis for the government ownership of railways. A railway was a living thing, not an aggregation of inert objects. A reasonable valuation could be made only by visualizing the exact progress which a railway passed through from its birth to its self-supporting stage. A mere inventory would not do this, nor was it just to deny railroad investors the same rights as investors in other fields. The overhead expenses were the very things that gave life to the enterprise.

F. A. Molitor estimated that it would cost about \$50 per mile to make a comprehensive valuation, or a total of \$12,000,000 for all the track under the jurisdiction of the Interstate Commerce Commission. As the commission had estimated the cost to be \$6,000,000 to the government alone, the remainder would have to be borne by the railroad companies.

In the past railway valuations had been made by individual states to control issues of securities and fix taxes, but the purpose of the national act seemed primarily the regulation of rates. The engineer and not the lawyer or statesman was best fitted for this work. Furthermore, the valuation should not be carried on by engineers who have had less experience than the engineers who were in charge of the railroads.

Jean de Pulligny, chief engineer of bridges and roads and director of the French government engineering mission to the United States, described the relations between the railroads and the investors in France. Accurate records of railway costs had been kept for the past sixty years, and even in the case of the privately owned roads the government guaranteed a fixed interest to the investors. The question of allowance for land increment did not come up as the book-cost system was used in making this continuous valuation.

Mr. Wilgus pointed out that the book-cost method was impracticable in the United States because of the absence of records. Hence Americans were obliged to consider the reproduction costs in making a valuation. Mr. Sprague added that the state recognized increment value by its method of taxation.

P. W. Henry understood that the Eastern, Western and Southern railroads were each forming a group which would engage engineers to advise them in connection with the coming valuation.

Charles SooySmith said that anything the consulting engineers did must be from the standpoint of the interest of the public. He favored Mr. Sprague's idea of giving greater publicity to the Institute's attitude on this project and he also thought it would be well to communicate with boards of trade, which in turn could influence their Congressional representatives.

Dr. A. C. Humphreys, president Stevens Institute, had found the ignorance of officials concerned with valuation cases to be simply paralyzing. The engineers of such commissions appeared to be the only men who had any idea of what valuations meant. He said that no deduction ought to be made for depreciation because the money set aside under that account really was used to cover the expense of keeping the equipment in its original condition of efficiency.

C. O. Mailloux said that there was too much engineering by economists, and that it was the patriotic duty of the engineers to see that the railroad companies received a fair deal.

C. R. Ingersoll, formerly chief engineer New York, New Haven & Hartford Railroad, said that he had visited Alaska last year to report to the government on the possibilities of railroad construction in that territory. He had found that if money had to be raised at the usual rates obtainable by private investors the interest would be greater than the earnings available for the fixed charges, but if the government raised the money, say by issuing 3 per cent bonds, construction and operation would be feasible. This experience impressed him with the idea that the United States was very close to government ownership.

Mr. Sprague said that probably the greatest influence leading toward possible government ownership had been the admirable capacity shown by the government officers in their work of construction and sanitation on the Panama Canal.

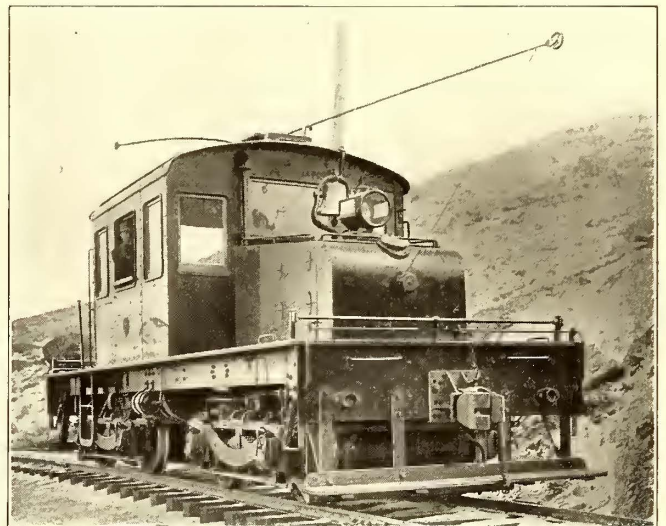
Gustave Lindenthal, former bridge commissioner of New York City and member of the engineering board for the

Pennsylvania Railroad New York Terminal, believed that the underlying sentiment of the public, although expressed but vaguely, was that capital invested in a given enterprise should not receive a rate of return for ever and ever. The recent rapid transit contracts of the city of New York with their amortization and recapture clauses meant that eventually all the capital would be returned to its owners, who would then have to seek other fields of investment. He described how the railroads of Germany had been acquired by the various governments primarily for military reasons. The 3½ per cent bonds with which they had been purchased had been refunded long ago. To-day the railroads of Germany paid 35 per cent of the national taxes out of their profits.

Following further discussion Vice-president Sprague continued Messrs. Wilgus, Molitor and SooySmith as a committee to keep track of the developments in the valuation undertaking. The meeting then adjourned.

### A 40-TON ELECTRIC LOCOMOTIVE

Within the past few years the application of electric locomotives to many phases of industrial service has become very extensive. One of the uses to which these locomotives have been put is for switching cars in a manu-



Electric Locomotive for Industrial Service

facturer's private yard, thus eliminating the switching charge made by steam railroads and also doing away with the fire hazard to the buildings and material in the vicinity. Locomotives for this service are economical power consumers in view of the fact that slow-speed motors are used which do not make excessive demands on the power house. Often no generating apparatus in addition to that already installed is necessary.

The Timber Butte Milling Company, Butte, Mont., has recently put into service a 40-ton Baldwin-Westinghouse electric locomotive of this kind. This locomotive is being used for hauling materials to the concentrator site, and as soon as the concentrator is in producing operation, the locomotive will haul the concentrates to points where switching connections have been established with the steam railroads entering Butte.

The electrical equipment consists of four 90-hp, 500-volt, commutating-pole motors known as the 301-D-2 type. The frame of this motor is a one-piece steel casting and the weight of the motor on the axle is carried almost entirely by a solid bracket extending over the axle. The frame is also provided with safety suspension lugs so that should the main suspension lug break the motor would drop only a few inches onto the truck suspension bar. Type HL unit-switch control is used.

**STORAGE BATTERY CAR PROGRESS**

The Federal Storage Battery Car Company is completing at its works at Silver Lake, N. J., several new types of storage battery cars. Three of these are for the La Jolla line of the Los Angeles & San Diego Beach Railway. These cars are 40 ft. long over all, 29 ft. 6 in. over the corner posts, and owing to the extraordinary width of 10 ft. 4 in. every one of the twenty-four cross-seats is wide enough for three passengers. The motorman's cabs, in diagonally opposite corners, are separated by a bulkhead



**Combination Passenger and Baggage Car for Storage Battery Operation**

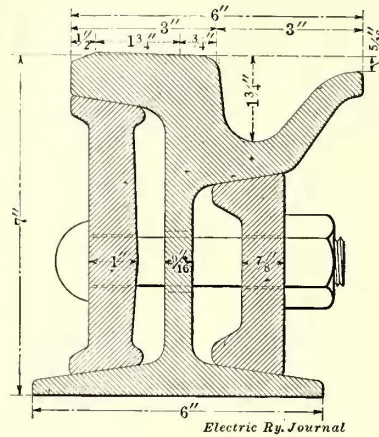
and door from the passenger compartment. The operating equipment consists of 202 traction cells, ten lighting and control cells, four 200-volt, 75-amp Diehl motors operated at 700 r.p.m., multiple-unit control and Westinghouse straight and automatic air brakes. The trucks are of M.C.B. pattern, and M.C.B. couplers are used.

A significant order is that for a combination passenger and baggage car from the St. Joseph Valley Traction Company, Elkhart, Ind., as this company's earlier orders were for gasoline cars. The battery car is 52 ft. over all, 9 ft. 4 in. wide, and is mounted on two M.C.B. trucks of 6-ft. wheelbase. The main and smoking compartments have plush-covered reversible seats while the baggage compartment has folding benches. The electrical equipment comprises 225 A-10-H Edison cells for traction, five like cells for lighting, four motors of the type and capacity used on the La Jolla cars, Westinghouse air brakes and series-parallel control. An earlier car of this type, furnished with 220 A-8-H cells for traction and seven like cells for lighting, has already been shipped to the Lorain, Ashland & Southern Railway for service between Lorain and Ashland, Ohio, the interests controlling which road also formerly used gasoline cars. This car is shown in an accompanying illustration. A third combination car, fitted with 225 A-8-H and five A-8-H traction and lighting cells respectively, is nearing completion.

The improvements which this company has introduced in truck and car-body construction are considered directly responsible for an order from the Panama Tramways Company for fifteen cars to be used with the overhead trolley. Among the notable features of these cars are the use of a Continental type truck of 7-ft. 6-in. wheelbase with the Beach independent wheel device combined with steel-bottom framing; carbolineum-treated long-leaf yellow pine upper framing, cedar sheathing and mahogany trim because of the tropical climate, and operation as prepayment cars under license of the Pay-as-you-enter Car Company. The cars are 20 ft. 6 in. long over the posts, 30 ft. 2 in. long over all and 8 ft. wide over all. The single-arch roof used is fitted with four ventilators furnished by the Railway Utilities Company. The car seats thirty-two in fourteen cross seats and four corner seats. The cross seats are 33 in. wide, leaving a 22-in. aisle between them. The electrical equipment per car comprises four GE-1022 motors and two KE-12 controllers.

**NEW GROOVED-RAIL SECTION FOR PACIFIC ELECTRIC**

To meet conditions growing out of the movement of M.C.B. standard equipment over tracks in paved streets, the Pennsylvania Steel Company and the Lorain Steel Company have designed a new 127-lb., 7-in. grooved-rail section for use on the lines of the Pacific Electric Railway, Los Angeles, Cal. A 7-in. depth of rail either for girder-grooved or T-rail in paved streets is standard on this company's lines, and the 116-lb., 7-in. grooved girder rail formerly rolled by these companies would cause the car to ride on the wheel flanges, as the depth and width of the groove were only 1½ in. and 2⅝ in. respectively. This would result in numerous broken flanges and badly worn rails. To overcome these objections in the new section the groove was made ¼ in. deeper and the flare of the lip forming the groove increased ⅜ in. in width.



**New Grooved Rail for Pacific Electric Railway, Los Angeles**

There was also a demand for a 7-in. section which would give additional girder-carrying capacity. To meet this requirement, the new section was reinforced somewhat similar to a girder beam. The overall width of the head and groove was made ⅜ in. wider than the Pennsylvania Steel Company's standard 7-in. girder-grooved section No. 292, the web was increased 1/16 in. in thickness and the base was made ½ in. wider than the standard section. The points of applying the additional metal tend to stiffen the section both laterally and vertically. To adopt a deeper or 9-in. section to meet these special requirements in paved streets would have necessitated a change in the company's paving specifications which was undesirable. It would also have made connection to existing track more difficult than is the case at present.

**BRACKET FOR FIRE EXTINGUISHER.**

The Pyrene fire extinguisher is well known for its small size and consequent ease in handling. A further mechanical improvement has now been made by designing for it a bracket which will hold the extinguisher more conveniently than has been the case heretofore. The new bracket, which has been recently placed on the market by the Pyrene Manufacturing Company, New York, N. Y., is shown in the accompanying illustration. This bracket is 14 in. long and weighs only 11 oz. It has a bearing surface of 1½ in. x 12 in., so that it can be securely attached to the wall of a building, the side of a car or other place with minimum disturbance of the woodwork or other permanent fittings. This bracket is made of three strongly constructed parts, which hold the extinguisher firmly and keep the handle securely locked. The bracket is furnished in black, blue and red enamel, galvanized steel, nicked brass or other finishes to harmonize with car or building interiors, switchboards, etc., and thus produces an exceptionally neat and even ornamental appearance.



**Bracket**

# News of Electric Railways

## Terms of Settlement of Cincinnati Strike

Officers of the Cincinnati (Ohio) Traction Company and representatives of the employees of the company reached an agreement on the evening of May 19, 1913, under which service on the road was resumed at 4:40 o'clock the following morning. On the understanding that the men would concede the open shop principle, the company agreed to recognize the union with which the men had recently allied themselves. In doing this each yielded a point which had been considered vital since the men left their cars eight days before. The terms of the settlement follow:

"1. That all said employees in the service of the company on the morning of May 9, 1913, shall return to their work at their usual reporting time and place Tuesday, May 20, 1913, or within a reasonable time not to exceed twenty-four hours thereafter.

"2. The company shall employ and discipline or discharge for cause such men as it sees fit, but it shall not now nor in the future discriminate for or against those who are members of the union, nor shall union men discriminate against non-union men, which the federation understands to be the principle of the open shop.

"3. That hereafter, so long as there exists the organization of the employees under this agreement, such organization shall at all times keep on file with the secretary of the company a written statement naming the accredited representatives of such organization, which shall be conclusively presumed to be authoritative and final until superseded from time to time by an amended statement furnished by said organization, which shall then be of like force and effect. Any employee claiming to be a member of the organization shall have the right at all times to submit his grievance through said representatives, who shall be received by the proper officials of the company for the purpose stated. All employees shall retain their right personally or by representatives to present to and discuss with the proper officials of the company such grievances as they may have.

"4. That Walter A. Draper shall act as arbitrator for the company and John P. Frey for the employees, and that all the following questions be promptly submitted to arbitration:

"a. What shall be the daily hours of labor for motormen and conductors. Among other things due consideration shall be given by the arbitrators to the fact that the company's schedules are more or less determined by the city of Cincinnati.

"b. What pay, if any, shall be allowed extra men for time lost on the show-up.

"c. What the wages to be paid motormen and conductors shall be, including overtime.

"d. Whether the men discharged since March 15, 1913, shall be reinstated, each man's case to be determined on its merits.

"e. What shall be the duration of this contract.

"5. To prevent the possibility of strikes, grievances complained of shall be formally submitted to the company by the union, then discussed by the accredited representatives of both the company and the union, and if they fail to reach an agreement, then the grievances shall immediately be submitted to arbitration by a board of arbitrators composed of three men, one of whom shall be selected by the company, one by the union (both to be named within ten days of the failure of the first-named representatives to agree), and the third by these two. If the two arbitrators selected by the respective parties fail to agree upon a third arbitrator within five days of the time of their selection, then the State Board of Arbitration and Conciliation shall select the third. The decision of any two of these arbitrators shall be final and binding upon both parties.

"6. It is understood that if this offer is accepted the two arbitrators named shall meet at 9 o'clock a. m. May 20; that these two arbitrators shall immediately proceed to select a third, and if they fail to agree upon a third arbitrator by 6 o'clock p. m. May 24, 1913, the State Board of

Arbitration and Conciliation of the State of Ohio shall name the third arbitrator.

"7. The three arbitrators so chosen, who shall have full authority to decide what the conditions shall be on each item and part thereof herein submitted, shall immediately proceed to fix the time and place of future meetings, and continue their work until all matters submitted to them are decided, but there shall be no unnecessary delay, and the finding of any two of said arbitrators shall be final and binding upon all parties as to each proposition.

"8. Any matters not included in those set forth herein for consideration by the arbitrators that may be desired to be presented for arbitration by either side may be so considered by the arbitrators upon unanimous consent of the members of the board of arbitration.

"9. The arbitrators in considering the matters to be arbitrated shall have in mind the establishment and maintenance of such working conditions between the company and the employees as will insure harmony and successful working operation."

W. Kesley Schoepf, president of the company, concluded a statement which he issued as follows:

"It will be the intention of the company to meet the requirements of the city and its suburbs as rapidly as possible. We are confident that the men will work harmoniously together and that with the resumption of operation of the cars the conditions existing during the last week or more will be entirely forgotten. The officials of the company will use the utmost broad-mindedness in overcoming such difficulties as may temporarily arise, and I know that our employees are such as will readily adjust themselves to the circumstances in which they may be placed."

