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AN ACTIVE CAREER

The youth of the electrical industry is brought vividly before us every so often by the realization that all progress in it has practically been accomplished during the active business career of many men who are still prominent in the industry and presumably have many years of usefulness before them. This thought is suggested by the announcement this week of the retirement as president of the General Electric Company of C. A. Coffin and his election as chairman of the board of directors of the company. Those best acquainted with Mr. Coffin will realize that this change in title will not mean the loss to the industry of his services or any abatement of his interest in the field which he has served so ably during the past thirty years. It may relieve him from some of the more exacting duties involved in the direction of a large manufacturing company, but it cannot change the man or repress his energy or activity. An event of this kind, besides bringing a realization of the shortness of the period of electrical development, also emphasizes the indebtedness of those engaged in electrical work to the efforts of individuals, especially in the pioneer days. We are usually too prone to accept conditions, especially when they mark rapid progress, as inevitable and to assume that things would have occurred about as they did without the services of this or that individual. But this is not true. The human element is as inseparably linked with the history of a business organization or of an industry as with that of a nation, and the stories of nations have shown that they have risen or fallen because a strong or a weak man has directed their affairs. The present status of the electrical industry in this country is certainly due very largely to the fortunate combination of circumstances which early in the art brought to the front the individuals who have left their permanent mark upon it, and to look back occasionally at the work of such men as Mr. Coffin and to remember the obstacles which they overcame should be an

incentive and encouragement to those who have entered later into the field.

SMOKING ON NEW YORK CITY LINES

The inalienable right of mankind to breathe pure, uncontaminated air, as set up by the Non-Smokers' Protective Association of New York, and the inalienable right of man to indulge in a good Havana while riding on a surface car, as maintained by the smokers during the recent hearing in New York, revive a dispute which has been waged in a great many cities of this country. The non-smokers' testimony at the New York hearing dealt mostly with the dangerous aspects of the habit and its baneful influence on "ethical purity," but they made no reference to conditions in other cities and the general public attitude. The other side, too, might have stated that in the West and in many Eastern cities smokers are more liberally treated than in New York. At any rate, it was brought out that smoking in public conveyances is generally restricted to the three or four rear seats of open cars and to platforms and stations in the open air. But, upon the claim that the city ordinance and the provisions of the Sanitary Code are not being strictly enforced by the railway companies, an order by the commission was requested either further restricting the smoking privilege on city lines or preferably abolishing it altogether, on the ground that a violation of this order would cause a penalty of \$5,000 to be imposed on the convicted carrier. It would seem, however, that such a step would not exactly serve to fix the blame. As a representative of the railways testified, they are aware of the fact that a very large percentage of the public are smokers, and accommodations were furnished for them only with the idea that it would be both agreeable and acceptable to the majority of the traveling public and with the intention that when such ceased to be the case the privilege would be withdrawn. The rights of all must be respected, of course, and it is well that the smokers should be reasonably restricted. When they pass beyond these limits, however, they and not the company should be held primarily liable. The matter is a difficult one to regulate to the satisfaction of all, but whatever method is adopted, the wishes of the majority should first be considered, and then such steps used as will place the blame where it properly belongs and not penalize the carrier for endeavoring to serve better the traveling majority.

AIR-BRAKE FAILURES AS EXCUSES

On Thursday of last week the second section of a passenger train on the New Haven railroad ran past a distant signal and hit the first section, which was standing some distance beyond the following home semaphore mast. The wreck has proved to be an extraordinary one—not because of the manner in which it occurred, for that is, unfortunate-

ly, only too common, but because of the number of lessons which may be drawn from it. A vast amount of effort is now being devoted to demonstrate that the New Haven's rolling stock was defective, that the locomotive was "stiff" and, above all, that the "brakes would not hold." This last is the perennial argument which is brought forward to account for daylight wrecks whenever the real cause is not perfectly obvious. Judging from its popularity, it might seem to be a good excuse, yet the fact remains after many years of practical experience that air brakes do not have sudden or inexplicable failures. This does not include, of course, cases where the apparatus has been tampered with, as when a revengeful tramp, kicked off a freight train at the top of a mountain grade, risked his life to close an angle cock at the head end after the train had started, letting it drop down the hill to inevitable derailment at the first sharp curve. But it does cover the cases, such as the Stamford wreck appears to be, where through the incapacity or inexperience of an engineer the brakes are called upon to do something for which they were not designed or to accomplish a physically impossible result. The Stamford wreck is still under investigation, and the final report upon it has yet to be made, but from the testimony thus far adduced it is obvious that the engineer of the overtaking train did not realize a most elementary feature in air-brake operation—that to get a full emergency application after the train-line pressure has been drawn down by service applications it is necessary to release and recharge. This misconception appears to be a common one—just why, it is impossible to say—but this will hardly absolve the unfortunate engineer from responsibility if it shall be found that he wasted time and potential brake cylinder pressure by dribbling away his air in the expectation that he could still make an emergency stop by turning his brake valve handle to the right.

PLANNING A CITY AND ITS TRANSIT FACILITIES

The science of city planning as it is now discussed has the appearance of being something of a luxury that asks serious recognition long years after communities have worked out step by step and under the spur of necessity the conditions of development that are now criticised. It is in reality, however, a subject well worthy of consideration, whether early or late in the history of a city, and one that is particularly appropriate in the study of the transportation situation. This is shown by the fact that in Europe, where the cities are much older than in this country and are growing much less rapidly, the science of city planning is receiving the most careful consideration of the authorities, and its principles are being put in force successfully in many places.

The paper prepared by Milo R. Maltbie, of the New York Public Service Commission, First District, for presentation at the fifth National Conference on City Planning, held in Chicago on May 6, suggests a number of points which should be studied. While naturally he speaks from the point of view of a resident of New York, the factors in the transportation problem in all cities have marks of resemblance. In other words, the type of railway construction adopted by companies furnishing urban transit facilities in large

cities, the volume of service rendered the public and the distribution of population and territorial extent of the city are factors that must stand in somewhat the same relation to each other in all communities.

Neither a railway system nor a city which has been in existence a long period of years can be born again over night. If either or both could have the benefit of a fresh start it would be a very simple matter to do away with mistakes arising from haphazard or unplanned growth and to perfect ideal arrangements. Railway facilities ordinarily precede development, but since it is not possible to foresee on what lines developments will take place, mistakes have been unavoidable. It is not true by any means, however, that early mistakes cannot be at least in part corrected by subsequent wise action. For instance, New York City would be in a better position to-day, so far as its available transportation facilities are concerned, if it had entered into any reasonable arrangement for additional subway construction five years ago and was now enjoying the full benefits of the facilities whose construction had been started then than it is to-day, when after long negotiation it has just completed arrangements for a comprehensive subway system which will take years to develop.

Mr. Maltbie says that the correlation of the various facilities for transportation of passengers is perhaps the most difficult phase of the problem. That this is so is due in part to the very rapid growth of American municipalities and to the corresponding progress of transportation facilities. With individual and other private property interests, as well as with the railway companies, this development has followed the lines that necessity or self-interest demanded. Now, with the time of more intelligent city planning at hand, the problem is to effect a means of correlation not only between the transportation facilities but also between the many public and private interests concerned. The aspect which such a problem assumes in crowded Manhattan is, however, without a parallel in any other city. Thus in some of the cities of the Central West interurban facilities are the best means afforded the public for transportation between centrally located terminals and homes within easy riding distance in the country.

The discussion of Mr. Maltbie on the question of whether all cities can have subways is of particular importance in view of the vociferous demand that arises from time to time in nearly every community for this form of rapid transit. He emphasizes the fact that in order to offset the burden of large fixed charges there must be dense traffic and that that in turn means congestion of population. This is not exactly what the city planning experts favor. We believe that in a community which has not the great density of population needed to support a subway the most practicable form of development after the reasonable car capacity of its streets has been exceeded is the construction of a terminal subway or elevated line over which all or part of the cars can be routed while in progress through the crowded business district. The subway plan has given great relief in Boston and the elevated plan is being considered in modified form in Los Angeles. Both methods offer a desirable means of settlement of the problem in other cities where the traffic available will not justify the construction of complete subways.

CONSTRUCTION EXPENSES IN THE MINNESOTA RATE DECISION

A question has been raised by a correspondent as to the correctness of the statement made last week in the editorial on the Minnesota rate case decision to the effect that "It is also evident that the court, in objecting to the use of multipliers, did not intend to eliminate the construction costs such as grading, and it also recognized the propriety of such intangible elements as engineering, superintendence, legal expenses, contingencies and interest during construction, when based on a proper valuation." Our correspondent quotes this passage from the decision of the court: "We also think it was an error to add to the amount taken as the present value of the lands the further sums, calculated on that value, which were included in the items of 'engineering, superintendence, legal expenses,' 'contingencies,' and 'interest during construction,'" and he doubts the propriety of our drawing from this the conclusion stated above. The fact is that the section just given is the one generally quoted in the newspaper reports, but it sheds less light on the point at issue than do other clearer portions of the decisions, although it in itself contains the generalization of the facts.

To be specific, in the case of the Northern Pacific, for example, the valuation of the lands for right-of-way, yards and terminals, including an estimated cost of acquisition and consequential damages and an allowance for the "railway value" of the land, was \$21,024,562. The cost of constructing the road with all the existing structures brought a total of \$58,728,685. Upon this, 4½ per cent was taken for engineering, superintendence and legal expenses. The value of the equipment added to the above total made \$74,209,789, upon which 5 per cent was taken for contingencies and also 4 per cent for two and one-half years for interest during construction. From this summary of the procedure it will be observed that the item for lands, right-of-way, yards and terminals was in all cases included in the total on which the percentages were taken for the incidental construction expenses.

This is the exact point against which the Supreme Court directed its criticism. The normal market value of the land was increased by the use of an artificial multiplier, and then on this value a percentage was taken for expenses that concerned not the land itself but the construction accounts. The court objected to the use of a multiplier to cover hypothetical outlays in connection with the acquisition and condemnation of the land, but we believe we are correct in our interpretation of the decision as meaning that if the construction expenses are not calculated in that inflated value the court will take cognizance of them. A second point then arises: Shall the land, properly valued at the normal market price, be included in the total upon which these expenses are calculated, or shall they be based upon all the other asset accounts, exclusive of the land? The court does not say, but the point is inconsequential, for if a reasonable amount is to be allowed for these items, they can be figured on either basis. The one conclusion to be reached, as we read the decisions, is this, that the land value cannot be increased by any conjectural railway value and then be used as a partial basis for calculating construction expenses, but that the court

will take cognizance of these charges when based on a proper valuation.

THE DECISION OF THE WISCONSIN COURTS AGAINST THE MILWAUKEE COMPANY

The decision in the Milwaukee fare case rendered by the Supreme Court of Wisconsin is in effect that the city of Milwaukee did not have authority to enter into a contract with The Milwaukee Electric Railway & Light Company fixing unchangeable rates of fare for a definite period, so that the agreement was void. No doubt the city entered into the contract in good faith. It believed that it was driving a good bargain for itself when it extended the life of the franchise and got as one of the considerations therefor a reduction in the rate of fare. If the city had told the company that it had not the legal right to bind itself as to the rate of fare for a number of years in the future, of course the contract would not have been made. Unless other great benefits of equal or higher value were received, the company would not have been justified in abandoning the higher rate of fare which it held under the earlier unexpired franchise and in giving the lower rate of fare which it took under the new franchise. It felt, however, that it was getting a quid pro quo in the increased franchise life which the new contract gave.

Through the years that intervened between the execution of the contract and the decision of the Railroad Commission reducing the rate of fare the citizens of Milwaukee had the benefit of the lower rate of fare which the new contract provided. Stated in another way, during this period the company lost the advantage of the higher rate of fare which the earlier franchise would have permitted it to charge. It seems from the angle which the events of the last few years have taken that the repudiated contract was another case of "heads we win, tails you lose." The city might have said to the company: "We will agree to this lower rate of fare now, but if the policy of the State should change in the future and we can secure a further reduction in the rate of fare, we shall take that way and disregard the contract." Although this in effect is what the Wisconsin court permits to be done, the city did not say that at the time the contract was made. It took what it could get, and the company on its part did what it thought was the best for itself under the circumstances.

When limited franchises were the policy of the State they were given and accepted as the basis for the relations between a municipality and a company. But later the State adopted an indeterminate franchise policy and a system of regulation through a State commission. It not only applies this policy to new franchise arrangements but also applies the substance of it so as to annul old franchise arrangements. What will happen in Wisconsin if the State should again decide to change its policy and return to the limited franchise policy? We think that such a change is wholly improbable, and we believe that limited franchises as a matter of general policy are not in the true interest of either the companies or the public; but we also believe that if parties to a contract made under earlier conditions desire to continue its vitality and integrity, they should have the right to do so.

Electric Welding and Motor Rejuvenation

The Third Avenue Railroad, New York, Carries on Many Forms of Electric Welding, and It Is Also Rejuvenating Two Types of Motors Along Novel Lines—The Methods Are Described and Costs Are Included

The adaptability of electric welding to a wide variety of railway repair and renewal work is illustrated by the practices of the Third Avenue Railway, New York. Early last year, after some experiences with outside welding, the company determined to do this important work in its own shops at Third Avenue and Sixty-fifth Street. Since last

270 amp. The middle board has a connecting switch so that any current within its range can be transmitted to a board on the truck-shop floor where work is done directly on the trucks. This board is also fitted with a Sangamo recording watt-hour meter in order to record the energy consumed for any particular job, should such data be wanted. This watt-hour meter can also be readily transferred to the other boards if desired. The total energy supplied for all welding work is recorded by means of an integrating wattmeter in the feeder circuit, and a regular charge is made at the rate of 1 cent per kw-hr. to each job for the energy used.