Considerable rioting marked the attempt to operate cars on May 17. One car was wrecked in front of the new Union Central Life building by bags of cement, stones and bricks thrown from the upper floors of that structure by men who sympathized with the strikers. The car contained only the regular crew of two and three guards. It became stalled in front of the building and had to be abandoned.

Mayor Hunt instructed City Solicitor Bettman to apply to the courts for relief and accordingly a suit asking for a receiver for the Cincinnati Street Railway and the Cincinnati Traction Company was filed in the Common Pleas Court late on the evening of May 17. Mr. Bettman urged that the situation was so serious that a receiver should be named to operate the road and give the needed service. On the other hand, attorneys for the companies stated that a receiver could do no more than the management and that the situation was not of so serious a nature as to warrant this drastic step. Action was postponed by the court until May 19. Before the time for this suit to be heard the settlement of the strike was effected.

President Ernst of the South Covington & Cincinnati Railway has requested the employees of that road to put their demands in writing.

## Reply of Rochester Company to Suggestions of Council Committee

The reply from the New York State Railways to the survey of the Rochester system by a joint committee of the Common Council has been submitted to the Common Council, signed by Horace E. Andrews, president of the company. The report of the special aldermanic committee was made at a special meeting of the Common Council on April 10. The most important suggestion contained in the report was that during rush hours the company give 3-cent fares with full transfer privileges.

The reply of the company takes up in detail the suggestions of the joint committee, many of which are largely of local interest. The portions of the reply which deal with the general attitude of the company, the questions of reduced fare and additional equipment follow in part:

"One of the principal difficulties with which the company has had to contend has been inadequate terminal facilities in the center of the city. Happily the congestion is largely

removed by the re-routing of cars. Much remains to be accomplished, before thoroughly good service can be given on some lines, toward the double tracking of all single-track lines. We respectfully ask the aid and co-operation of the Council toward correcting this difficulty. A satisfactory solution of the rush-hour service can only be reached with the aid and co-operation of the owners of factories, stores and other large centers of employment. The transportation and lighting companies of this city propose to expend within the next year upward of \$3,500,000 in enlarging and developing their facilities. The purposes and intentions of the company are misunderstood in some of the statements made in the report to the Council. The company proposes to give the highest class of service and to merit the good will and opinions of the community which it serves. It cannot succeed in giving satisfactory service or in raising the necessary money for growth and development without co-operation.

"The company has already contracted for fifty additional cars, twenty-five of which are to be motor cars and twenty-five to be center-entrance 'stepless' cars to be used as trailers. Contracts for the cars provide that the shipments will commence during the first week in August and continue through August and September. These cars will be placed in service as rapidly as possible. The trail cars will be used on routes having loops at the terminals and on such lines as have the heaviest rush-hour traffic. Additional cars will be added as the traffic warrants. The company will, as soon as the new cars are placed in service, begin to retire from service through the day its old equipment, confining the use of the older rolling stock to the tripper service during the rush hours and on days of extraordinary travel.

"The Council has asked the company to abandon the use of eighty of its cars within one year. We ask that this time may be extended as to the use of cars Nos. 300 to 342, inclusive, until the use and availability of trail cars for tripper service shall have been demonstrated in a larger way than is possible with the cars now contracted for. Each car withdrawn from service will be replaced with new equipment.

"Concerning the suggestion by the Council of a reduced rate of fare during the night and morning hours, the high standard service which Rochester demands and is entitled to receive cannot be furnished at a reduced rate, taking into account increasing cost of operation, the excessive depreciation inherent in railroad operations and a fair return on present capital actually invested and additional capital necessary to provide from year to year for the demands of a rapidly growing city.

"The company has endeavored to reply fully to every recommendation made by the Council and if the position of the company is not clear to the Council the officers of the company will be glad to explain their views more completely. The company has also endeavored to comply in every way possible with the wishes of the Council and will appreciate the co-operation of the city in carrying the improvement, as outlined, into effect."

#### Action Against Proposed Municipal Line in Detroit

Suit has been filed in the Wayne County Circuit Court in the name of five taxpayers of Detroit, Mich., asking that a writ of mandamus be issued to compel the Common Council to rescind its recent action in appropriating \$250,000 with which to build a cross-town street railway on Junction Avenue. Hinton E. Spalding and Judge A. C. Angell, attorneys for the Detroit United Railway Company, appeared for the plaintiffs. Judge Philip T. Van Zile issued an order directing the members of Council to show cause why the mandamus should not be issued.

The municipal ownership committee of the charter commission has decided that the management of municipally owned street railroads shall be placed in the hands of three commissioners appointed by the Mayor, instead of elected by non-partisan ballot, as at first proposed. Three members voted for the appointment of the members of the commission and two against the plan.

Senator Guy Miller, speaking in Detroit on May 13, said that under the charter amendment adopted last spring the construction of new lines is so burdened with provisions

for charges that the city will gain nothing in the rate of fare or service. He said that it would be impossible to operate under a 3-cent fare because the rate of fare must be based upon the maintenance and operating expenses, the taxes that would be paid if the road were operated under private ownership, certain fixed charges and a percentage for a sinking fund. He believed the Verdier act, which provides for municipal ownership, is constitutional.

#### Public Utilities Act for Idaho

On March 13, 1913, the Governor of Idaho approved an act passed by the State Legislature to provide for the organization of a public utilities commission. The term "public utility" as used in the act includes every common carrier, pipe line corporation, gas corporation, electrical corporation, telephone corporation, telegraph corporation, water corporation, wharfinger and warehouseman, and it covers all cases where a service is performed and a commodity delivered to the public, either directly or indirectly.

The Public Utilities Commission is to consist of three members appointed at large by the Governor and removable from office by him for dereliction of duty, corruption or incompetency, after a fair hearing. The term of office of each commissioner is six years and the salary \$4,000 per year. The commissioners are prohibited from taking directly or indirectly any part in politics and from seeking appointment, nomination or election to any civil office of the State for a period of two years from the date of the expiration of their terms or their resignation or removal from office.

Every common carrier is required by the act to file with the commission and print and keep open to public inspection schedules showing rates, fares and classification of transportation between all parts of its road, owned, leased, operated or controlled, and also all joint and through rates. All other public utilities must file and keep open for inspection schedules showing all rates, tolls, rentals, charges and classifications, with all rules, regulations, contracts, etc., relating to the aforesaid. Unless the commission otherwise orders, no change can be made by a public utility in these data except after thirty days' notice to the commission and the public.

The commission has power, upon a hearing, held upon its own motion or upon complaint, to investigate a single rate, fare, toll, rental, charge, classification, rule, regulation, contract or practice, or any number thereof, or the entire schedule of any or all of these, and to establish new figures or rulings in place of the same. The commission may also prescribe rules and regulations for the performance of any service or the furnishing of any commodity furnished or supplied by any public utility, and on a proper demand and tender of rates such public utility is to furnish such commodity or render such service within the time and upon the conditions laid down by the commission. To this body is also given power to value and revalue public utilities, to ascertain all new constructions, extensions and additions and to prescribe a uniform system of accounting.

Any public utility failing to comply with the decrees by the commission will, in case a special penalty has not been provided, be liable to a penalty of not more than \$2,000 for each offense. Every violation of the act is a separate and distinct offense, and in case of a continuing violation each day's continuance is to be deemed a separate offense. Any officer, employee or agent of a utility violating the act is guilty of a misdemeanor and is punishable by a fine not exceeding \$1,000 or imprisonment not over one year, or both.

**London & Port Stanley Railway Electrification.**—Owing to the illness of Adam Beck, chairman of the Hydro-Electric Power Commission of Ontario, the time for the vote on the electrification of the London & Port Stanley Railway has been postponed indefinitely.

**Subway Expert for Providence.**—William T. Lewis, an engineer with the Boston Transit Commission, has been engaged by the joint special committee of the City Council of Providence, R. I., which is investigating the need of subways in that city to act as expert adviser.

**Denial of Electrification Report.**—Officers of the Oregon Short Line in New York to whom the dispatch in regard to the reported electrification of that line in southern Idaho from Pocatello to Huntington was submitted by the *ELECTRIC RAILWAY JOURNAL* deny that electrification as reported is contemplated at this time.

**Boston Electrification Before Next Assembly.**—The committee on railroads of the Massachusetts House of Representatives has voted to refer to the next General Court all the electrification measures pending before it. The report goes to the Senate with the understanding that it will be held on the table until the fate of the Washburn bill is known.

**The Strike at Fort William.**—The public has refused to countenance the strike of the employees of the Port Arthur & Fort William Electric Railway, Port Arthur, Ont., who violated their agreement by striking for changes in the contract between them and the joint committee appointed by the cities to run the road before the agreement had expired.

**Additional Appropriation for Report on Traffic in Newark.**—The Board of Public Works of Newark, N. J., has appropriated an additional \$300 to enable the City Plan Commission to complete the report on electric railway traffic in Newark which is being prepared for the commission by E. P. Goodrich. It is expected that the report will be ready by June 15, 1913.

**Decision in Helena Lighting Case.**—The Supreme Court of Montana on Feb. 13, 1913, reversing the District Court decision, held that the city had no right to enforce an ordinance which required the Helena Light & Railway Company, Helena, Mont., to light its tracks within the city limits without cost or expense to the city, and particularly at street intersections.

**Strike in Roanoke.**—The service of the Roanoke Railway & Electric Company, Roanoke, Va., the trainmen of which are on strike, is practically normal. The strikers have remained orderly and the patrons of the company are using the cars freely. The Central Labor & Trade Council, realizing that the cause of the men who are still out is hopeless, has petitioned the City Council to install a municipal lighting system.

**Strike in Halifax.**—The employees of the Halifax (N. S.) Electric Tramway went on strike on May 16, 1913. Only a third of the usual number of cars were operated on the first day. Toward night there was serious disorder and several cars were abandoned in the street and left to be guarded by the police. The company announced that it was prepared to resume service in full on May 17 if afforded proper protection.

**Negotiations Between International Railway and Its Employees.**—It is stated that the negotiations for the settlement of the differences between the International Railway, Buffalo, N. Y., and its employees entered into in accordance with the agreement under which the men returned to work following the recent strike are progressing satisfactorily and that it is likely that an understanding will be arrived at making it unnecessary for the questions at issue to be submitted to arbitration. The negotiations have been delayed owing to the presence of President Connette of the International Railway in New York.

**Marginal Railroad Improvements in New York.**—An agreement has been reached between the officers of the New York Central & Hudson River Railroad and a committee of the Board of Estimate of New York City for the improvement of the company's waterfront line along the Hudson River. The plan provides for the electrification of the marginal railway and for the depression of the track in a subway below Thirtieth Street. It is planned to construct an immense freight terminal between Thirty-first Street and Thirty-sixth Street, New York. There are to be several changes in the right-of-way of the line. Action on the plan by the Board of Estimate will be deferred until the property owners have had an opportunity to study the plans.

**Conversion of Horse Car Lines in Greater New York.**—When the Public Service Commission of the First District of New York was organized on July 1, 1907, sixteen horse car lines were in operation in Greater New York. At the present time only six of these remain wholly operated by

horse-power. Of the others four have been abandoned and six have been partly or wholly changed to storage battery car operation. Of the six remaining horse car lines, one, the Metropolitan Crosstown line, will soon be changed to storage battery car operation, if an application by the company pending before the commission is granted. The Seventeenth and Eighteenth Street lines will probably be abandoned soon, as the commission is considering an application to that effect.

**Franchise Negotiations in Des Moines.**—The City Council of Des Moines, Ia., has gone into executive session to discuss the question of an extension of the franchise of the Des Moines City Railway. It is stated that the meetings will be secret until the Councilmen have agreed upon a tentative plan for a franchise. Emil G. Schmidt, president of the company, is reported to have said that the company is willing to grant forty tickets for \$1 to schoolchildren, tickets to be good on school days and during school hours and to make a rate of six tickets for 25 cents and to finance extensions and improvements. He is said to be opposed to a special rate during the rush hours, taking the position that the concession of six tickets for 25 cents is the limit to which the company can reasonably go in this direction.

**Autobus Line for Montreal.**—The issue of *Saturday Night* for May 10, 1913, which is published at Toronto, Ont., contained an article on the plans of the Canadian Autobus Company, which proposes to install omnibus service in the city of Montreal. The plans of this company have been under consideration for some time, but the names of the officers and others who are financially interested in the company have not been made public until very recently. Among the backers of the company are H. S. Holt, president of the Montreal Light, Heat & Power Company; J. S. Norris, manager of the Montreal Light, Heat & Power Company, and D. Lorne McGibbon, president of the Canadian Consolidated Rubber Company. Duncan McDonald, formerly general manager of the Montreal Tramways, will be managing director of the company.

**Progress of Negotiations for Purchase of Toronto Railway and Light Plants.**—On May 12, 1913, when Mayor Hocken and the members of the Board of Control of Toronto, Ont., met William Mackenzie, president of the Toronto Railway and the Toronto Electric Light Company, in regard to the plans of the city to purchase the property of these companies, Mr. Mackenzie expressed himself as being satisfied with the proposal to submit two by-laws to the people, one in regard to the purchase of the property of the light company and the other in regard to the railway company, but he reiterated his statement that the owners of the properties will not sell one without the other. It is proposed to present a resolution to the Board of Control to provide for engaging the services of an expert to value the property of the companies preparatory to action by the City Council in the matter.

**International Engineering Congress.**—The American Society of Civil Engineers, the American Institute of Mining Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers and the Society of Naval Architects and Marine Engineers have appointed a permanent committee of management for the International Engineering Congress to be held in San Francisco in 1915. The committee has effected a permanent organization with Prof. W. F. Durand as chairman and W. A. Cattell as secretary-treasurer and has established executive offices in the Foxcroft Building, 68 Post Street, San Francisco. The chairmen of the committees in charge of definite portions of the work are: committee on participation, Charles F. Rand; executive committee, W. F. Durand; finance committee, W. G. Dodd; papers committee, A. M. Hunt; publicity committee, W. A. Cattell; local affairs committee, E. H. Benjamin.

**Dallas Company to Talk Freely of Its Plans and Purposes.**—L. C. Bradley, assistant district manager of the Texas properties of Stone & Webster, with headquarters in Dallas, made public a statement recently in which he said: "A full investigation of our companies in Dallas shows that in the last few years enormous sums of money have been expended for almost making over anew the holdings of former years. Although little has been said about it, there is in progress at this moment under actual construc-

tion in various sections of the city by our local companies new improvement work costing in excess of \$1,295,000. Notwithstanding this, further plans, under the direction of Mr. Moore, for other important improvements are being made. I appreciate that the public is vitally interested in the plans of its public service companies, as they relate to the necessities of their daily life, and the management will from time to time, in the daily press, talk freely of its plans and purposes."

**Testimony in Regard to Traffic Inquiry in Toronto.**—H. L. Beach, who was connected with the study of traffic in Toronto conducted by Bion J. Arnold, Chicago, Ill., was examined recently before the Toronto Railway Board by Corporation Counsel Geary for the city and by E. B. Osler for the Toronto Railway. Mr. Beach testified in regard to the effect upon the city of the absence of service in suburban districts and defined the protected investment. Chief Assessor G. L. Farley was called to show the increase in population in different sections of the city. Mr. Osler sought to prove that if the company built the lines asked for by the city the company would not realize on the added investment before its franchise expired. Mr. Beach agreed that this was likely to be so. Charles W. Power, engineer in charge of the construction of railway work, testified in regard to the amount of money put back into the property each year by the company in improvements. The Ontario Railway & Municipal Board has decided that sufficient evidence has been placed before it in connection with the traffic study in Toronto.

**New Orleans Assessment Reduced.**—By a vote of four to one the Commission Council of New Orleans, La., has adopted the minority report of Commissioner Thompson of the Board of Review and has reduced the tax assessment of the New Orleans Railway & Light Company from \$23,576,944, as fixed by the Board of Assessors, to \$20,644,326. The appeal to the Commission Council is permitted under the commission form of government in force in New Orleans where a committee of three members of the commission is authorized to hear appeals on assessments. This committee is composed of W. B. Thompson, commissioner of public utilities; Harold Newman, commissioner of public safety, and W. G. Ricks, commissioner of finances. In making the report this committee said that the reduction was made to protect the interest of the public at large and to show that the local authorities of New Orleans wish to be fair to the public service corporations. The protest of the company against the assessment as originally proposed was referred to at length in the *ELECTRIC RAILWAY JOURNAL* of May 3, 1913, page 824, comparative city and railway assessments being given since 1902.

**Statement by Connecticut Company in Regard to Its Carhouse Employees.**—In connection with the demand made recently by the representatives of its motormen and conductors for the reinstatement of carhouse employees laid off in New Haven, Conn., the Connecticut Company has issued a statement that the necessity for retrenchment compelled the company to reduce its forces. This statement the company concluded as follows: "Heretofore all matters in dispute between the company and the employees have been settled by conferences between the officers of the company and representatives selected by the men from those engaged in like branches of service, and in this case the same procedure should be followed, for which purpose the officers have offered time and again to discuss the matter with the men laid off, or other shop men selected by them, but not with the motormen and conductors. All matters at issue between the motormen and conductors and the company relative to wages and conditions of labor were settled one year ago under an agreement to be operative for a period of two years, and there seems absolutely no justification for bringing that branch of the service into the present dispute."

**Chicago Loop Removal Proposal.**—Samuel Insull, on behalf of the Chicago Elevated Railways, in a communication to the local transportation committee of the City Council of Chicago, Ill., on May 16, 1913, stated that the companies are interested in the maintenance of the present elevated loop only until some more satisfactory substitute has been arranged for by the city. The elevated railroads would

welcome a subway as a "satisfactory substitute" for the loop structure, which they would agree to use on terms mutually agreeable to the city and them. Mr. Insull said: "If, for instance, the city will build a proper subway the route and character of construction to be mutually agreed upon, the elevated railways will agree to lease the subway during the term of their present franchises, to give transfers and through routing by the use of the subway, instead of continuing to use the elevated loop structure, and to pay a graduated income to the city, which during the terms of the lease would amount to a substantial income upon the city's investment. The loop structure could then be removed at the option of the city." The engineering sketches for the proposed changes in the elevated structure were placed in the hands of the supervising board and the commissioner of public works on May 19, 1913, for report upon the practicability and the necessity of the alterations. The ordinance drafted by the company to confer upon it the power to make these changes and to through-route its trains was at the same time sent to the law department for an opinion upon its provisions, especially in reference to the protection of the city's rights.

## LEGISLATION AFFECTING ELECTRIC RAILWAYS

### ILLINOIS

Following a conference between Governor Dunne of Illinois and Mayor Harrison of Chicago, Corporation Counsel Sexton and Assistant Corporation Counsel Skinner of Chicago, Senator Glackin, chairman of the Senate committee on public utilities, and Senator Rapp, it was announced that a compromise was likely in regard to public utility legislation. The Dunne measure with an amendment conferring greater powers of home rule on Chicago will probably be reported out of both houses. The home rule sections of the Glackin or Harrison bill will be included in the Dunne measure. Senate bill No. 539 (Waage), Governor Dunne's public ownership bill, has been advanced to third reading in the Senate.

The Senate has passed Senate bill No. 55 (Womack), requiring prompt settlements of claims for damages in freight shipments. House bill No. 721, providing for licenses for railroads to sell liquor on trains and fixing a license fee of 50 cents per year for each car on which liquor is sold, has been advanced to third reading in the House. Senator Cornwell has introduced a bill to amend the corporation act by giving corporations the right to restrict the powers of directors, trustees and managers by certification of incorporation or by-laws. It has been referred to the committee on corporations.

### MASSACHUSETTS

The committee on street railways has reported a bill permitting no more than nine hours' work in twelve as a day's work for motormen and conductors on the Boston Elevated Railway. Representative Carr, of Boston, has presented a motion in the House favoring a bill to provide for the removal of the elevated structure of the Boston Elevated Railway between the North Station and Sullivan Square and the substitution of a subway. Representative Wilson, of Boston, opposed substitution for the adverse report of the committee on the ground that consideration should be given the company's investment in the existing structure. On a voice vote the motion to substitute prevailed.

### NEW YORK

Governor Sulzer has vetoed the bill to regulate the use of street surface railroad tracks on the Bowery in the borough of Manhattan, New York City. The Governor expressed the opinion that the measure would usurp the power of the Public Service Commission of the First District by relieving the company of the necessity for having the securities to be issued to pay for the improvement passed upon by the commission. The Governor has also vetoed the act for the abolition of horse cars in cities of the first class by Jan. 1, 1914. His reason for vetoing this bill is substantially the same as his reason for withholding his sanction from the act to regulate the use of tracks on the Bowery. The Governor has also disapproved the Foley-Walker workmen's compensation bill.



WISCONSIN

The Linley bill, permitting municipalities to purchase street railways at any time, has been sent to the Senate concurred in by the Assembly. After being concurred in reconsideration of the vote was voted down. Assembly bill 232, relating to the distribution of the street railway tax, has been recommended to the Senate for concurrence by the committee on corporations. The Assembly has concurred in the Senate bill permitting privately owned public utilities to acquire property for extensions of plants by right of eminent domain.

PROGRAMS OF ASSOCIATION MEETINGS

Pacific Claim Agents' Association

The fifth annual convention of the Pacific Claim Agents' Association will be held in Vancouver, B. C., on July 10, 11 and 12, 1913.

Central Electric Railway Association

The committee on hotels and arrangements of the Central Electric Railway Association has chartered the S. S. *St. Ignace* for the meeting of the association in June. This steamer will leave Toledo at 3 p. m. on June 25, 1913, making a trip north through the Detroit River, Lake St. Clair and the flats, possibly as far north as Alpena. Returning, the boat will arrive at Toledo on the evening of June 27. The meeting of the Central Electric Railway Accountants' Association will also be held on the *St. Ignace*. Arrangements have been made for communication between the properties of the various officials and the boat via telegraph and wireless. The expense per person for the round trip out of Toledo, including meals and berth, will be \$12 and an invitation is extended to officials of interurban lines not members of either association to participate in the outing.

Keystone Railway Club

The following program of papers has been announced for the meeting of the Keystone Railway Club, which will be held at the Colonial Hotel, York, Pa., on June 2 and 3, 1913:

Paper, "Selecting Transportation Employees and Retaining Them in Service," by W. H. Hitchcock, general superintendent of the Trenton & Mercer County Traction Corporation, Trenton, N. J.

Paper, "Electric Railway Special Track Work," by Victor Angerer, vice-president and general manager of the William Wharton, Jr., Company, Philadelphia, Pa.

Paper, "A Description of the A. C.-D. C. Equipment in Use on the York Railway System," by E. P. Green, master mechanic of the York (Pa.) Railways.

Paper, "Slotting of Street Car Commutators," by W. H. Rushton, master mechanic of the Altoona & Logan Valley Electric Railway, Altoona, Pa.

The following questions will be included in the question box:

"What is the cause of the annoying back-lash at the moment the wheels come to a standstill?"

"How often should air compressors be removed from cars and be overhauled?"

"What results are obtained from the use of steel bushings on controller shafts and motorman's valve stems?"

"What results and what mileage have been obtained with one-run-steel and cast-steel wheels?"

"Which of the three motorman's valves—rotary, slide and piston type—gives the best satisfaction, and why?"

"What is the best and quickest method to avoid interruption of traffic in bringing double-truck cars with broken axles to the carhouse?"

"Is a lined or a solid journal bearing considered best for city service?"

The meeting of the association on June 2 will be called at 8.15 p. m. So as to permit the presentation and discussion of the papers and questions only routine business will be conducted at this session. The entertainment committee has arranged a trip to the Yorkhaven power house for the afternoon of June 3.

Financial and Corporate

Stock and Money Markets

May 21, 1913.

Trading on the New York Stock Exchange to-day was quiet, but the market tone was firm and the price changes in nearly all cases were in the shape of advances. There was considerable absorption of Brooklyn Rapid Transit early in the day, but toward the close this issue yielded nearly a point. There was very little demand for Interborough-Metropolitan preferred. Rates in the money market to-day were: Call, 2¾@3 per cent; sixty days, 3¾@4 per cent; ninety days and four months, 4@4¼ per cent; five months, 4¼@4½ per cent; six months, 4½@4¾ per cent.

There was a better demand for stocks in Philadelphia to-day. Philadelphia Rapid Transit recovered to 23¼.

The Chicago market was narrow and inactive to-day. The only bond transactions were in Chicago Railways 5s, City Railway 5s and Edison 5s.

The Boston market to-day was exceptionally dull. Dealings were mostly in odd lots.

The market for stocks in Baltimore to-day was narrow and dull. The bond market was narrow but active.

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

	May 14	May 21
American Brake Shoe & Foundry (common).....	92	92
American Brake Shoe & Foundry (preferred).....	130	130
American Cities Company (common).....	37½	37½
American Cities Company (preferred).....	70½	70¾
American Light & Traction Company (common).....	370	370
American Light & Traction Company (preferred).....	106	106
American Railways Company.....	38	38
Aurora, Elgin & Chicago Railroad (common).....	42	42
Aurora, Elgin & Chicago Railroad (preferred).....	84	84
Boston Elevated Railway.....	89	85¾
Boston Suburban Electric Companies (common).....	7½	7½
Boston Suburban Electric Companies (preferred).....	66	66
Boston & Worcester Electric Companies (common).....	a8	a8
Boston & Worcester Electric Companies (preferred).....	43	43
Brooklyn Rapid Transit Company.....	49¾	91¼
Capital Traction Company, Washington.....	120½	120
Chicago City Railways.....	*150	*150
Chicago Elevated Railways (common).....	*25	*25
Chicago Elevated Railways (preferred).....	*87	*87
Chicago Railways, pteptg., ctf. 1.....	*91½	89½
Chicago Railways, pteptg., ctf. 2.....	*21	20¾
Chicago Railways, pteptg., ctf. 3.....	*7	6
Chicago Railways, pteptg., ctf. 4.....	*3½	*3½
Cincinnati Street Railway.....	115	115
Cleveland Railway.....	103	103½
Cleveland, Southwestern & Columbus Ry. (common).....	*5½	*5½
Cleveland, Southwestern & Columbus Ry. (preferred).....	*28¾	*28¾
Columbus Railway & Light Company.....	18	18
Columbus Railway (common).....	69½	a69½
Columbus Railway (preferred).....	82½	83
Denver & Northwestern Railway.....	109	109
Detroit United Railway.....	72	72
General Electric Company.....	137½	138¾
Georgia Railway & Electric Company (common).....	117	117
Georgia Railway & Electric Company (preferred).....	84	84
Interborough Metropolitan Company (common).....	14	14½
Interborough Metropolitan Company (preferred).....	49¾	50¾
International Traction Company (common).....	40	*40
International Traction Company (preferred).....	95	*95
Kansas City Railway & Light Company (common).....	..	..
Kansas City Railway & Light Company (preferred).....	..	..
Lake Shore Electric Railway (common).....	9	9
Lake Shore Electric Railway (1st preferred).....	91	91
Lake Shore Electric Railway (2d preferred).....	25	25
Manhattan Railway.....	127	129½
Massachusetts Electric Companies (common).....	16	16
Massachusetts Electric Companies (preferred).....	73	72½
Milwaukee Electric Railway & Light Co. (preferred).....	*100	100
Norfolk Railway & Light Company.....	26½	26¾
North American Company.....	70	71
Northern Ohio Light & Traction Company (common).....	80	80
Northern Ohio Light & Traction Company (preferred).....	105	105
Philadelphia Company, Pittsburgh (common).....	43¾	44
Philadelphia Company, Pittsburgh (preferred).....	40½	40½
Philadelphia Rapid Transit Company.....	23	23½
Portland Railway, Light & Power Company.....	*67½	67½
Public Service Corporation.....	114	114
Third Avenue Railway, New York.....	33½	34
Toledo Railways & Light Company.....	12	a12
Twin City Rapid Transit Co., Minneapolis (common).....	103½	104
Union Traction Company of Indiana (common).....	7½	7½
Union Traction Company of Indiana (1st preferred).....	82	82
Union Traction Company of Indiana (2d preferred).....	32	32
United Rys. & Electric Company (Baltimore).....	27	27
United Rys. Inv. Company (common).....	23	22
United Rys. Inv. Company (preferred).....	41	44
Virginia Railway & Power Company (common).....	50½	53
Virginia Railway & Power Company (preferred).....	90	90
Washington Ry. & Electric Company (common).....	91	90
Washington Ry. & Electric Company (preferred).....	91	90
West End Street Railway, Boston (common).....	71	72½
West End Street Railway, Boston (preferred).....	90	88
Westinghouse Elec. & Mfg. Company.....	61½	62
Westinghouse Elec. & Mfg. Company (1st preferred).....	105	110

\*Last sale. aAsked.

## ANNUAL REPORTS

## Westinghouse Electric &amp; Manufacturing Company

The board of directors of the Westinghouse Electric & Manufacturing Company submitted on May 20, 1913, its report of the operations of the company and of its subsidiary companies for the fiscal year ended March 31, 1913. The income account for the year is as follows:

Gross earnings:		
Sales billed.....	\$39,977,565	
Cost of sales:		
Factory cost, including all expenditures for patterns, dies, new small tools and other betterments and extensions; also inventory adjustments and selling, administration, general and development expenses.....	35,406,293	
Net manufacturing profit.....	\$4,571,272	
Other income:		
Interest and discount.....	\$294,887	
Dividends and interest on sundry stocks and bonds owned .....	647,908	
Miscellaneous—royalties, etc.....	53,768	996,563
Gross income from all sources.....	\$5,567,836	
Deductions from income:		
Interest on bonds and debentures.....	\$1,103,423	
Interest on collateral notes.....	409,672	
Interest on long-term notes and mortgages.....	99,319	
Depreciations charged against income.....	606,128	
Proportion of expenses incidental to bond and note issues .....	90,000	
Miscellaneous .....	95,259	2,403,803
Net income available for dividends and other purposes .....	\$3,164,032	

Guy E. Tripp, chairman of the board, said in part:

"The sales billed for the year were in excess of any previous year in the history of the company. The ratio of the manufacturing profit to sales billed increased over last year, but unusually keen competition in all your company's activities prevailed and still continues.

"The value of unfilled orders as of March 31, 1912, was \$8,137,961; as of March 31, 1913, the value of unfilled orders was \$12,061,473. The average number of employees during the year was 20,542, as compared with an average of 16,000 for the previous year.

"The surplus as of March 31, 1912, was \$6,648,964. This balance was increased by the net income for the year to a gross surplus of \$9,932,203. Against this surplus have been charged dividends declared during the year on the preferred stock at the rate of 7 per cent per annum (\$279,909) and three dividends of 1 per cent each, aggregating \$1,053,666, on the common stock; also miscellaneous charges totaling \$283,187. These charges reduced the surplus to \$8,315,441, against which depreciations of investments aggregating \$966,919 were written off, leaving the surplus as of March 31, 1913, \$7,348,522.

"The increase in property and plant to \$20,467,224, or \$1,272,036.68 over the figures as of March 31, 1912, after deducting liberal depreciation charges, represents necessary purchases of additional manufacturing equipment chiefly at the East Pittsburgh and Newark works and the erection of additional buildings at East Pittsburgh on real estate already owned. No purchases of real estate were made during the year. A further extension was obtained of the lease of the property on which your company operates an iron foundry at Pittsburgh, Pa. It is possible that the erection of foundry and pattern buildings at Trafford City on real estate already owned will be started during the current year.