Current for each set is taken through two circuit-breakers, one on each leg of the line, the negative side passing directly through a flexible cable to the burner or torch, while the positive is applied to the work after being led through the proper combination of resistances. All work is placed on an insulated table, and the men stand on fiber



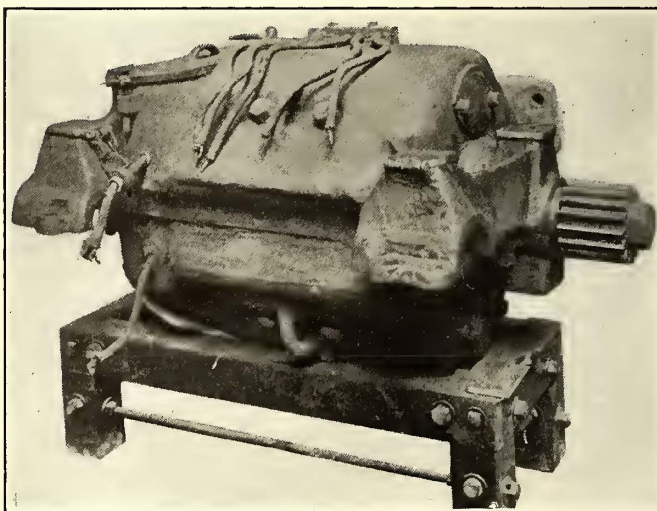
Third Avenue Welding—Commutator End of New Frame No. 57-U Motor

August it has had in operation the equipment hereinafter described for all classes of light and heavy welding.

THE WELDING EQUIPMENT

As an essential condition to good work, the company decided to install the principal welding outfits and appurtenances where the welders could labor under the best conditions. The welding room is part of the high truck-shop basement, and it is bounded by the whitewashed brick piers which were originally erected to carry cable machinery. This room has a large opening at the top for air and natural light, but two fans and several clusters of lamps are also installed. The welding section really comprises two rooms, one in which the work is done and the other, a side passage, where the resistances and switchboards are installed.

As energy is taken direct from the 550-600-volt substation bus, enough resistance was provided to reduce the voltage at the arc to approximately 50-75 volts. These resistances

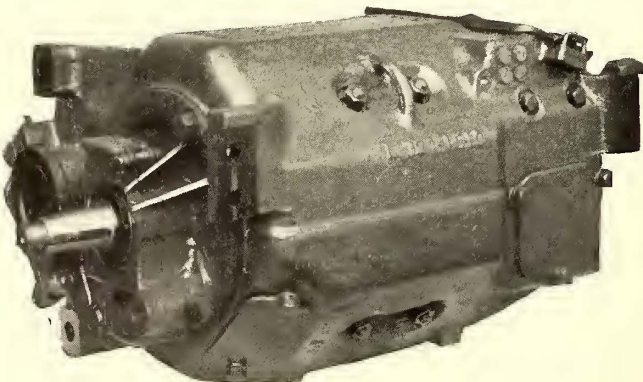


Third Avenue Welding—No. 57 Motor with Original Frame

are obsolete car grids which are suspended from the ceiling of the side passage. Three switchboards are installed as follows: The first, nearest the welding room, supplies currents of 200, 250 and 350 amp for such work as welding broken motor shell lugs, broken truck frames, etc.; the second board furnishes currents of 75, 125, 150 and 200 amp for welding gear cases, filling in worn axles, dowel-pin holes, etc., and the third switchboard gives currents of 170, 220 and

TABLE I.—RECORD OF WELDING DONE DURING WEEK ENDED JAN. 25, 1913

Work Done	Unit	Total
	Cost New	Cost New
Welding axle lugs on seven Westinghouse-56 motors (half shell without fittings).....	\$50.00	\$350.00
Welding one K-8 broken controller frame.....	9.00	9.00
Welding five pony axles around button.....	7.50	37.50
Welding Westinghouse-310 armature shafts, one broken and two with worn keyway and pinion fit (shaft).....	8.60	26.40
Total.....		\$422.90
Cost of labor.....	\$36.50	
Cost of material.....	1.50	
Cost of current at 1 cent per kw-hr.....	30.00	
Total.....		68.00
Saving.....		\$354.90



Third Avenue Welding—Pinion End of New Frame No. 57-U Motor

are obsolete car grids which are suspended from the ceiling of the side passage. Three switchboards are installed as follows: The first, nearest the welding room, supplies currents of 200, 250 and 350 amp for such work as welding broken motor shell lugs, broken truck frames, etc.; the second board furnishes currents of 75, 125, 150 and 200 amp for welding gear cases, filling in worn axles, dowel-pin holes, etc., and the third switchboard gives currents of 170, 220 and

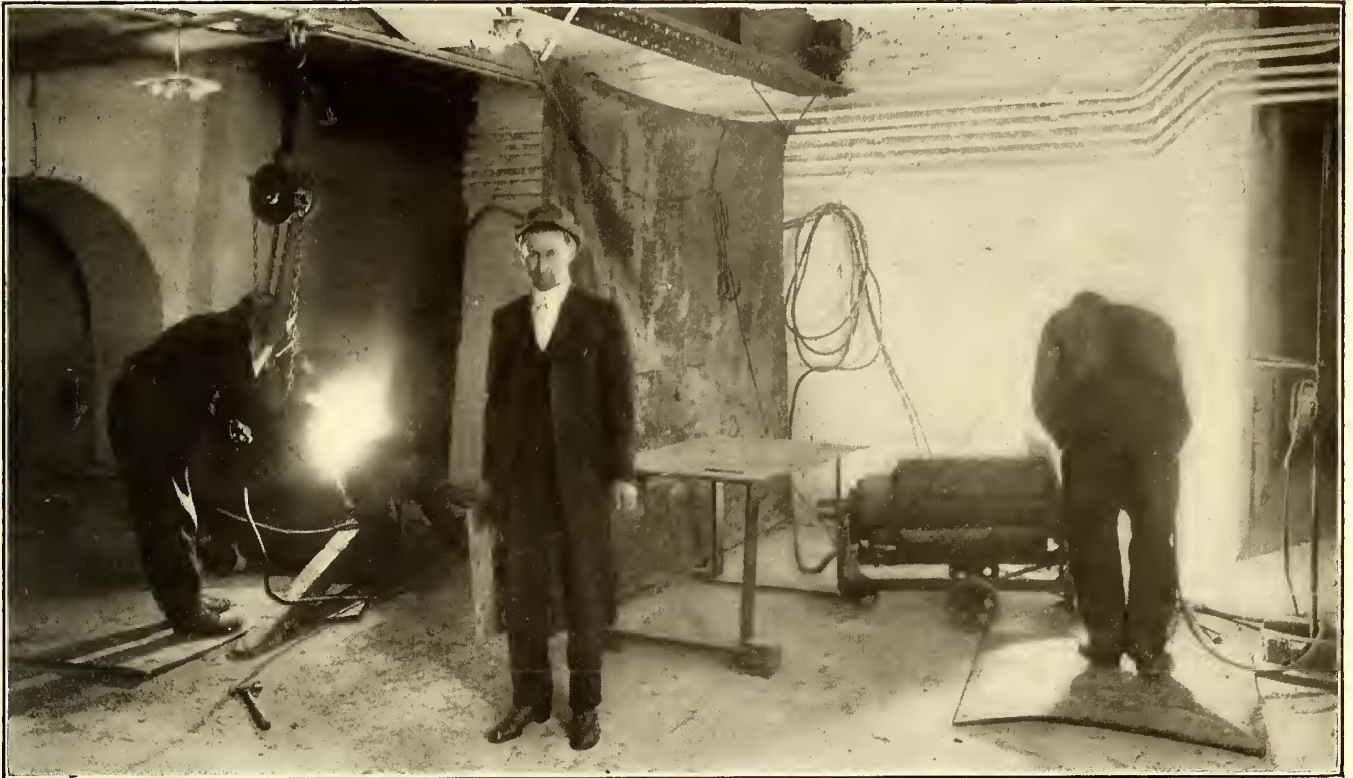
to permit its use as a handle, and a round fiber shield is also applied at the middle of the pipe to protect the hand of the operator from the arc. Each welder is guarded about the head and eyes by a hood made of canvas and framed with light tin in the form of a head band. The hood carries an eyepiece of red, green or blue glass. A canvas shield also separates the two operators.