"The sinking fund of \$160.20 represents the uninvested balance of sinking fund payments made to the trustee on account of the company's issue of convertible sinking fund 5 per cent gold bonds. As a result of the sinking fund payment during the year there was retired and canceled a total of \$528,000 face value of convertible bonds.

"The increase in securities of your company held in the treasury is chiefly due to the receipt from the trustee of \$686,000 face value of convertible sinking fund gold bonds, in accordance with the provisions of the bond indenture, and to the purchase of \$150,000 face value of debenture certificates due July 1, 1913. The bonds are held in the treasury for sale or use for sinking fund purposes, and the debenture certificates will be delivered to the trustee for cancellation on July 1, 1913, on which date the entire outstanding balance of the issue of debenture certificates will mature.

"In general, the affairs of the foreign companies, with the exception of the Russian company, show further improvement during the year 1912. The British and French companies particularly give promise of continued improvement.

"After an exhaustive investigation made upon the ground by your chairman and certain other officers of the company last autumn, your directors determined upon the liquidation of the Russian company, and have proceeded as rapidly as possible in carrying out the plan. The works, consisting of real estate, buildings, equipment and inventories, have been sold and the collection of its accounts and payment of its debts are proceeding as rapidly as possible. It is anticipated that when its affairs are finally closed up there will be a further depreciation of approximately \$1,500,000, which will mean that your company will receive practically the amount of its current claims against the Russian company, and that its investment in securities of that company will be entirely charged off.

"The current assets are placed at \$18,126,991. The amount of reserve for notes and accounts receivable as of March 31, 1913, is believed to be sufficient to provide for any probable shrinkage in the book value thereof, with the possible exception of a note of the Security Investment Company, to which reference was made in your directors' report for the year ended March 31, 1911.

"A large increase in the working and trading assets of \$18,510,222 over the value as of March 31, 1912, was to be expected in view of the increase in shipments billed during the year as compared with the previous year, and the increase of approximately \$4,000,000 in the value of unfilled orders on hand as of March 31, 1913, as compared with the close of the previous year. The usual annual inventories of all raw materials, finished stocks and work in progress were taken and valued at purchase prices or manufacturing cost, or less. A fixed basis has been established for the depreciation of inactive stocks.

"The total of other assets again shows a decrease as compared with the previous year. The amount of the expenditures for patents capitalized during the year was \$26,381, all additional expenditures for patents and licenses and the cost of all development and experimental work having been charged to operating expenses.

"The changes in the funded debt of the company as of March 31, 1913, as compared with March 31, 1912, have been explained in the comments pertaining to sinking fund and investments. The outstanding balance of debenture certificates matures July 1, 1913, and is expected to be provided for by the sale of convertible sinking fund bonds of an equal total face value that under the terms of the bond indenture were reserved to retire them. The four-year notes issued under the plan for the discharge of the receivers of your company matured on Jan. 1, 1913, and were paid.

"During December, 1912, and March, 1913, your company borrowed with treasury securities as collateral \$3,500,000 on notes maturing in June and September, 1913. On Aug. 1, 1913, the issue of \$4,000,000 three-year collateral notes made Aug. 1, 1910, will mature. Your directors have under consideration plans to provide for these maturities which it is expected will effect a considerable reduction of the total."

## New Orleans Railway &amp; Light Company

The comparative income, profit and loss statement of the New Orleans Railway & Light Company, New Orleans, La., for the years ended Dec. 31, 1911, and 1912, was published in the ELECTRIC RAILWAY JOURNAL of April 19, 1913, page 737. The statement of earnings of the company for the year ended Dec. 31, 1912, as contained in the pamphlet report of the company, follows:

Operating revenue .....	\$6,628,147
Operating expenses .....	3,420,356
Net operating revenue .....	\$3,207,791
Revenue deductions—taxes, etc.....	565,991
Net operating income .....	\$2,641,800
Miscellaneous income and revenue:	
Outside operations .....	41,574
Gross income .....	\$2,683,374
Income deductions—interest, etc.....	1,688,342
Net income .....	\$995,032

Hugh McCloskey, the president, says in part: "These

figures compared against the previous year's result will show the following: Gross operating revenue increased \$292,685, or 4.60 per cent; net operating revenue increased \$291,977, or 10.01 per cent; net income increased \$223,336, or 28.95 per cent.

"The same policy of maintaining the physical condition of the properties in a high state of efficiency has been pursued, as evidenced by the actual charges for maintenance during the year, which have amounted to the sum of \$781,761, an increase of \$47,939 over the previous year, or 6.8 per cent, and in addition to the above there has been expended during the year \$163,172 for renewals and replacements, of which \$134,506 was charged into operating expenses and maintenance accounts and \$28,666 to the depreciation reserve.

"There has been expended for construction, improvements and betterments \$531,953, as follows: roadway and line, \$128,726; electric line system and accessories, \$106,741; gas distribution system and accessories, \$162,297; plant equipment, \$55,358; rolling stock and miscellaneous equipment, \$19,122; buildings and structures, \$26,267; engineering and miscellaneous, \$33,440; total, \$531,953.

"During the year we sold to Bertron, Griscom & Jenks \$200,000 par value of the 5 per cent forty-year refunding and general lien gold mortgage bonds, and a loan of \$1,400,000, secured by 5 per cent bonds, was effected through local banks, to cover expenditures made for construction, improvements and betterments and retirement of affiliated companies' bonds.

"Dividends on preferred and common capital stocks aggregating \$800,000 were declared and paid during the year."

The comparison of railway traffic statistics for 1912 and 1905, as contained in the report, follows:

	1912	1905
Revenue passengers carried .....	84,855,983	65,021,214
Transfer passengers carried .....	21,048,666	6,641,193
Percentage of passengers using transfers.....	24.8	10.2
Average fare per passenger—cents.....	4.02	4.57
Car mileage .....	19,529,116	16,753,874
Number of eighteen-hour cars.....	121,061	102,156

**Finances of the Columbus Railway & Light Company**

An application has been filed with the Public Service Commission of Ohio for authority to issue securities to make a settlement with the Columbus Railway & Light Company for money claimed to be due from its subsidiaries for improvements and extensions. The plan includes the issue of \$1,353,930 of common stock by the new company, the Columbus Railway, Power & Light Company. Of this, \$500,000 is to be sold at par to secure working capital for the new company. The indebtedness to the Columbus Railway & Light Company is to be paid with \$534,630 of the new stock, and \$283,000 of Columbus Railway consolidated 4 per cent bonds and \$36,300 of Columbus Light, Heat & Power Company general mortgage 6 per cent bonds are to be purchased from the Columbus Railway & Light Company with the proceeds from the remainder of the new common stock. This would make the total capitalization under the reorganization \$11,538,130, as compared with the present total capitalization of \$13,465,900 for all the companies. The commission has authorized an exchange of stock for the underlying companies.

Report on the properties made by Stone & Webster shows that the plant, materials and supplies appearing on the balance sheet as of Dec. 31, 1912, represent a valuation of \$19,358,024. Based on the 1912 earning capacity, assuming 18 per cent of the railway gross for railway maintenance and depreciation and 10 per cent of the lighting gross for light plant maintenance and depreciation, the value was \$15,380,000. The earnings for the year ended Dec. 31, 1912, follow:

Gross earnings.....	\$2,922,682
Operating expenses.....	1,586,215
Net earnings from operation.....	\$1,336,467
Non-operating revenue.....	11,369
Total net.....	\$1,347,837
Less taxes.....	\$243,752
Trackage rentals.....	7,500
Corporate expenses, viaduct rentals, etc.....	18,613
Depreciation.....	155,081
	424,946
Balance.....	\$922,891

The ratio of operating expenses to gross receipts was 54.4 per cent.

The commission set a date to hear the application, but postponed it until May 20.

**Decision in Toledo Control Case**

Judge John M. Killits of the United States District Court made known on May 16, 1913, his decision in the injunction suit brought by the Toledo Traction, Light & Power Company, Toledo, Ohio, to oust what is known as the Barton Smith faction from the offices to which some of its members had been elected by the old board of directors. The Smith faction is allowed to have five members of the board of directors, but Barton Smith and others are restrained from interfering with the other sixteen directors elected in the interest of H. L. Doherty & Company, New York, N. Y. The court held that Maurice Allen was not legally elected president of the company by the old board, as he was not considered a director. The meeting of the directors representing the Doherty interests at which Frank R. Coates was chosen president was held to be of no effect, because the five Smith directors were not permitted to participate. This leaves the company without a president, but Mr. Coates was continued as acting president until May 29, when the directors will reorganize.

Under Judge Killits' decision the following officers chosen by the Smith board were restored to their positions: vice-president, Frank Hafer; general manager, L. E. Beilstein; secretary, H. S. Swift. S. D. Carr was treasurer for both factions. The removal of Smith & Baker as general counsel was held as illegal. The injunction does not hold against these officers to prevent their performing their duties. Frank Hafer, C. F. Meilink, Conrad Weil, J. K. Secor and H. S. Swift, Smith directors, are continued. The court holds that a director shall serve his time unless removed for cause. The meeting of stockholders called by the Doherty interests was held to be legal and all but five directors chosen at that time were legally elected. The exceptions are those who were selected to take the places of the five Smith men named previously. The Doherty directors are Messrs. Hoffman, Logan, Chapman, Welles, Diege, Coughlin, Isenberg, Miller, Bump, Williams, Frueauff and Newbegin.

**Bucks County Interurban Railway, Philadelphia, Pa.—**

A dispatch from Harrisburg states that papers have been filed for the merger of the Trenton, New Hope & Lambertsville Street Railway, the Yardley, Morrisville & Trenton Street Railway, the Newton & Yardley Railway and the Bucks County Electric Railway, Newton, Pa., to form the Bucks County Interurban Railway. The capital is \$1,000,000. The directors include: W. Frederick Snyder, Philadelphia, president; W. H. Snyder, Sydney L. Wright and W. Redwood Wright, Philadelphia.

**Chicago (Ill.) City Railway.**—The local transportation committee of the City Council of Chicago on May 15, 1913, ordered an investigation into charges of alleged irregularities in the accounts of the Chicago City Railway. The investigations will be based on the charges made by J. B. Hogarth, who was formerly connected with the Chicago Railways and the Chicago City Railway. The committee referred to the city comptroller a resolution on the advertising contract of the Chicago Railways. A resolution relating to the rate paid by the same company for power was referred to the city electrician.

**Columbus, Marion & Bucyrus Interurban Railway, Marion, Ohio.**—The Columbus, Marion & Bucyrus Interurban Railway has been incorporated with a capital stock of \$250,000 to succeed the Columbus, Marion & Bucyrus Railroad, the property of which, as noted in the ELECTRIC RAILWAY JOURNAL of May 17, 1913, page 908, was sold on May 10, 1913, to James H. Caldwell, chairman of the bondholders' committee.

**Commonwealth Power, Railway & Light Company, Grand Rapids, Mich.**—Hodenpyl, Hardy & Company, New York, N. Y., and E. W. Clark & Company, Philadelphia, Pa., are offering the unsold portion of \$7,500,000 of five-year 6 per cent convertible bonds of the Commonwealth Power, Railway & Light Company to the public at 97½, yielding 6.60 per cent.

**Danville, Champaign & Decatur Railway & Light Company, Danville, Ill.**—Consolidated and refunding collateral trust gold bonds of the Danville, Champaign & Decatur Railway & Light Company, a holding company and a new subsidiary of the Illinois Traction System, Peoria, Ill., are being offered for sale at 92½ and interest by Merrill, Oldham & Company. The bonds are dated March 1, 1913, and due March 1, 1938, but redeemable at 104 and interest on any interest date.

**Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind.**—The directors of the Fort Wayne & Northern Indiana Traction Company on April 21, 1913, declared a scrip dividend of \$3 per share upon the \$2,500,000 of 6 per cent preferred stock, payable to stockholders of record April 30, 1913, covering in full the arrears of the dividend, payable 1½ per cent on Dec. 1, 1912, and 1½ per cent on March 1, 1913. The scrip is to be non-interest-bearing, redeemable within five years from April 30, 1913, at the option of the company, or before that time, as it may determine, in the preferred stock at par, or if such optional power has not been exercised, the holder at his option may at any time during the period convert such dividend certificate into preferred stock at par. In view of the fact that a contract has been entered into for increasing the capacity of the power house to over 18,000 kw and that the year in general will be one of considerable expenditure, this scrip dividend is declared and the surplus will be used for development work.

**Highland Park & Lake Burien Railroad, Seattle, Wash.**—James E. Bradford, corporation counsel of Seattle, has rendered an opinion to O. T. Erickson, chairman of the city utilities committee of the City Council, to the effect that the City Council has authority to accept for the city the offer of the owners of the Highland Park & Lake Burien Railroad to turn over to the city that portion of the road within the city limits. As stated in the *ELECTRIC RAILWAY JOURNAL* of May 3, 1913, the owners of the railroad offered to transfer the line within the city to the city free of all encumbrances on condition that the city shall maintain the service so that the property owners along the road who subscribed to the funds for the road's construction may have access to Seattle.

**Idaho-Oregon Power & Light Company, Boise, Idaho.**—An amended plan has been formulated for the readjustment of the capital and the refinancing of the Idaho-Oregon Light & Power Company, a subsidiary of the Idaho Railway, Light & Power Company. Under the amended plan the Idaho Railway, Light & Power Company will purchase all properties, rights and franchises of the Idaho-Oregon Light & Power Company, subject to liens of underlying bonds aggregating \$534,000, and will cancel the capital liabilities of the Idaho-Oregon Company held by it. Idaho Railway & Light will create a second mortgage covering all property held by it and by the Idaho-Oregon Company to secure an issue of \$4,660,000 of second mortgage 5 per cent convertible bonds, of which \$3,212,000 will be Series A bonds and \$1,448,000 Series B bonds, convertible into first and refunding bonds of the railway company.

**International Railway, Buffalo, N. Y.**—The Public Service Commission of the Second District of New York has authorized the International Railway to issue its 5 per cent fifty-year refunding and mortgage bonds to the par value of \$1,755,000. Bonds in the amount of \$260,000 are to be sold at not less than 92 and the proceeds used for certain additions and betterments made from Aug. 1 to Dec. 31, 1912; \$695,000 of the bonds are to be used to refund and retire a like par value of other securities. The latter amount of bonds is to be sold at not less than 92.

**Joplin & Pittsburg Railway, Pittsburg, Kan.**—Cooke, Holtz & Company, Chicago, Ill., are offering at par and interest \$300,000 of 6 per cent gold debentures of the Joplin & Pittsburg Railway of 1910, due April 1, 1920, but convertible after April 1, 1915, if not previously called for (redemption at par and interest), into general mortgage (closed) 6 per cent bonds, due April 1, 1920, the issuance of which was recently approved by the Missouri and Kansas authorities, as noted in the *ELECTRIC RAILWAY JOURNAL* of May 10, 1913. Under the first mortgage there are now outstanding \$1,750,000 of bonds, and additional first mortgage bonds may

be issued for not exceeding 80 per cent of the cost of permanent extensions, enlargements and additions, provided the annual net earnings are twice the annual interest charge on all first mortgage bonds outstanding, including those proposed to be issued.

**Lehigh Valley Transit Company, Allentown, Pa.**—A special meeting of stockholders of the Lehigh Valley Transit Company has been called for June 12, 1913, for the purpose of voting on a proposition to increase the indebtedness of the company in connection with the purchase of the stock of the Easton Consolidated Electric Company and for other purposes.