The chief supplies necessary for this work are the carbon pencils, welding powder and additional metal. The carbon

is $\frac{3}{8}$ in. in diameter and 6 in. long, costs about 3 cents and will last a full working day. Instead of a flux, the company simply uses for cast-iron parts a white welding powder which costs but 8 cents per lb. Pure Norway iron

For the week ended Jan. 25, 1913, the record was as shown in Table I, which is printed on the opposite page.

In addition to the work tabulated, dowel holes were re-filled in thirty-seven armature caps, seventeen axle caps and



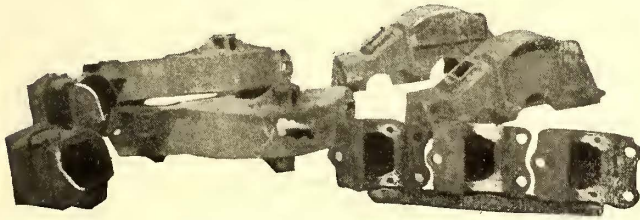
Third Avenue Welding—Scene in the Welding Basement, Showing Operators Standing on Insulating Mats While at Work

free from carbon is used for any work which necessitates finishing—namely, boring, turning, planing, drilling, etc.

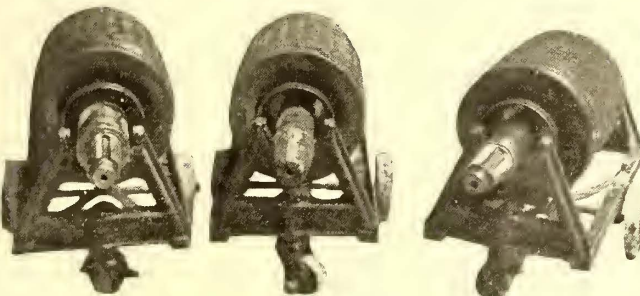
COSTS AND SAVINGS

The following data, which are taken from the weekly reports of the electrical foreman to J. S. McWhirter, su-

perintendent of equipment, will convey an adequate conception of the importance of electric welding from the standpoints of costs (neglecting the small overhead charges) and savings.



Third Avenue Welding—Broken or Worn Journal Boxes, Gear Cases and Dowel Holes Before Welding



Third Avenue Welding—Worn, Filled and Completed Keyways of Armature Shafts



Third Avenue Welding—Resistances and Control Apparatus in Basement

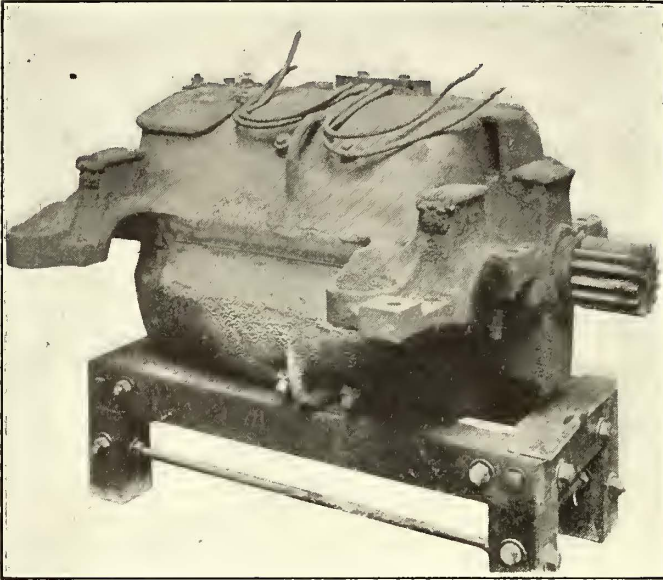
perintendent of equipment, will convey an adequate conception of the importance of electric welding from the standpoints of costs (neglecting the small overhead charges) and savings.

an axle cap. The man who welded the motor shells also repaired the controller frame and eleven axle caps and this work required ten out of the sixty hours which constitute a week's work in the shops. His wages for the week were

\$18. Of the charge of \$10 for electrical energy, \$8 was due to repairs on the motors. Consequently the cost of repairing seven motor shells was \$15 for labor and \$8 for current, or about \$3.25 per shell. This compares with \$18 and \$23.50 charged by outside contractors for similar jobs.

For the week ended Feb. 3, 1913, the record of the three operators was as shown in Table II on the next page.

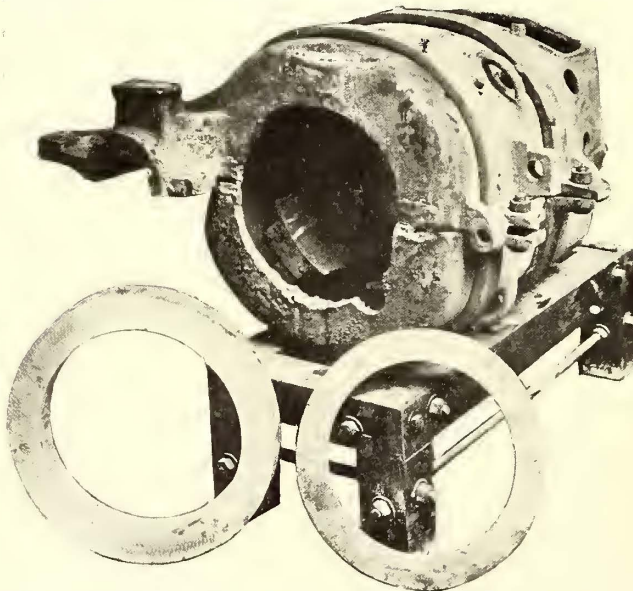
The data presented are sufficient to demonstrate the low cost of electric welding, but it should be added that the welded equipment has proved good in service as well.



Third Avenue Welding—No. 56 Motor with Original Split Frame Construction

MOTOR REJUVENATION

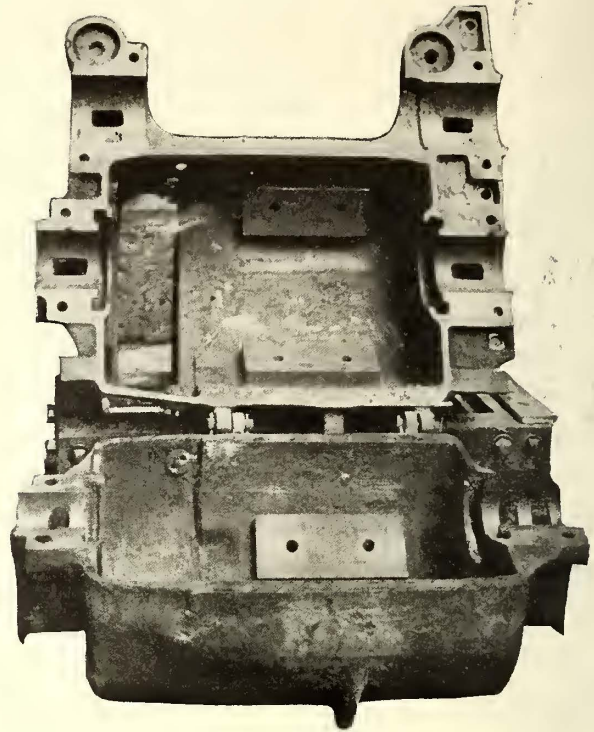
In addition to the foregoing work electric welding has been adapted to convert the No. 56 motor into practically an entirely new machine. The company has long been confronted by the problem of making its 220 GE-57 and 571 Westinghouse-56 motors as reliable and efficient as later



Third Avenue Welding—Oil Boxes and Ends Cut Off, Clamp Holding Split Frame; Also Machined Welding Rings

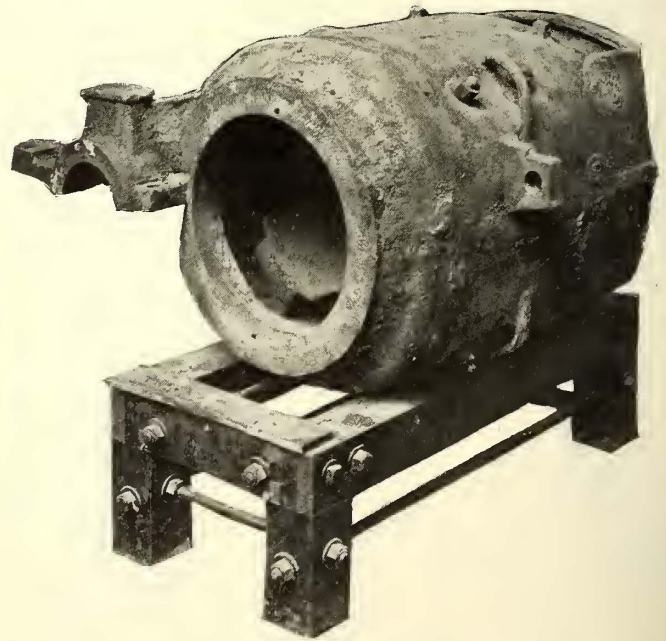
equipment. These motors had been in constant service for from twelve to fifteen years, but after the purchase of interpole motors some three years ago they were retained chiefly as reserve equipment. The growing business of the company and the recent purchase of the Fifty-

ninth Street crosstown line have made it desirable, however, to see what can be done to make this equipment economical for constant service. The GE-57 motor is receiving an entirely new box frame, as noted later, but the Westinghouse-56 is being welded from a split-frame to a



Third Avenue Welding—Split Frame Motor Open, Showing Original Construction

box-frame motor. Six pairs of No. 56 motors have already been welded to be used experimentally for six months to a year before the remainder are changed. In one set of the No. 56 motors ball bearings will be tried.



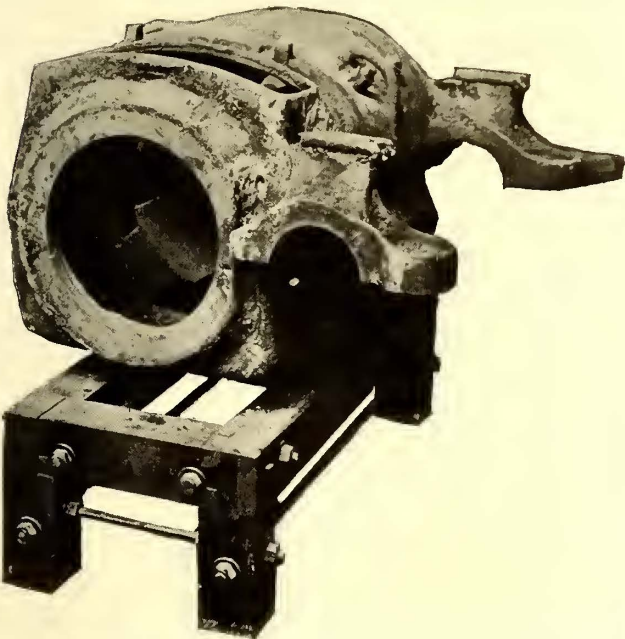
Third Avenue Welding—Ring as Welded On at Pinion End and Lug Reinforcement at Left

Had the No. 56 motors been continued in service with split frames it would have been necessary to rebore the frames for larger bearings, but this change would not have eliminated the faults of the original design. Electric welding, on the contrary, offered the opportunity of reinforcing

TABLE II.—RECORD OF WELDING DONE DURING WEEK ENDED FEB. 3, 1913

<i>First Man</i>		
Work Done	Unit Cost	Total Cost
Welding seven motor shells (half shells).....	\$50.00	\$350.00
Welding one axle.....	7.50	7.50
Total.....		\$357.50
Cost of labor.....	\$15.00	
Cost of material.....	1.00	
Cost of current.....	8.00	
Total.....		24.00
Saving.....		\$333.50
<i>Second Man</i>		
Welding eleven axles.....	\$7.50	\$82.50
Welding one motor inspection cover.....	2.00	2.00
Total.....		\$84.50
Cost of labor.....	\$15.00	
Cost of material.....	1.00	
Cost of current.....	10.50	
Total.....		26.50
Saving.....		\$58.00
<i>Third Man</i>		

The work done by the third man was of widely miscellaneous character, but it was estimated that he produced a greater saving than the others, his jobs being as follows:
 Filling dowel holes in fifty-three armature bearing shells.
 Renewing nine Brill brakeshoe heads.
 Filling eleven dowel holes in axle caps.
 Welding one journal box.
 Welding one Westinghouse-56 motor shell.
 Filling dowel holes in six motor suspension angles.
 Welding one controller frame.