**Michigan & Chicago Railway, Grand Rapids, Mich.**—The Michigan & Chicago Railway, the property of which is expected to form part of the system of the Commonwealth Power, Railway & Light Company, Saginaw, Mich., when enlarged under the plan outlined in the *ELECTRIC RAILWAY JOURNAL* of May 10, 1913, page 867, has been authorized by the Michigan Railroad Commission to increase its capital stock from \$3,000,000 to \$6,000,000 (\$1,017,000 for cash), to issue \$3,260,000 of bonds to take up a previously authorized issue, and later, when required, to issue a further \$3,512,500 of bonds for new construction. This authorization covers the expenses of providing terminals, tracks, etc., for the road in Grand Rapids; a hydroelectric power plant on the Manistee River; an extension of the company's lines to Otsego, and the establishment of terminal facilities in Allegan. The road is under construction between Kalamazoo and Grand Rapids. It is covered by a mortgage of \$3,000,000 filed in August, 1909, with the Chicago Title & Trust Company.

**Michigan United Railways, Jackson, Mich.**—D. Arthur Bowman & Company, St. Louis, Mo., recently offered at the market price, yielding 5½ per cent, \$100,000 of first and refunding gold 5's of 1906, due May 1, 1936, of the Michigan United Railways. Principal and interest is guaranteed (through lease) by the Michigan United Traction Company and the Michigan Railways. The amount of the issue outstanding is \$7,208,000, with \$3,790,000 reserved for prior liens and for future extensions and additions.

**Nashville Railway & Light Company, Nashville, Tenn.**—The Nashville Railway & Light Company has taken over the Gallatin Pike Railway, which has been operating a little more than 1 mile of track.

**New Orleans Railway & Light Company, New Orleans, La.**—E. H. Rollins & Sons, New York, N. Y., are offering for subscription at 99.50 and interest to yield more than 6.15 per cent \$2,500,000 of the three-year gold debentures of the New Orleans Railway & Light Company dated June 1, 1913, and due June 1, 1916. This offering is made in accordance with the plan outlined in the *ELECTRIC RAILWAY JOURNAL* of May 17, 1913, page 909, to offer \$2,500,000 of the debentures at this time to provide funds to pay maturing obligations and for extensions and improvements to the system.

**New York, New Haven & Hartford Railroad, New Haven, Conn.**—A quarterly dividend of 1½ per cent has recently been declared by the New York, New Haven & Hartford Railroad, which places the stock on a 6 per cent basis. This is a reduction from the annual rate of 8 per cent paid since 1895.

**Pekin & Petersburg Interurban Railway, Pekin, Ill.**—T. W. Rodecker, Pekin, Ill., has been appointed receiver of the Pekin & Petersburg Interurban Railway, promoted by John E. Melick, who was connected with the Springfield, Clear Lake & Rochester Railway. The receivership is the result of a foreclosure suit instituted by M. D. Conaghan, trustee, and Adam Saul, holder of a majority of the first mortgage and debenture bonds of the company, mention of which was made in the *ELECTRIC RAILWAY JOURNAL* of May 10, 1913, page 869.

**Stockton Terminal & Eastern Railway, Stockton, Cal.**—The California Railroad Commission has rendered its findings upon the value of the property of the Stockton Terminal & Eastern Railway as follows: original cost, \$213,746; reproduction value, \$215,918; present value, \$202,118.

**United Properties Company, Oakland, Cal.**—The United Properties Company, in which F. M. Smith is said to own

60 per cent of the \$200,000,000 of capital stock, has temporarily been placed in charge of the following trustees pending the preparation of some general plan of financing: Vanderlyn Stow, W. A. Bissell, James K. Moffitt, Gavin McNab, who is attorney for William S. Tevis, and W. I. Brobeck, who is attorney for F. M. Smith. This step followed the placing of the affairs of Mr. Smith in the hands of the Mercantile Trust Company, San Francisco, as trustee, because of the refusal of the banks to renew his outstanding notes, aggregating about \$7,500,000. Mr. Smith is president of the United Properties Company.

**Virginia Railway & Power Company, Richmond, Va.**—The New York Stock Exchange has listed \$500,000 of additional refunding mortgage 5 per cent bonds, due 1934, of the Virginia Railway & Power Company. The total of bonds of the company which are now listed is \$11,503,000.

**Dividends Declared**

- American Railways, Philadelphia, Pa., quarterly, 1½ per cent, common.
- Chippewa Valley Railway, Light & Power Company, Eau Claire, Wis., quarterly, 1¾ per cent, preferred.
- Citizens' Traction Company, Pittsburgh, Pa., \$1.50.
- Columbus (Ohio) Railway, quarterly, 1¼ per cent, common.
- Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., \$3, preferred.
- Grand Rapids (Mich.) Railway, quarterly, 1 per cent, common.
- Northern Texas Electric Company, Fort Worth, Tex., quarterly, 1½ per cent, common.
- Pensacola (Fla.) Electric Company, 3 per cent, preferred.

**ELECTRIC RAILWAY MONTHLY EARNINGS**

**CHATTANOOGA RAILWAY & LIGHT COMPANY, CHATTANOOGA, TENN.**

Period	Gross Earnings	Operating Expenses	Net Earnings	Fixed Charges	Net Surplus
1 mo. March '13	\$93,157	*\$56,997	\$36,150	\$24,226	\$11,934
1 " " '12	81,332	*48,662	32,670	21,494	11,176
12 " " '13	1,103,348	*663,330	440,018	274,352	165,566
12 " " '12	967,272	*571,973	395,299	245,932	149,367

**CLEVELAND, SOUTHWESTERN & COLUMBUS RAILWAY, CLEVELAND, OHIO**

1 mo. March '13	\$87,172	*\$61,470	\$25,702	\$31,329	†\$5,627
1 " " '12	86,529	*54,524	32,004	30,149	1,854
3 " " '13	259,992	*173,476	86,515	92,976	†6,461
3 " " '12	243,943	*158,811	85,131	90,468	†5,337

**COMMONWEALTH POWER, RAILWAY & LIGHT COMPANY, SAGINAW, MICH.**

1 mo. March '13	\$562,853	*\$318,334	\$244,519	\$136,236	\$108,283
1 " " '12	492,601	*290,439	202,162	110,522	91,640
12 " " '13	6,603,175	*3,790,854	2,812,321	1,584,216	1,228,105
12 " " '12	5,685,169	*3,286,763	2,398,406	1,305,631	1,092,775

**CUMBERLAND COUNTY POWER & LIGHT COMPANY, PORTLAND, MAINE**

1 mo. March '13	\$171,116	*\$103,150	\$67,966	\$56,808	\$11,158
1 " " '12	154,050	*102,578	51,472	52,577	†1,105
12 " " '13	2,178,911	*1,214,938	963,973	661,608	302,365
12 " " '12	2,044,035	*1,266,293	77,742	581,666	196,076

**FEDERAL LIGHT & TRACTION COMPANY, NEW YORK, N. Y.**

1 mo. March '13	\$203,017	\$117,451	\$85,566	.....	.....
1 " " '12	176,140	102,688	73,452	.....	.....
3 " " '13	627,274	351,176	276,548	.....	.....
3 " " '12	541,785	303,579	238,206	.....	.....

**KENTUCKY TRACTION & TERMINAL COMPANY, LEXINGTON, KY.**

1 mo. March '13	\$61,309	\$30,540	\$30,768	\$19,396	\$11,372
1 " " '12	56,172	32,954	23,219	17,177	6,042
9 " " '13	574,417	305,762	268,655	167,739	100,916
9 " " '12	533,483	317,554	215,929	156,535	59,375

**LEHIGH VALLEY TRANSIT COMPANY, ALLENTOWN, PA.**

1 mo. March '13	\$134,065	\$64,925	\$69,139	\$46,070	\$23,069
1 " " '12	109,301	\$52,709	56,592	39,849	16,743
12 " " '13	1,605,113	682,470	922,643	522,704	399,939
12 " " '12	1,399,059	617,965	781,094	469,036	312,058

**NEW YORK (N. Y.) RAILWAYS**

1 mo. March '13	\$1,672,851	\$673,016	\$999,834	\$388,225	\$611,609
1 " " '12	1,479,947	705,023	774,924	368,841	406,083
9 " " '13	14,478,639	5,926,201	8,552,438	4,078,576	4,473,862
9 " " '12	.....	.....	.....	.....	.....

**PHILADELPHIA (PA.) RAPID TRANSIT COMPANY**

1 mo. April '13	\$1,998,246	\$1,193,400	\$804,845	\$762,444	\$42,401
1 " " '12	1,903,908	1,161,887	742,021	748,632	†6,611
10 " " '13	19,711,038	11,832,115	7,878,924	7,624,964	253,960
10 " " '12	18,665,571	11,476,566	7,189,005	7,403,297	†214,292

\*Includes taxes. †Deficit.

# Traffic and Transportation

## Unification Plans for Chicago Surface Lines

Plans for a unified operating system for the surface railways of Chicago have been presented to the aldermanic committee on transportation by L. A. Busby, president of the Chicago City Railway, and W. W. Gurley, general counsel for the Chicago Railways, and a sub-committee has been appointed to confer with the corporation counsel and representatives of the companies in drafting an ordinance allowing the proposed arrangements. This will be done by altering some sections of the 1907 ordinance now in operation. The plan of unification as presented makes the following provisions, as quoted from the letter to the committee:

"1. (a) Unified operation of all surface railways in the city with the same effect as regards service to the public as though all the lines were owned and operated by one company.

"(b) Through routing of all cars so far as the local service balances—this will eliminate all switchbacks and most of the present looping of cars in the downtown district and will increase the downtown terminal facilities approximately 30 per cent.

"(c) Purchase by the companies of a sufficient number of additional cars to utilize, during the rush hours, the additional track facilities in the downtown district, made available by such through routing—this will increase the rush-hour downtown transportation facilities fully 30 per cent.

"(d) More rapid transit, by means of through-service cars, from one division of the city to another, owing to the relief of congestion in the downtown district.

"(e) A 5-cent fare throughout the entire city on surface lines—this will give a 5-cent fare in lieu of the present 10-cent fare in the Calumet district south of Seventy-ninth Street.

"2. The operating agreement shall be subject to all of the terms, requirements and conditions of the 1907 and subsequent ordinances, except so far as those ordinances are modified by the proposed merger ordinance.

"3. Provision that if in any year, after establishing unified operation on the foregoing basis, the rate of return to the company shall be less than the rate of return under separate operation—which rate shall be agreed upon and specified in the merger ordinance for the remaining period of the present grants—then, in such event, the shortage, if any, shall be deducted from the 'divisible net receipts' the following year before division between the companies and the city. Provided, however, that in case any such shortage shall arise, then the companies shall not be entitled thereafter to receive out of the 'divisible net receipts' any amount in excess of the agreed rate of return until the amount of any such shortage shall have been repaid.

"4. Provision for the investment, in specified securities, of the city traction fund, the renewal fund and any other fund provided by existing ordinances, so as to procure a larger rate of income thereon than can be realized under the present ordinances.

"5. Authority to the companies to lease, on terms to be approved by the board of supervising engineers, any real estate now owned but not necessary to the operation of the properties—this will enable the companies and the city to derive an income from certain property of this kind which cannot now be sold to advantage.

"6. Existing tracks having an estimated life of five years or more may, with the approval of the board of supervising engineers, be rehabilitated, instead of being scrapped, as required by the present ordinances, when new pavement is laid in the street.

"7. Cleaning and sweeping right-of-way occupied by tracks of the companies, including the removal of snow, shall be assumed by the city and the companies shall pay the city monthly the cost of such work—the method of determining the cost to be specified in the merger ordinance.

"8. Reasonable provision shall be made in the merger ordinance for the correction of electrolysis, in lieu of the present electrolysis ordinance.

"9. Specifications in the present ordinances with reference

to paving should be revised and brought down to date, and the companies should be permitted to restore or contract for the restoration of any pavement outside of their right-of-way for which they are liable, independent of reserve paving contracts."

The plan as outlined above is one that contemplates an operating agreement rather than a financial merger. The latter, according to Mr. Busby, is not acceptable at this time to some of the companies concerned.

#### President Shackelford on the Attitude of Tacoma Railway & Power Company

John A. Shackelford, president of the Tacoma Railway & Power Company, Tacoma, Wash., said recently at the open forum of the Commercial Club and Chamber of Commerce of Tacoma:

"Some months ago Mr. Bean and I discussed the matter of the operation of a line over the bridge, and the matter was subsequently taken up with the city commissioners. The city was not prepared to grant a franchise of twenty or twenty-five years' duration and proposed that the company should operate the line for five years. I did not feel that it would be my duty to recommend to my company the operation of such a line, knowing as I did that it would be operated for the first five years at a loss. The Tacoma Railway & Power Company is not willing to bear all the burden, but it is willing to do its share, to stand its proportion of the loss, and if any proposal is submitted to our company that seems at all reasonable I shall be glad to submit the matter to my directors. I believe that even at this late date an agreement can be reached with the city."

**Improvements in Peoria.**—The Peoria (Ill.) Railway has adopted as a slogan "Watch 1913 Improvements." The company is installing new car signs on top of the cars, bearing significant letters, as "A" for Adams, "H" for Prospect Heights, etc.

**New Wage Scale in Winnipeg.**—The following wage scale has been agreed to between the Winnipeg (Man.) Electric Railway and its employees: first six months, 25 cents an hour; second six months, 27 cents; second year, 28 cents; third year, 31 cents; fourth and following years, 34 cents.

**Oskosh Fair Hearing Closed.**—The hearing of the application of the Eastern Wisconsin Railway & Electric Company to amend its schedules of rates between Oshkosh and Omro, continued from April 25, 1913, was held May 15, 1913. The Railroad Commission has taken the case under advisement.

**Giving Away or Selling a Transfer Likely to Be Made a Misdemeanor.**—Mayor Nye of Minneapolis suggested to the Council in a recent message the passage of an ordinance making it a misdemeanor to sell or give away a street railway transfer. The matter has been referred to the street railway committee.

**Stepless Cars in Brooklyn.**—The Brooklyn (N. Y.) Rapid Transit Company has received nineteen center-entrance stepless cars similar to the two cars which it has had in operation for some time past. The company has 100 cars of this type on order. The sample car of this type has been described and illustrated in the *ELECTRIC RAILWAY JOURNAL*.

**Distribution of Wage Dividends in Columbus.**—The dividends paid to employees of the Columbus Railway & Light Company, Columbus, Ohio, for some time past in periodic instalments will hereafter be added to their wages. The men have been receiving 22½ cents an hour, and this addition will increase the rate to more than 25 cents an hour.

**Ohio Company to Stop Rowdyism on Its Cars.**—The Northern Ohio Traction & Light Company, Akron, Ohio, will make a determined effort to suppress rowdyism on its cars and has caused the arrest of five offenders recently. Plain clothes men will board the cars at convenient points and all passengers who offend against public decency will be taken into custody.

**Baseball Schedule and Timetable.**—The Lake Shore Electric Railway, Cleveland, Ohio, is distributing with its compliments a schedule of the games to be played by the Cleveland club of the American League on the home grounds in Cleveland. The schedule is in the form of a four-page fold-

er the last page of which is devoted to a timetable of the six through limited trains between Cleveland and Detroit each way daily.

**Safety Campaign in Joliet.**—The Chicago & Joliet Electric Railway and the Illinois Steel Company, Joliet, Ill., are co-operating in a safety first campaign for the 7500 school children of Joliet. The railway company takes between 300 and 400 school children daily in special cars to the steel works club, where the safety expert of the steel company delivers talks on caution and the prevention of accidents. These are illustrated by moving pictures. In addition to furnishing the school children with free transportation to these lectures the railway is carrying on a series of safety talks with the moving pictures.

**Service Improvements in Atlanta.**—The conclusions of the Railroad Commission of Georgia in regard to the railway service of the Georgia Railway & Power Company, Atlanta, Ga., have been submitted to the officers of the company and they have agreed to confer with the members of the commission in regard to the suggestions which have been made. It is unlikely that the commission will enter any order in connection with the inquiry into the service of the company till after the conference between the members of the commission and the officers of the company.

**Hearing on Service in Lawrence.**—The Massachusetts Railroad Commission gave a hearing at Boston on May 14 on service conditions upon the Bay State Street Railway in Lawrence. James F. Jackson, for the company, said that additional double track is being installed to enable more cars to be operated and better schedules maintained. The work under way will cost about \$88,000. At the close of the hearing Chairman McLeod said that the disposition of the company to co-operate augured well for the future service conditions and called attention to the fact that in a large mill town it is almost impossible for a street railway to provide a rush-hour service adequate to the demands.

**Through Cars Between Rochester and Buffalo.**—It is reported that negotiations are pending between the officers of the Beebe Syndicate, Syracuse, N. Y., and the International Railway, Buffalo, N. Y., for the operation of cars of the Buffalo, Lockport & Rochester Railway, controlled by the Beebe Syndicate, through from Rochester to Buffalo. At present the cars of the Buffalo, Lockport & Rochester Railway are operated from Rochester to Lockport, where a connection is made with the lines of the International Railway. It is also stated that there is possibility of operating cars of the Beebe Syndicate in 1914 through from Syracuse to Buffalo via the Rochester, Syracuse & Eastern Railway, the Buffalo, Lockport & Rochester Railway and the International Railway.

**Appeal to I. C. C. Against the Washington, Baltimore & Annapolis Railroad.**—Charges of discrimination are made against the Baltimore, Chesapeake & Atlantic Railway, the Washington, Baltimore & Annapolis Railroad and the Washington Railway & Electric Company, in a complaint filed with the Interstate Commerce Commission by the Eastern Shore Development Steamship Company. The principal defendant is the Baltimore, Chesapeake & Atlantic Railway, the others being made defendants because they maintain joint rates with the other company. The petitioner seeks to have the commission, after investigation, not only order the respondents to establish reasonable joint rates with the petitioner but to pay by way of reparation "for the unlawful acts of omission and commission."

**Emergency Railway Duties of Physicians.**—Dr. R. C. Menzies, surgeon Chicago (Ill.) Railways, made an address on "Surface Traction Emergency Work" before the Illinois Homeopathic Medical Association at the Hotel Sherman, Chicago, on May 15. He said in part: "By taking immediate care of those injured the company is saving money for itself and at the same time is acting to the great advantage of the patient. In paying attention to the care of its accident cases a traction company is acting for strictly business reasons. If an accident is quickly and efficiently cared for, the average amount of the injury is considerably lessened and the amount of the damage for which the company is liable is likewise lessened. The company desires merely to minimize the amount of damage done by accidents, and to protect itself against fraud."

## Personal Mention

**Mr. C. J. Spragle** has been appointed general manager of the United Water, Light & Traction Company, Somerset, Ky., which is controlled by the Kentucky Utilities Company, Lexington, Ky. He succeeds Mr. J. L. Waddle.

**Mr. W. C. Wishart**, formerly statistician of the Public Service Commission of the Second District of New York, has become connected with the New York Central & Hudson River Railroad, New York, N. Y., in a similar capacity.

**Mr. Alfred J. Guyon**, assistant superintendent of employment of the Boston (Mass.) Elevated Railway, has been placed in charge of the department of employment until further notice, succeeding Mr. Julius E. Rugg, who retired at his own request recently, as noted in a previous issue.

**Mr. Duncan McDonald**, formerly general manager of the Montreal (Que.) Tramways, has been appointed managing director of the Canadian Autobus Company, which plans to install an omnibus line in Montreal. Mr. McDonald is president of the Montreal Tunnel Company and is chairman of the board of directors of the Prepayment Car Sales Company, New York, N. Y., and a director of the International P. A. Y. E. Company, Ltd., London, Eng., and Paris, France.

**Mr. F. M. Millson**, whose appointment as general purchasing agent of the Lincoln (Neb.) Traction Company was noted in the *ELECTRIC RAILWAY JOURNAL* recently, was born in Salem, Ill., in 1880. He entered the service of the Burlington & Missouri River Railroad in the construction department in Montana in 1901 and was later transferred to the Denver & Rio Grande Railroad with headquarters at Denver. Early in 1904 he accepted a position in the office of the superintendent of transportation of the Illinois Central Railroad at Chicago and continued with that company until 1912. He has since been connected in various capacities with steam railroads in the West.

**Mr. John E. Wilkie**, chief of the customs agents, whose resignation was announced recently, will become assistant to Mr. Henry A. Blair, chairman of the board of the Chicago (Ill.) Railways. Mr. Wilkie was born at Elgin, Ill., on April 27, 1860, and was graduated from the Chicago high school. He began newspaper work on the *Chicago Times* in September, 1877. In 1881 he joined the forces of the *Chicago Tribune*, with which paper he continued until 1893, when he entered the banking and steamship business in London, Eng. In 1896 he returned to the United States and resumed work for the *Chicago newspapers*. He has been chief of the United States secret service since February, 1898.

**Mr. W. F. Graves**, superintendent of track of the Chicago (Ill.) City Railway, has been appointed chief engineer of the Montreal (Que.) Tramways to succeed Mr. J. D. Evans, whose appointment as construction manager of the Electric Bond & Share Company, New York, N. Y., was noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 4, 1913. Mr. Graves entered railway work as a civil engineer with the Chicago, Rock Island & Pacific Railway in 1895. He was finally made engineer of maintenance of way of the Southwestern district for that company. In 1900 he became connected with the Missouri Pacific Railway as assistant engineer of maintenance of way. In 1903 he entered the employ of the South Side Elevated Railroad, Chicago, Ill., as engineer of construction. In 1907 he became connected with the Chicago City Railway as superintendent of track.

**Mr. John P. Moore** has been appointed superintendent of power and equipment of the Northwestern Pennsylvania Railway, Meadville, Pa. Mr. Moore was formerly connected with the Westinghouse Electric & Manufacturing Company in general railway engineering work. Mr. Moore began his electrical career with the testing and construction departments of the General Electric Company. He was with the Indianapolis Northern Traction Company and the Union Traction Company of Indiana as erecting engineer during the construction of the Indianapolis-Logansport division, and was with the National Railways Construction Company and the Keystone Construction Company as electrical engineer during the construction of the Terre Haute division of the Terre Haute, Indianapolis & Eastern Traction Com-

pany's line. Mr. Moore was connected with the Wyandotte Construction Company as electrical engineer during the construction of the Kansas City, Clay County & St. Joseph Railway, and upon the completion of the line he entered the service of the Westinghouse company.

**Mr. B. J. Denman**, chief engineer of power plants of the Detroit (Mich.) Edison Company, has been appointed assistant general manager of the United Light & Railways Company with headquarters at Davenport, Ia. Mr. Denman is well known in the electric railway field. He was graduated from the University of Michigan and from 1892 to 1895 he was connected with the Toledo (Ohio) Consolidated Street Railway in various capacities. He was next appointed electrician for the Toledo & Maumee Valley Railway in charge of the repair shops. During 1899 and 1900 he was instructor in Toledo University and in 1900 and 1901 was associated with Mr. W. G. Clark under the firm name of Clark & Denman, consulting engineers. From 1902 to 1905 Mr. Denman was electrical engineer of the Toledo, Bowling Green & Southern Traction Company. Before his appointment as chief engineer of power plants of the Detroit Edison Company in 1912 Mr. Denman was with the company in commercial engineering work, power house construction and operation and special engineering and appraisal work. During 1906 and 1907 he acted as assistant professor of mechanical engineering in the University of Michigan and in 1908 and 1909 he was non-resident lecturer in the electrical engineering department of the university.

### OBITUARY

**George D. Rosenthal**, district manager of the General Electric Company in St. Louis, Mo., died in the Germán Hospital in New York on May 19, 1913, following an operation for appendicitis performed on May 12. Mr. Rosenthal was forty-four years old. He became connected with the General Electric Company in 1892. Previous to that he was with the Edison Lamp Works at Harrison, N. J. The interment was at St. Louis on May 23.

**Horace G. Burt**, formerly president of the Union Pacific Railroad, died in Chicago, Ill., on May 19, 1913. Mr. Burt was sixty-four years old. He began his railroad career in 1868 with the engineering department of the St. Louis, Vandalia & Terre Haute Railroad. In April, 1911, he was selected by the electrification committee of the Chicago Association of Commerce as chief engineer to direct the investigation to be conducted by the committee in regard to the necessity for the electrification of the railroads which operate into Chicago.

**Stephen D. Field**, one of the pioneers in electric railways, died at his residence in Stockbridge, Mass., on May 18, 1913. Mr. Field was an inventor in many fields of electrical work and in 1879 and 1880 applied for patents for an electric railway, including a stationary generator, trolley wire, electric car, under-running trolley and bonded rails for return circuit. In 1880 he constructed an experimental electric line in Stockbridge and in 1883, in connection with Mr. Edison, operated an electric locomotive by a third-rail at the Chicago Railway Exposition. He also made a number of inventions in telegraphy. Following his early work he did little in the electric railway field except in the later nineties, when, representing American capitalists, he had engineering charge of the electrical equipment of the tramway system at Geneva, Switzerland.

**M. J. Maxwell**, superintendent of transportation of the Pittsburgh (Pa.) Railways, died on May 20, 1913. Mr. Maxwell was born in Ireland in 1857 and came to this country with his parents in 1866. He entered the employ of the Pennsylvania Railroad Company and later was appointed foreman of the foundries of the Pittsburgh Malleable Iron Company. He assisted in organizing the Pittsburgh Express Company, which operated the first electric railway express cars in Pittsburgh and was superintendent of that company. Mr. Maxwell next became division superintendent of the Pittsburgh Railways in charge of all of the North Side lines. He served the Pittsburgh Railways until 1895, when he was made general superintendent of the Beaver Valley Traction Company, but in 1899 he re-entered the employ of the Pittsburgh Railways as superintendent of transportation.

## Construction News

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

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

### RECENT INCORPORATIONS

**\*California, Shasta & Eastern Railroad, Redding, Cal.**—Application for a charter has been made by this company to rebuild the 16-mile Anderson & Bella Vista Railroad, which it recently purchased, and to extend the line to Ingot, 12½ miles. The Railroad Commission has authorized the company to sell bonds for construction purposes. Capital stock, \$600,000. Directors: S. E. Bretherton, W. T. Barnett, Berkeley; Felix T. Smith, Paul A. McCarthy, Platt Kent, V. W. Vincent, San Francisco; F. D. Madison, San Rafael.

**Miami & South Florida Railway, Miami, Fla.**—Application for a charter has been made by this company in Florida to build a 100-mile electric railway to connect Palm Beach, Miami, Homestead and Detroit. Capital stock, \$500,000. Officers: H. C. Roome, president; Nathan A. Cole, vice-president; J. M. Cobb, secretary and treasurer. [E. R. J., May 10, '13.]

**\*Charlotte Harbor & East Coast Electric Railway, Venice, Fla.**—Application for a charter has been made by this company in Florida to build a 26-mile electric railway to connect Venice, Salt Spring and Charlotte Harbor. Officers: W. J. Bowling, St. Louis, Mo., president; W. J. Epherson, Bronson, vice-president; T. C. Epherson, Bronson, treasurer.

**\*Chicago & Northern Railroad, Chicago, Ill.**—Chartered in Illinois to build an interurban railway from Chicago to Lake Geneva, via Palatine, Algonquin, Crystal Lake, Richmond and Genoa Junction. The surveys have been made and the line will be so constructed as to allow steam trains as well as electric cars to run over the tracks. It is intended for both freight and passengers.

**Columbus, Marion & Bucyrus Interurban Railway, Columbus, Ohio.**—Incorporated in Ohio to take over the property of the Columbus, Marion & Bucyrus Railroad, purchased by representatives of the bondholders on May 10. Capital stock, \$250,000. Incorporators: F. L. Hopeley, James R. Hopley, William H. Auck, Peter McCarthy and James D. Livingston.

**\*Dallas (Tex.) Electric Company.**—Incorporated in Maine presumably as the successor to the Dallas Electric Corporation of New Jersey. Capital stock, \$7,000,000. Directors: William E. Tucker, Chelsea, president; Davis W. Snow, Portland, Maine; Alvah K. Todd, Milton, Mass.; Philip L. Warren, Wollaston, Mass.; Ernest I. Doe, Boston; John M. Pierce, Carrol B. Skillin, Ernest M. White and Robert M. Pennell, Portland, Maine.

### FRANCHISES

**Medicine Hat, Alta.**—A vote was taken on May 22 authorizing the Council to sign a franchise agreement with the Montreal Engineering Company for the construction of an electric railway in Medicine Hat. The agreement gives the company a twenty-year franchise renewable every five years. The company agrees to begin work within three months from the final passing of the by-law and to finish 3 miles of railway within nine months, a further 3 miles within twelve months and a further 3 miles within twenty months; the whole provided the necessary material can be obtained in time. [E. R. J., April 19, '13.]

**Pine Bluff, Ark.**—The Pine Bluff & Sulphur Spring Interurban Railway has received a franchise in Pine Bluff. This 8-mile electric line will connect Pine Bluff and Sulphur Springs. A. G. Russell, president. [E. R. J., April 19, '13.]

**Orange, Cal.**—The Pacific Electric Railway has received permission from the Supervisors to begin work on North Main Street north of the city limits of Santa Ana, over which the company holds franchise rights.

**Freeport, Ill.**—The Freeport Railway & Light Company has received a twenty-year franchise from the Stephens Supervisors to build through Florence and Harlem.

**Rockford, Ill.**—The Rockford City Traction Company and the Rockford & Interurban Railway have asked the City Council for a franchise to construct a double track on State Street from Royal Avenue west to the city limits.

**West Hammond, Ind.**—The Union Railway & Power Company, Chicago, has asked the Council for a franchise in West Hammond. This line will connect Chicago, Hege-wisch, West Hammond and Hammond. Arthur Jost, 715 Royal Insurance Building, Chicago, president. [E. R. J., Sept. 28, '12.]

**Oxford, Mass.**—The Worcester Consolidated Street Railway has asked the Council for a franchise in Oxford.

**Greece, N. Y.**—The New York State Railways, Rochester, has asked the Town Board for a franchise in Greece.

**New York, N. Y.**—The Union Railway has asked the Board of Estimate for a modification of contract authorizing the company to construct an electric railway on the 155th Street viaduct westerly to Broadway by substituting Amsterdam Avenue for Broadway and reducing the annual payments; also for a franchise to build three extensions to its existing lines.

**Hamilton, Ont.**—The Ontario Railway & Municipal Board has approved of the plans for several extensions of the Hamilton Street Railway in Hamilton.

**Scarboro, Ont.**—The Toronto & Eastern Railway has received a franchise from the Council in Scarboro.

**Pointe-aux-Trembles, Que.**—On condition that 5-cent fares are given, the Council of Pointe-aux-Trembles will grant a forty-year franchise to the Montreal Tramways.

**Chattanooga, Tenn.**—The Chattanooga Railway & Light Company has asked the Council for a franchise on Seventh Street, from Market Street to Broad Street, in Chattanooga.

**Chattanooga, Tenn.**—The Eastern Tennessee Traction Company has asked the James County Court for a franchise to build a 30-mile railway between Chattanooga and Cleveland, Tenn. The other counties through which the line will pass have already granted franchises. Lewis M. Coleman is interested. [E. R. J., May 3, '13.]