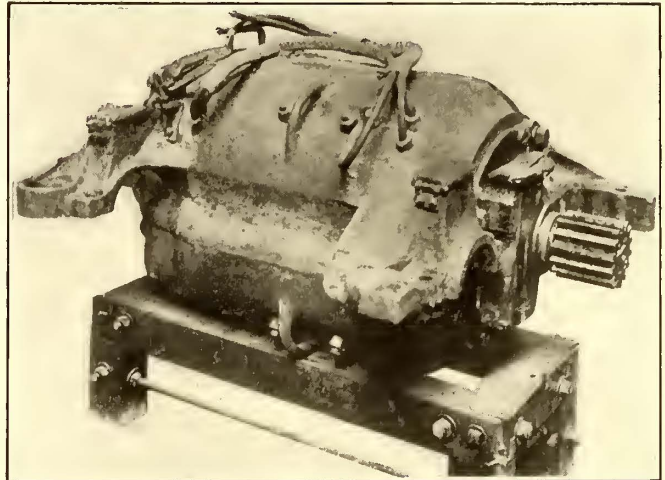
Third Avenue Welding—Ring Welded on Commutator End of Former Split-Frame Motor

the axle-bearing supports and other weak portions. The cost of welding the first frame, including new frame heads, gear cases, brush holders and other material required to make the motor operative, was \$90; that of the second was \$80, and in quantities the unit cost will be only \$65.

In welding a No. 56 frame the first step is to place a clamp around the split frame and then apply the electric arc to cut off the old grease boxes and ends of the motor. Following this, the halves are bound permanently by two cast-steel rings—one of 1 1/4-in. thickness which is welded to the commutator end and one of 2 1/2-in. thickness which is welded to the pinion end. The rings are set off about 3/8 in., and owing to the irregular shape of the motor ends, the metal added may extend to a depth of 4 in. In addition, the weld is further reinforced by the frame-head bolts which pass clear through the ring, the intermediate metal and the shell. Two extra ribs are also welded in to strengthen the axle lugs. The final step is to weld the seam between the halves of the motor shell, but the seam weld is not relied upon to keep the motor intact, the real

strength being in the rings and bolts. The welding rings are machined, of course, to take the frame heads.

The GE-57 shells will not be rebored, but as this machine is a good motor electrically, it has been decided to make a hybrid motor by placing all except the brush holders into a new box frame of a design very similar to the GE-210 motor. The cost of this change will be about \$185 per motor. This is not the price charged by the General Electric Company, but it is the approximate cost after allowance is made for the scrap value of the old material. It does not



Third Avenue Welding—No. 56 Motor Changed to Solid Frame and Furnished with New Ribs, etc.

include any charge for labor because the work of placing the old armature, fields and pole pieces in the new frames is considered as part of maintenance expense that would have to be gone through with in any event. Before adopting this scheme for all of the No. 57 motors a sample assembly was made at the Schenectady works of the General Electric Company. The tests which were conducted there



Third Avenue Welding—Axle Worn, Filled and Partly Machined

on April 18 showed that the characteristics of the motor were normal in every particular.

Evidence of the efficiency of the inclosed vestibule with folding doors operated by the motorman and conductor in the prevention of boarding and alighting accidents has been furnished by the Texarkana Gas & Electric Company, Texarkana, Ark. In 1911 this company had 102 accidents coming under this head. In 1912, after all cars had been provided with inclosed vestibule, there was not a single boarding or alighting accident.

Transportation and City Planning*

The Author Emphasizes the Close Relation Between Symmetrical City Development and Proper Transportation Facilities and Discusses the Functions of Subways and the Economy of Freight Distribution on Street Railway Tracks

BY MILO R. MALTBY, MEMBER OF NEW YORK PUBLIC SERVICE COMMISSION, FIRST DISTRICT

In the discussion of city planning there has been a noticeable lack of consideration of transportation facilities. Yet I venture to assert that there is no one factor, with the possible exception of topography, which has a greater influence not only upon the direction of city development but upon the character of the city from every standpoint.

It is impossible for a considerable number of people to live in a small area without many transportation facilities. The country village without a railroad never passes the rural stage. There is competition between cities, and the one which has the best transportation facilities by land and water is ordinarily the one which increases most rapidly in population and is the largest center of trade, industry and commerce. The city which has the cheapest, most rapid and most convenient transportation facilities for communication between its various parts is the city, other things being equal, which has the most productive and healthful citizenship.

It has been found that the commuting zone is generally limited to the area which can be reached within forty-five minutes or an hour from the heart of the city, and usually the great mass of population is within a half hour's radius. It is not so much a question of distance as a question of time and the convenience of travel, and persons will go further if it is not necessary to change facilities, as from rail to boat or from one railroad to another railroad, than they will if the trip involves such inconvenience. Attractive housing schemes may be planned and their advantages widely advertised; a fine system of parks, beautiful streets, adequate systems for water supply, lighting and sewerage, beautiful school buildings, libraries and every other social advantage may be provided; but people will not and cannot live there, no matter how beautiful and attractive the scheme, unless they are served with cheap and rapid transportation. Thus, when one examines the map of any large city, he notes that population has followed transportation lines and that along these radial lines there are the ganglia which center at railroad stations. Between these radial lines there are areas which are comparatively unoccupied and which, as the crow flies, are nearer the center of population than the settled areas along the railroads.

It seems to have been taken for granted frequently that one may plan a city and then depend upon transportation experts to provide transit facilities—that different areas can be set aside for factories, shops, theaters, offices, residences, parks, etc., and that then some sort of transportation system may be evolved to fit the necessities of the plan. But if conscious city planning is to be substituted for accident and haphazard development the two things must go hand in hand; that is, transportation facilities must be considered at the same time that other factors are under discussion.

THE VALUE OF STRAIGHT STREETS

There is a marked tendency among city planners to use curved streets and broken streets—streets that constantly change their direction. From an artistic standpoint, these plans are often very successful, and the treatment of the long, straight street is a difficult matter, but the old epigrammatic statement that the curved line is for pleasure and the straight line for business holds true to-day. Cheap rapid transit would be practically impossible in a city

wholly composed of curved streets or streets which change their direction at short distances. The cost of construction would be large. Private property would have to be taken at many points. Large cost of construction would mean large fixed charges. Operating expenses would be increased because the loss of current in acceleration and retardation and cost of maintenance and repairs would be heavy. Curves reduce speed; reduced-speed means increased time in transit; an increase in time means a reduction in the area which can be served, which in turn is a cause of congestion.