**Austin, Tex.**—The San Antonio & Austin Interurban Railway has accepted the franchise granted by the County Commissioners' Court of Travis County to cross the Colorado Bridge and to build through Travis County. This line will connect Austin and San Antonio. Vories P. Brown, San Antonio, president. [E. R. J., April 19, '13.]

**Gainesville, Tex.**—E. P. Turner and associates of Dallas have received a franchise from the Commissioners' Court to build an electric railway in the county.

**Salt Lake City, Utah.**—The Salt Lake & Ogden Electric Railway has asked the Council for a franchise to connect with the lines of the Salt Lake & Utah Railway to extend its tracks eastward from the site of the present terminal to First West Street, Salt Lake City, where connection will be made with the lines of the Salt Lake & Utah Railway.

**Tacoma, Wash.**—The Tacoma Railway & Power Company has received a franchise from the Council to extend its lines to the tideflats in Tacoma.

**Morgantown, W. Va.**—The Morgantown Interurban Railway has received a franchise from the County Court for its 10-mile line to connect Morgantown, Point Marion and Star City. Joseph H. McDermott, Morgantown, president. [E. R. J., May 17, '13.]

**Appleton, Wis.**—The Wisconsin Traction, Light, Heat & Power Company has asked the Council for a franchise to double-track its line on Lake Street in Appleton.

### TRACK AND ROADWAY

**\*Tidewater Securities Corporation, Birmingham, Ala.**—This company has been organized at Birmingham to build a railroad from Birmingham to Gadsden, 60 miles, and to the Warrior River, 30 miles. Capital stock, \$100,000. J. M. Dewberry, Birmingham, president.

**Edmonton, Stony Plain & Wabamun Railway, Edmonton, Alta.**—Arrangements have been made by this company to begin the construction of its line at the western city limits of Edmonton. This 40-mile railway will connect Edmonton, Stony Plain and Lake Wabamun. E. S. McQuaad, Edmonton, is interested. [E. R. J., April 12, '13.]



**British Columbia Electric Railway, Vancouver, B. C.**—This company has awarded the contract for the grading of its Clover-Burnside loop to Brown & Simmons.

**Pacific Electric Railway, Los Angeles, Cal.**—Work will be begun at once by this company on its 21-mile line between Upland and San Bernardino. Construction will be begun at Fontana, just west of Rialto, June 7.

**Waycross Street & Suburban Railway, Waycross, Ga.**—Work will be begun at once by this company on its Gilchrist Park extension.

**Lewiston-Clarkson Valley Railway, Lewiston, Idaho.**—The citizens of Lewiston have subscribed \$90,000 for the construction of an electric line from Lewiston to Lewiston Orchards, via Normal Hill. F. L. Sturm, Lewiston, president. [E. R. J., May 3, '13.]

**Union Railway & Power Company, Chicago, Ill.**—This company states that construction will be begun as soon as the company has obtained certain franchises for its 18-mile electric line to connect Chicago, Ill., and Hammond, Ind., via Hegewisch and West Hammond. Surveys have been made between Hegewisch and Hammond, 4 miles, and surveys are under way between Harvey and West Hammond, 6 miles. Arthur Jost, 715 Royal Insurance Building, Chicago, Ill., president. [E. R. J., Sept. 28, '12.]

**Springfield & Central Illinois Traction Company, Springfield, Ill.**—This company has filed with the recorder of Madison County at Edwardsville a mortgage for \$20,000,000 to the Chicago Title & Trust Company, Chicago, and the City Safe Deposit & Agency Company, Ltd., London, England. I. Smith, 1042 Pierce Building, St. Louis, president. [E. R. J., May 17, '13.]

**Evansville & Indianapolis Light, Power & Electric Railway, Evansville, Ind.**—This company states that it will not begin the construction of its 158-mile electric railway to connect Evansville and Indianapolis, via Oakland City, Petersburg, Washington, Bloomfield, Worthington, Spencer and Martinsville, until next year. Surveys are being made between Evansville and Bloomfield. Arthur C. Stone, 113 Upper Fourth Street, Evansville, president. [E. R. J., July 6, '12.]

**Davenport-Muscatine Railway, Davenport, Ia.**—Among the improvements planned by this company will be the rebuilding of some of its lines in Muscatine with heavier rails.

**Hutchinson (Kan.) Interurban Railway.**—Work will soon be begun by this company on its line along Sixth and Eighth Avenues east from Hoagland Avenue in Hutchinson.

**Independence, Neodesha & Topeka Railway, Independence, Kan.**—The citizens of Independence have voted \$35,000 to aid in the construction of this 130-mile electric railway to connect Independence and Topeka, via Neodesha, Altoona, Fredonia and Chanute. T. Blarksley, Neodesha, president. [E. R. J., Sept. 14, '12.]

**Salina, Tifton & Northern Railway, Salina, Kan.**—Permanent surveys are being made by this company for its railway between Salina and Osborne via Penn, Hancock, Bloom, Pittsburgh and Custer. This line has been promoted as a steam railway with gas-electric or gasoline motors for its passenger service. There is a possibility of it being changed to an electric line as plans for this are now being considered. H. W. Neiswanger, Salina, is interested. [E. R. J., April 27, '13.]

**Topeka (Kan.) Railway.**—Plans are being made by this company to build an extension to Twenty-first Street in South Topeka and an extension to Gage Park.

**Wichita Railroad & Light Company, Wichita, Kan.**—During the summer this company plans to spend \$71,000 on improvements of its lines in Topeka. The work will include the double-tracking and extension of some of its lines.

**Kentucky Utilities Company, Lexington, Ky.**—Several improvements are being planned by this company, including possibly the extension of its line to Burnside from Somerset, 7 miles.

**Brandon (Man.) Municipal Street Railway.**—Further debentures to the amount of \$100,000 will be issued to complete the construction of this electric railway. This will bring the total debentures issued for this purpose to \$400,000. About 6½ miles of track have already been laid and it is proposed to add 2 more miles. [E. R. J., June 22, '12.]

**St. Joseph & Savannah Railway, St. Joseph, Mo.**—This company has received a joint communication from the Commercial Clubs of Stanberry, Mo., and Empire Prairie, Mo., in which the organizations guarantee a free right-of-way for an interurban line from St. Joseph to Stanberry, with free terminal facilities at Stanberry.

**St. Louis & Western Traction Company, St. Louis, Mo.**—This company will not begin the construction of its 40-mile electric railway from St. Louis to Gilmore until all the right-of-way has been secured. About 25 miles of the right-of-way has been obtained and 6 miles have been graded. James D. Houseman, 701 Roe Building, St. Louis, president. [E. R. J., Sept. 7, '12.]

**Omaha, Lincoln & Beatrice Railway, Lincoln, Neb.**—According to the estimates, the entire cost of this railway from its eastern terminus in the business section of Omaha to its western terminus in Omaha will be \$2,634,756, with provisions made for a power house. Under the plans as outlined, the cars will operate over the Omaha & Council Bluffs Street Railway's tracks through South Omaha into Lincoln and over the present established line into Omaha and Bethany Heights. The rest of the route will be entirely new construction. The company has obtained permission to issue \$3,100,000 of stock and bonds, providing for the cost of construction. The estimated costs of some of the various steps of construction are given as follows: Right-of-way and lands, \$146,000; clearing of lands and grading, \$316,380; track materials assembled, \$376,621; bridges and culverts, \$191,146; the Platte River bridge, \$94,300; overhead trolley and feeders, \$155,765; rolling-stock equipment, \$180,000; power houses and substations, \$441,825; carhouses and repair shops and buildings, \$135,000.

**Omaha & Council Bluffs Street Railway, Omaha, Neb.**—Work has been begun by this company reconstructing 1 mile of its line on Leavenworth Street in Omaha with heavier rails. Extensions to the north and southwest sections of Omaha are being planned by the company.

**\*Sioux City, Neb.**—F. W. Baker and H. P. Buhman, Omaha, are considering plans to build an electric railway to connect Sioux City and Niobrara and later extensions to O'Neill and other cities of eastern Nebraska.

**United Traction Company, Albany, N. Y.**—Plans are being considered by this company for an extension from New Scotland Avenue over the old railroad bed, coming out on Delaware Avenue at a point near Morton Avenue in the Woodlawn section in Albany. Plans are being made to extend the company's lines into the Temperance Hill district of Watervliet.

**Winchester & Northern Railroad, White Plains, N. Y.**—The Connecticut Legislature has passed the bill which authorizes this company to build its line from White Plains, N. Y., to Danbury, Conn. The company has a New York charter and did not apply for a charter in Connecticut, but merely for the right to operate in the State. [E. R. J., Jan. 6, '12.]

**Cape Breton Electric Company, Sydney, N. S.**—This company plans to expend about \$1,000,000 on improvements and extensions of its lines in Sydney during the year. Work will soon be begun.

**Cleveland & Akron Short Line Railway, Cleveland, Ohio.**—This company will begin work soon on its 26-mile electric railway to connect Cleveland, Akron and Barberton. The company will also furnish power for lighting purposes. Capital stock, \$25,000; issued, \$25,000. Officers: Henry S. Chapman, 304 New England Building, Cleveland, president; Charles O. Hall, Cleveland, vice-president; Charles E. Barnum, Citizens' Bank Building, Cleveland, secretary and treasurer, and W. E. Hawley, New England Building, Cleveland, chief engineer. [E. R. J., May 17, '13.]

**Ottawa & Morrisburg Electric Railway, Ottawa, Ont.**—Financial arrangements have been perfected by this company and construction will be begun at once on this 26-mile line to connect Ottawa, Morrisburg and Brockville. It will ultimately be extended to Kingston. Power will be secured from the Chaudiere at Ottawa. A Chicago firm has secured the contract to build and equip this railway. J. G. Kilt, Citizens' Building, Ottawa, president. [E. R. J., March 22, '13.]

**Portland Railway, Light & Power Company, Portland, Ore.**—This company will spend about \$250,000 in laying new tracks in the Woodstock district this year. Calls for bids for materials and construction will be issued at once.

**West Side Electric Street Railway, Charleroi, Pa.**—This company is now letting contracts for the extension of its line between Charleroi and Bentleyville, Pa., the Parsons Construction Company, Brownsville, having secured the latest contract. This is for the grading of 2 miles of the work. The tracks are to be laid by the company itself. About 30,000 cu. yd. of material will have to be removed.

**Northwestern Railways Company, Meadville, Pa.**—This company, which operates all the electric railways radiating from Meadville, has offered the Erie Railroad \$150,000 for its old-grade line between Meadville and Cambridge Springs. The new double-track line of the Erie Railroad will result in the abandonment of the old grade.

**Oxford, Cochranville & Parkersburg Electric Railway, Oxford, Pa.**—This company has surveyed its line from Oxford to Parkersburg, a distance of 16 miles, and graded 3 miles between Oxford and Hayesville. The line will connect Oxford, Parkersburg, Cochranville and Russelleville.

**Franklin & Towamensing Street Railway, Slatington, Pa.**—This company states that construction of its line from Slatington to Leighton, 10 miles, will not be begun until the state road now under contemplation has been built through the Lehigh Gap. A. P. Berlin, Slatington, president. [E. R. J., Jan. 15, '10.]

**Monongahela, Ellsworth & Washington Railway, Washington, Pa.**—This company has asked permission to increase its capital stock to \$600,000. Financial arrangements have been made whereby the company plans to build soon its line between Monongahela and Ellsworth. [E. R. J., March 1, '13.]

**\*Washington, Pa.**—Officials of the Washington & Jefferson College and the Washington Board of Trade are considering plans to build an electric railway from the river district into Washington. The project will be presented to the Pittsburgh Railways, and it is said that an effort will be made to persuade that company to co-operate.

**Hull (Que.) Electric Railway.**—This company has been authorized to build a line from a point on its main line between Hull and Aylmer, Que., to the premises of the Connaught Park Jockey Club.

**Montreal & Southern Counties Railway, Montreal, Que.**—The first link of 18 miles in the line which this company is building from Montreal to the eastern townships has been completed and will be placed in operation on May 31. It will extend from McGill Street in Montreal through St. Lambert to Richelieu via Greenfield Park, St. Hubert, Brookline, Chambly Basin and Chambly Canton.

**Quebec Railway, Light & Power Company, Quebec, Que.**—It is reported that this company will build an extension to Limoilou, Que.

**Rhode Island Company, Providence, R. I.**—Plans are being considered by this company to build a line from Chepachet to Smithfield and Providence.

**\*Cross Anchor, S. C.**—Daniel M. Miles and associates plan to build an electric railway from Spartanburg to Cross Anchor, via Arkwright Mills, Walnut Grove, Nesbitts and Hobbyville.

**Greenville, Spartanburg & Anderson Railway, Greenville, S. C.**—Grading has been completed by this company between Paris Station and Enoree River and the rails will be laid at once. Work has been begun on the other side of Enoree River.

**Sioux Valley & Northwestern Railroad, Watertown, S. D.**—This company states that definite plans have not yet been made for the construction of its 20-mile interurban railway between Watertown and Strousetown. Capital stock authorized, \$1,000,000. Officers: Frank S. Heathcote, Summit, president; J. C. Maxwell, Ortey, secretary. [E. R. J., April 19, '13.]

**Lake View Traction Company, Memphis, Tenn.**—Work has been begun by this company improving its line between Memphis and Lake View, Miss.

**Dallas & Terrell Interurban Railway, Dallas, Tex.**—The Stone & Webster Engineering Corporation, Boston, Mass., has arranged to begin soon the construction of this interurban electric line which is to run between Dallas and Terrell. The survey for the proposed line has been finished and the right-of-way is being secured. A. M. Somers, Terrell, is interested. [E. R. J., April 19, '13.]

**Logan (Utah) Rapid Transit Company.**—This company has acquired the right-of-way for its southern extension through Wellsville Canyon.

**Fayette Traction Company, Fayetteville, W. Va.**—This company, which plans to build an electric railway to connect Fayette Station, Oak Hill and Fayetteville, has increased its authorized capital stock from \$50,000 to \$75,000. M. M. Malcolm, Fayetteville, is interested. [E. R. J., March 22, '13.]

**Charleston, Parkersburg & Northern Railroad, Parkersburg, W. Va.**—Right-of-way has been secured and preliminary arrangements are being made by this company to begin soon the construction of its 47-mile electric railway to connect Charleston and Parkersburg. K. B. Stephenson, Parkersburg, promoter. [E. R. J., May 3, '13.]

**Beloit, Delavan & Clinton Railway, Beloit, Wis.**—This company advises that construction will be begun as soon as it has obtained the right-of-way for its 22½-mile line between Beloit, Shopiere, Clinton, Allen Grove, Darien and Delavan. About one-half of the right-of-way has been secured. The company will also furnish power for lighting purposes, and water power will be obtained at Shopiere. Capital stock authorized, \$50,000. Charles F. Lathers, Beloit, is interested. [E. R. J., April 26, '13.]

**Milwaukee Electric Railway & Light Company, Milwaukee, Wis.**—This company will begin the reconstruction of its tracks on the east end of North Avenue and Lake Drive in Milwaukee at once.

## SHOPS AND BUILDINGS

**Tri-City Railway & Light Company, Davenport, Ia.**—This company is said to have secured an option on property at Second and Perry Streets in Davenport for a site for a four-story building. The first floor will be used as an interurban station and waiting room for city lines and the rest of the building for headquarters for the general offices of the company.

**Springfield (Ohio) Railway.**—This company has purchased 5 acres of land at Clifton Street and East Street in Springfield on which it plans to build a new carhouse in the near future.

## POWER HOUSES AND SUBSTATIONS

**Albany (Ga.) Transit Company.**—This company will add to its power house a 200-kw motor-generator set and switchboard apparatus recently ordered from the General Electric Company.

**Chicago, South Bend & Northern Indiana Railway, South Bend, Ind.**—This company will add to its substation equipment a 1000-kw rotary converter. The order has been placed with the General Electric Company.

**Omaha, Lincoln & Beatrice Interurban Railway, Lincoln, Neb.**—Plans are being considered by this company to build a new power plant in Lincoln. The cost of power houses and substations is estimated to be about \$441,000.

**Columbus Railway & Light Company, Columbus, Ohio.**—This company has placed an order with the General Electric Company for a 5000-kw Curtis turbo-generator unit with exciter and switchboard apparatus.

**Philadelphia (Pa.) Rapid Transit Company.**—Work will soon be begun by this company on alterations and additions to its power house at 963 North Beech Street in Philadelphia. The new work will include a two-story wing. The cost is estimated to be about \$250,000.

**South Carolina Light, Power & Railways Company, Spartanburg, S. C.**—This company has placed an order with the General Electric Company for new substation equipment consisting of a 2500-kva Curtis turbo-generator with a 35-kw motor-generator exciter set, three 500-kva transformers and switchboard apparatus.

# Manufactures and Supplies

## ROLLING STOCK

**Bay State Street Railway, Boston, Mass.,** is building ten cars in its own shops.

**Omaha & Council Bluffs Street Railway, Omaha, Neb.,** is building ten 44-ft. trail cars in its Omaha shops.

**Holyoke (Mass.) Street Railway** has ordered five closed car bodies from the Wason Manufacturing Company.

**Scranton (Pa.) Railway** has placed an order with the Southern Car Company for five double-truck city cars.

**Northampton (Mass.) Street Railway** has placed an order with The J. G. Brill Company for two closed car bodies.

**Tidewater Power Company, Wilmington, Del.,** is building three double-truck interurban cars in its own shops.

**Seattle, Renton & Southern Railway, Seattle, Wash.,** has ordered eleven cars from the Cincinnati Car Company.

**Galesburg & Kewanee Electric Railway, Kewanee, Ill.,** is rebuilding seven of its closed city cars at its shops in Kewanee.

**Los Angeles (Cal.) Railway** has ordered seventy-five side-entrance cars, with double trucks, from the St. Louis Car Company.

**Bangor Railway & Electric Company, Bangor, Maine,** has ordered one express car body from the Wason Manufacturing Company.

**Springfield (Ohio) Railway** has ordered ten double-truck cars, mounted on Baldwin maximum traction trucks, through W. R. Kerschner, from the Cincinnati Car Company.

**Altoona & Logan Valley Electric Railway, Altoona, Pa.,** expects to purchase ten 28-ft. double-truck cars, with maximum traction trucks and five interurban cars.

**People's Street Railway, Nanticoke, Pa.,** has ordered two 36-ft., semi-convertible, pay-as-you-enter cars, mounted on 27-GE-2 trucks, from The J. G. Brill Company.

**Philadelphia (Pa.) Rapid Transit Company** has ordered one 36-ft. milk motor car and six 40-ft. flat trail car bodies, mounted on Brill 55-G trucks, from The J. G. Brill Company.

**Hagerstown (Md.) Railway,** noted in the ELECTRIC RAILWAY JOURNAL of May 10, 1913, as expecting to purchase seven double-truck cars, has ordered these cars from the G. C. Kuhlman Car Company.

**Saskatoon (Sask.) Electric Railway,** noted in the ELECTRIC RAILWAY JOURNAL of April 12, 1913, as expecting to purchase six double-truck cars, has ordered these cars from the Preston Car & Coach Company.

**Toronto (Ont.) Civic Line,** noted in the ELECTRIC RAILWAY JOURNAL of Feb. 15, 1913, as expecting to purchase twenty cars, has ordered these cars, mounted on Baldwin 75-20-k trucks, from the Niles Car & Manufacturing Company.

**Southern Traction Company, Dallas, Tex.,** noted in the ELECTRIC RAILWAY JOURNAL of Feb. 22, 1913, as having ordered twenty-two closed cars from the St. Louis Car Company, has specified the following details:

Seating capacity .....	56	Couplers .....	Tomlinson
Length of body....	53 ft. 6 in.	Curtain fixtures.	
Length over vestibule,			Nat'l L. W. Co.
	52 ft. 6 in.	Curtain material...	Pantasote
Width over sills...	8 ft. 10 in.	Destination signs.....	St. L.
Width over all.....	9 ft.	Gongs .....	Elec. S. Sup.
Height, rail to sills....	43 in.	Hand brakes.....	St. L.
Sill to trolley base...9 ft.	2 in.	Heaters .....	electric
Body .....	composite	Headlights .....	G. E.
Interior trim...quartered oak		Sanders .....	Keystone
Headlining .....	Agasote	Sash fixtures.....	Edwards
Roof .....	turtle-back	Seats .....	St. L.
Underframe .....	composite	Seating material....	leather
Bumpers,		Step treads .....	Stanwood
		Trolley catchers....	Knutson
Hedley anti-climbers		Trolley base.....	U. S.
Car trimmings.....	St. L.	Trucks.....	Brill 27-MCB-3-x
Conduits and junction boxes,		Varnish .....	Murphy
	St. L.		

**New York State Railways, Rochester, N. Y.,** noted in the ELECTRIC RAILWAY JOURNAL of March 1, 1913, as having ordered ten semi-convertible pay-as-you-enter cars from the Cincinnati Car Company, has specified the following details for these cars:

Seating capacity.....	44	Couplers .....	Brill
Bolster centers, length,		Curtain fixtures....	Forsyth
	21 ft. 11 in.	Curtain material...	Pantasote
Length of body...30 ft.	11 in.	Gongs .....	Dedenda
Length over vestibule,		Hand brakes.....	Peacock
	43 ft. 4 in.	Heaters .....	Smith
Width over sills... 8 ft.	3 in.	Headlights ...	Crouse-Hinds
Width over all... 8 ft.	3 in.	Motors,	
Height, rail to sills....	34 in.		two West, outside-hung
Sill to trolley base...8 ft.	7 in.	Sash fixtures.....	Dayton
Body .....	wood	Signals .....	Consolidated
Interior trim.....	cherry	Step treads.....	Feralum
Headlining .....	Agasote	Trucks .....	Brill 39-E
Roof .....	arched	Ventilators .....	Brill
Underframe .....	metal	Wheel guards.....	H-B
Car trimmings.....	Dayton		

## TRADE NOTES

**M-C-B Company, Chicago, Ill.,** has elected Charles R. Westcott secretary and treasurer of the company.

**Standard Railroad Supply Company, Indianapolis, Ind.,** has been incorporated with a capital stock of \$10,000 to deal in railroad supplies. The directors are Ernest H. Tripp, L. P. Newby and John R. Ward.

**Perry Ventilator Corporation, New Bedford, Mass.,** has received an order to equip the twelve new cars of the Springfield (Mass.) Street Railway with ventilators. These cars are now being built by the Wason Manufacturing Company.

**The J. G. Brill Company, Philadelphia, Pa.,** has received an order from the South Covington & Cincinnati Street Railway, Covington, Ky., for ten 21-E trucks; also one from the Milwaukee (Wis.) Electric Railway & Light Company for three Radiax E-1 trucks.

**United States Light & Heating Company, New York, N. Y.,** has elected W. P. Hawley vice-president of the company. Mr. Hawley, who has been manager of the New York office for some years, still holds this position in addition to his duties as vice-president.

**Indiana Car & Equipment Company, Chicago, Ill.,** which was recently incorporated in Illinois, has increased its capital stock from \$12,000 to \$30,000. The company has an extensive plant at Calumet, East Chicago, Ind., which is fully equipped for rebuilding freight and passenger cars.

**Standard Steel Car Company, Pittsburgh, Pa.,** has appointed P. G. Jenks assistant to the president, with office at Chicago, Ill. For the past few years Mr. Jenks has been a partner in the steel and pig-iron firm of Banning, Cooper & Company, Ltd., Pittsburgh, Pa., which position he resigned to go with this company.

**Hall Switch & Signal Company, New York, N. Y.,** has recently acquired the patent rights formerly owned by the General Railway Equipment Company, the United States Electric Company and the Sandwich Electric Company and in future will make and sell the apparatus and equipment formerly handled by these companies.

**General Electric Company, Schenectady, N. Y.,** held a meeting of its directors on May 20, 1913, and organized by re-electing the same officers. The company has appointed Cliff R. Croninger assistant district manager in the St. Louis district. For the past six years Mr. Croninger has been representative for the company in the South Central States.

**Allen & Peck, Inc., Baltimore, Md.,** have opened offices at 601 Maryland Trust Building. The office is in charge of S. K. Colby, who was recently elected vice-president of the concern. Alan P. Norris, formerly connected with the Washington, Baltimore & Annapolis Electric Railroad, Baltimore, Md., has accepted the position of assistant to Mr. Colby.

**Ackley Brake & Supply Company, New York, N. Y.,** has received recent orders for automatic trolley guards from the following railways: Tri-City Railway, Davenport, Ia.,

568 ft.; Scranton (Pa.) Railway, 450 ft.; Trenton, Bristol & Philadelphia Street Railway, Philadelphia, Pa., 96 ft.; Selma (Ala.) Street & Suburban Railway, 96 ft.; Hagerstown (Md.) Railway, 125 ft.; Twin City Traction Company, Dennison, Ohio, 125 ft.

**Connolly Frog & Switch Company, Memphis, Tenn.**, will build a plant in Port Arthur, Ont., for manufacturing railroad accessories for the Canadian trade. The city has furnished the company with a site for the plant and has also agreed to give the company a bonus. The company is to be required as its part of the bargain to spend at least \$100,000 in constructing the plant and to employ not fewer than fifty men during 250 days each year.

**Western Automatic Fender Company Seattle, Wash.**, recently conducted tests in Vancouver, B. C., with the Nelson automatic air-controlled fender on one of the cars of the British Columbia Electric Railway. This type of fender consists of a heavy wire apron and lifeguard attached to the bumper of the car in such a manner that it can be dropped instantaneously to the rail by the application of the air brakes, or it will work equally well on contact with any object on the track. The fender weighs about 175 lb. It has been installed in Portland, Ore., and Centralia, Wash.

**Duff Manufacturing Company, Pittsburgh, Pa.**, has moved into its new factory located on Preble Avenue. The main factory building is 550 ft. x 125 ft., affording an area of over 68,000 sq. ft. The general office building is approximately 60 ft. x 85 ft. The factory and office buildings are fireproof throughout, being of steel, brick and concrete construction. The company also plans the erection of a factory in the Chicago district, to be operating by next fall, and another at either Windsor or Hamilton, Ontario, in order to handle more quickly the large business which the company has in Canada.

**E. W. Clark & Company Management Corporation, Columbus, Ohio**, has been organized to take over the engineering and management departments of E. W. Clark & Company, Philadelphia, Pa. In the past this company, which is one of the oldest in the public-utility field, has maintained operating and engineering departments for managing and making reports of public-utility properties. These departments will now be conducted as a separate corporation, the officers of which are: C. M. Clark, president; S. G. McMeen and M. S. Hopkins, vice-presidents; G. L. Estabrook, secretary and treasurer, and A. F. Burlington, assistant secretary and assistant treasurer.

**General Electric Company, Schenectady, N. Y.**, has received recent equipment orders from the following railways: Houston (Tex.) Electric Company, ten GE-203 50-hp two-motor equipments; Dallas (Tex.) Consolidated Electric Street Railway, equipping ten new cars with GE-201 60-hp two-motor equipments; Jacksonville (Fla.) Traction Company, ten GE-203 50-hp two-motor equipments; San Antonio (Tex.) Traction Company, fourteen GE-200 40-hp four-motor equipments; Northampton (Mass.) Street Railway, two GE-203 50-hp four-motor equipments and four straight-air-brake equipments with CP-27 compressors; Southern Pacific Company, New York, N. Y., thirty-six GE-201 60-hp two-motor equipments.

**Union Switch & Signal Company, Swissvale, Pa.**, calls attention to the fact that the "Z" armature switch indicator which was recently brought out by the company and which was described in our issue of May 10 as a three-position instrument is really capable only of assuming two positions with the miniature semaphore arm. These positions can, however, be located in any part of the quadrant. The company has received an order from the Oakdale, Antioch & Eastern Railway, Oakland, Cal., to equip the system with automatic block signals from Oakland to Sacramento, covering a distance of approximately 83 miles. The company will use 167 one-way hooded light signals to be clamped to the trolley poles with all attendant apparatus except wire, conduit, etc. Alternating current at 2200 volts, 60 cycles, is transmitted throughout the system and stepped down for feeding the track circuits controlling and lighting the signals with this current, available at the several substations distributed along the road.

## ADVERTISING LITERATURE

**J. F. Donahoo, Birmingham, Ala.**, has issued a catalog illustrating and describing a new safety railway tie.

**Standard Steel Works Company, Philadelphia, Pa.**, has issued a catalog on its rolled steel wheels. The catalog contains a number of illustrations of cars and locomotives equipped with these wheels, also several views showing the process of making them. Several tables are contained in the catalog, giving dimensions of all standard size wheels, with a special number for each size, so that wheels may be ordered in this way, instead of by size, under which conditions mistakes are less liable to be made.

**Chicago Pneumatic Tool Company, Chicago, Ill.**, has issued Bulletin No. 34-L. This bulletin is one of the series covering its complete compressor line, and treats particularly of general engineering information of value to users of compressed air. It contains tables giving efficiencies of air compression at different altitudes, density of gases and vapors, mean effective pressures and horse powers, loss of pressure due to friction in pipes, and other data. Views of various types of compressors are shown, as well as illustrations showing the interior of the company's plant at Franklin, Pa.

**General Electric Company, Schenectady, N. Y.**, has issued Bulletin A-4113, which illustrates and describes the company's oil-break switches, known as type F, forms P3 and P6. Bulletin A-4061 is descriptive of electric arc headlights. Bulletin A-4097 describes in considerable detail the company's ventilated motors for railway service. Bulletin No. 4084 is devoted to centrifugal compressors and supersedes the company's previous bulletin on this subject. Bulletin No. A-4110 describes and illustrates cloth pinions. While this bulletin supersedes the company's previous bulletin on this subject, it contains additional data relative to tooth dimensions and instructions for the selection of pinions.

## NEW PUBLICATIONS

**Transmission Line Formulas.** By Herbert Bristol Dwight. Cloth, 133 pages. D. Van Nostrand Company, New York. Price, \$2 net.

This work has been compiled, as stated by the author, with the object of furnishing a set of instructions for engineers which will enable them to make electrical calculations for transmission lines with the least possible amount of work. Among the various short methods included in the book is a chart to be used for estimating the regulation of any proposed transmission line of moderate length. The book, as it is intended for electrical engineers, is composed mainly of formulas and gives but brief space to explanation and demonstration, although the second part is devoted to the theory, in brief, of transmission phenomena. The book concludes with a series of eighteen tables, including figures for resistance reactance and capacity and summaries of the principal formulas given in the text. It is a concise, well-arranged volume and will prove of distinct value in the field of highly technical literature which is intended for use by busy engineers.

**The Mathematics of Applied Electricity.** By Ernest J. Koch, Jr. Cloth, 651 pages. John Wiley & Sons, New York. Price, \$3 net.

As its title implies, this book is primarily a textbook in practical mathematics, but it has been developed with special reference to the needs of students in electrical engineering. While it is intended for those who have a good working knowledge of the elements of higher mathematics, including algebra and plane geometry and trigonometry, the author has introduced an introductory chapter dealing briefly with the fundamentals of these subjects for use by practical electrical workers who desire to advance themselves in the theoretical side of electrical engineering. Both direct-current and alternating-current problems are considered, and considerable space is devoted to graphical solutions. The numerous problems which are introduced throughout the work are generally of a thoroughly practical nature, and as they are where possible illuminated with conventional illustrations they should prove especially interesting to students. The absence of answers, however, detracts to some extent from the value of the work for those who seek self-instruction.