Compare the elevated roads in Manhattan with those in Brooklyn. The former have few curves and hence speed. The latter, in the central portion of Brooklyn, are so crooked and complicated with numerous crossings and connections that trains must be operated slowly. As a result one can travel on the Third Avenue elevated line in Manhattan 50 per cent farther in the same length of time from City Hall Park than he can by taking any of the elevated lines over the Brooklyn bridge. This is not the only cause, but it is one of the reasons, why the city of New York has grown so much more rapidly to the north than it has to the east and why there are undeveloped sections in Brooklyn within a few miles from City Hall, Manhattan, whereas, within the same distance in Manhattan there are no areas which are not solidly built upon.

CORRELATION OF FACILITIES

The correlation of the various facilities for transportation of passengers is probably the most important, and perhaps the most difficult, phase of the problem. The location of terminals and lines devoted exclusively to interurban traffic is not especially difficult, but practically every railroad does a suburban business, and in some cases it carries a large percentage of the population of the city itself.

In this connection there are several principles of considerable importance. In the first place, terminals should be eliminated as far as possible. They are costly to acquire, expensive to maintain and increase rather than decrease congestion. So far as possible, the lines should be operated through a city and not terminate therein. Secondly, there should be a sufficient number of station stops to distribute the traffic and to afford convenient means of connection with other facilities. It is almost impossible to utilize the same set of tracks for interurban, suburban and purely urban business. Ordinarily, the first two classes can be combined, and every railroad should be required, so far as practicable, to transport persons and property between points within the city boundaries. But it will be difficult in metropolitan cities for all three classes of business to be satisfactorily carried on a single system. Sooner or later most of the urban business must be done by separate lines. When the time of separation comes the through lines should not be permitted to unload their passengers at the outskirts of the city and to compel the urban lines to distribute their traffic. They should be obliged to operate lines through the heart of the city and so far as possible distribute their own business. This does not mean that the through lines should be operated without relation to the urban lines, but that they should not be allowed to take the cream of the traffic without some of the skim milk.

Thirdly, it is essential that the interurban and suburban lines be so located that they shall have a relation to the purely urban facilities. The stations upon the through lines should coincide with express and local stops on the

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urban rapid transit lines, and the surface lines should radiate from express as well as local stations. In the New York subway the idea of local and express service on parallel tracks was worked out quite successfully and was a distinct contribution to the science of urban transportation. Experience has shown, however, that the relation of express to local stations was not so adjusted as to secure the greatest utility for every track. During rush hours the express tracks are loaded to their maximum capacity and trains of ten cars are run at intervals of one and three-quarter minutes. The service on the local tracks at no time of the day reaches the maximum capacity of those tracks. The maximum number of cars in a train is six and the minimum headway is about one and three-quarter minutes. The ratio of use between the local tracks is greater than the cost of the express tracks and would be whether the latter were on the outside of the local tracks or in the center, as they are to-day, for there are many more local stations than there are express stations. It is apparent, therefore, that the city of New York is getting, from a transportation point of view, less than one-half as much service from the investment in local tracks as from the express tracks. The explanation is that the express stations are not far enough apart to distribute the traffic properly. In the new lines which are under way an attempt has been made to meet this criticism by placing the express stations further apart. It is natural for everyone to want all trains to stop at the station which he patronizes, and there is usually danger that too many express stations will be constructed, rather than that there will be too few.

CAN ALL CITIES HAVE SUBWAYS?

The question of cost is a factor which must not be overlooked. The success of subways in a few cities has given rise to the idea that every city should have subways and that all will be profitable. This is a mistaken notion, and the experience of London shows that there is no particular financial virtue in an underground railroad and that unless they are properly located and made co-ordinate parts of a comprehensive system they are likely to have limited success. Subways are easily operated, but they are expensive to construct and the large cost of construction means large fixed charges. In order to offset this burden there must be dense traffic or many persons riding short distances. Dense traffic, however, means congestion of population. Areas given over to private houses, each with its own grass plot and garden, cannot furnish a sufficient population to support a subway unless the ride is very short and the rate of fare high. The ride is not apt to be short, for land values in the central part of a city are ordinarily so high that people must go some distance from the center of the city to have single houses, and if the fares are high the great mass of the population cannot afford to pay them and will be forced to live in tenements. The area naturally tributary to a subway or any line is also limited in extent, for experience has shown that persons will not ordinarily walk more than ten minutes to reach a point where they can board a transportation line. Unless the city is to enter a new field of activity, therefore, or defray part of the cost of subways by some method which relieves the enterprise from high fixed charges, it is impossible for cities to have subways unless at the same time they are content to have congestion—tenement houses, solidly built blocks and not separate dwellings.

The smaller the construction cost the greater the number of lines that can be built, and if many lines are constructed and many areas are opened to development, the competition between these areas will tend to keep prices down, assuming of course that the gradual growth in population is not stimulated by some other force which makes the demand for land unusually large. Consequently more attention should be given to reducing the cost of rapid transit lines. A subway is the most expensive kind that can be built. The old-style elevated road is very much less expensive, and

the solid floor, or so-called "noiseless," type stands between the two. Those interested in a suspended railway claim that it has many advantages, particularly from the view of cost of construction. All of these elevated types are more comfortable than subways, having better ventilation and light. The principal objection to the suspended railroad is that it cannot be operated in connection with any other line and that there can be no interchange of equipment.

FREIGHT TRANSPORTATION IN CITIES

There are a few instances where attempt has been made to reduce the cost and loss of time in the transportation of property from terminals to factory and warehouse, and successfully, too, but these scattered instances are so few that they have not yet had a far-reaching effect. However, the movement must be in this direction; the location of factories, warehouses and shops where they are not directly connected with water and rail transportation is uneconomic and wasteful.

The distribution of food products represents a somewhat different problem. These must go to every home, and consequently the facilities for distribution must reach every part of the city. In this connection the country trolley and the city street car line have not been fully utilized. During the night time and early morning hours these lines are practically unused. The cost of operating cars at these times would entail practically no fixed charge, and the operating expenses would be small. If the country trolley roads should establish collection points at short intervals, and if the products could be brought into the very heart of the city and distributed in the early morning hours, a very valuable and useful service could be performed. The street car systems could also be used for the distribution of property from railroad centers, and thus connections could be established with the more remote districts tributary to every large city. Even the rapid transit lines might be utilized if found necessary during the night hours.

CITY CONTROL

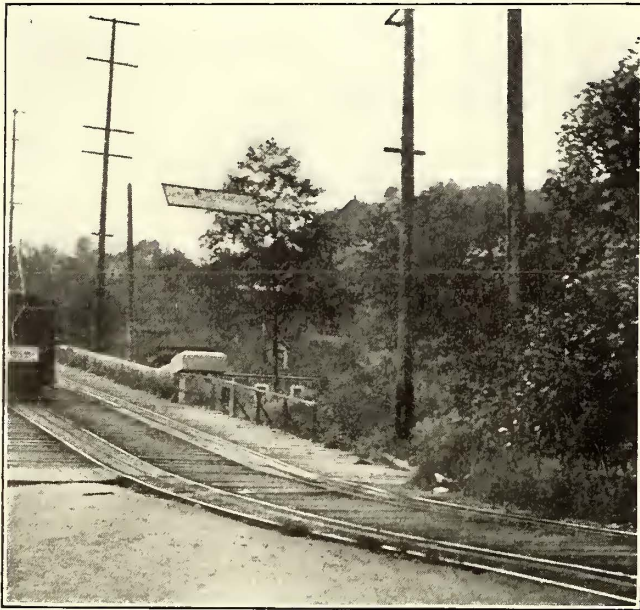
In conclusion, a word regarding the city's control of transportation development. As long as the various facilities are in the hands of private individuals and controlled by different corporations it is obvious that they cannot be brought into correlation and each made to serve the public in a proper way without a superior force. Each ought not to be permitted to carry out its own wishes regardless of its relations to other facilities. It is absurd that a company should locate a terminal removed from other transportation facilities and insist that the city should provide means for the distribution of the traffic which it brings to this inconvenient point. Moreover, conditions change and what is proper and adequate in one generation is often inadequate and ill-suited to the demands of the succeeding generation. Consequently there must not only be public control over the first location or first scheme of development, but there must be in the hands of the city the means whereby continually the varied interests may be kept in harmony and whereby the ever-changing needs may be met by changes in transportation facilities. The city should always be in a position where it can dominate the situation.

Work is well in hand on the conversion of the railway between Christiania and Drammen, Norway, a distance of about 33 miles, from 3 ft. 6 in. to the standard gage and also to electric traction. As far as Sandviken, $8\frac{1}{4}$ miles, double track will be laid. The question whether the necessary energy shall be taken from privately owned companies or whether the government will establish its own power station has not yet been decided. As regards the rolling stock, seventeen electric locomotives of from 320 hp to 800 hp and eleven combined locomotives and carriages of 300 hp have been ordered. The latter are intended for use with a trailer on the Christiania-Asker section of the line, which has a length of about 14 miles.

Improvements to a Cable Road in Seattle

Notes Upon the Operating Features of Cable Lines in Streets with Heavy Grades, Including an Account of the Substitution of Electricity for Steam for the Cable Drive

The Puget Sound Traction, Light & Power Company, of Seattle, Wash., has recently electrified the driving equipment of the Yesler Way cable line, replacing a steam engine by a 500-hp, 2200-volt, three-phase induction motor, thus modernizing a type of installation still considered necessary in Seattle on account of the very severe grades encountered. The Yesler Way line extends from Pioneer



Seattle Cable Lines—View at East End of Yesler Way Cable Line

Square eastward to Lake Washington and is double-tracked throughout the length of the round trip, being about 5.4 miles. The line has maximum grades up to 18 per cent and for this reason is peculiarly suited for a cable drive. This road has been in operation about twenty-three years, the rated speed of the cable prior to the installation of the motor drive being 1000 ft. per minute. Schedule time for a round trip is thirty-four minutes, but since the motor was placed in service it has been found possible to maintain this schedule with a cable speed of 888 ft. per minute, the service being much smoother all along the line. In fact, the immediate cause of the substitution of electricity for steam in the driving of the cable system was the irregularity of service given by the latter type of equipment, serious difficulties having been encountered from jerks in the cables. With the establishment of service from the White River hydroelectric plant of the company it was also considered decidedly economical to change from steam to electricity. A large increase in traffic on the Yesler Way line was also a factor in this decision.

CAUSE OF JERKS

An investigation of the subject of cable jerks was made on all of the cable lines at Seattle in the early spring of the past year, and it was found that the Yesler Way line contributed about three-fourths of the accidents and one-half the damages due to this cause. With few exceptions all jerks occurred on up-grades, usually while a car was starting or shortly after it had started. Accidents on the Madison and James Street cable lines of the company, which in general had easier grades, were comparatively few and well distributed over the routes, the heavier grades giving the most trouble. The investigation indicated that

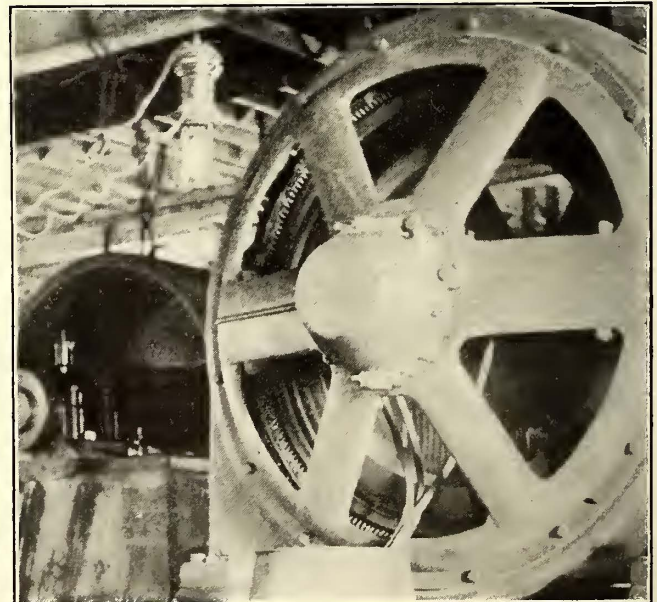
the Madison and James Street accidents bore a close relation to the times of changing, piecing or stranding the cables and that they were probably dependent almost entirely upon the condition of the rope with respect to these factors, combined with the grade, rather than upon any other factor of operation of the mechanical equipment. The Yesler Way accidents showed a decided tendency to bunch shortly after the installation of a new cable, continuing to a smaller extent throughout its life and being dependent upon the age of the cable and its early lubrication rather than upon the occurrence of strands, splices or patches. Data as to the distribution of accidents with respect to the style and age of grips and dies were not available.

Aside from such causes of trouble as defects or failures in equipment or carelessness of car crews, the investigation showed that the principal factors concerned in the great majority of accidents coming under the classification of cable jerks were grade of start and load on car, speed of rope, tension of rope, physical condition of rope, including age and lubrication, style and condition of grips and dies, overheating of dies by friction of cable, and knowledge of conditions by gripmen and care of gripmen under unfavorable conditions.

REMEDIES CONSIDERED AND INTRODUCED

Following this investigation it was found that the company was unable materially to change the grade of its lines or points of stopping, but it appeared desirable to avoid stops and starts on grades exceeding 13 per cent. This feature of operation was adopted by the transportation department.

The faster speed of the Yesler cable, as well as its more numerous jerks as compared with those on James



Seattle Cable Lines—500-hp Induction Motor Driving Yesler Way Cable

and Madison Streets, together with the effect of overheated dies, led to the conclusion that a reduction of the cable speed on the Yesler line would materially reduce trouble and a speed of about 10 m.p.h. was found to be about the maximum that could safely be operated upon the existing grades in Seattle with the present type of equipment.

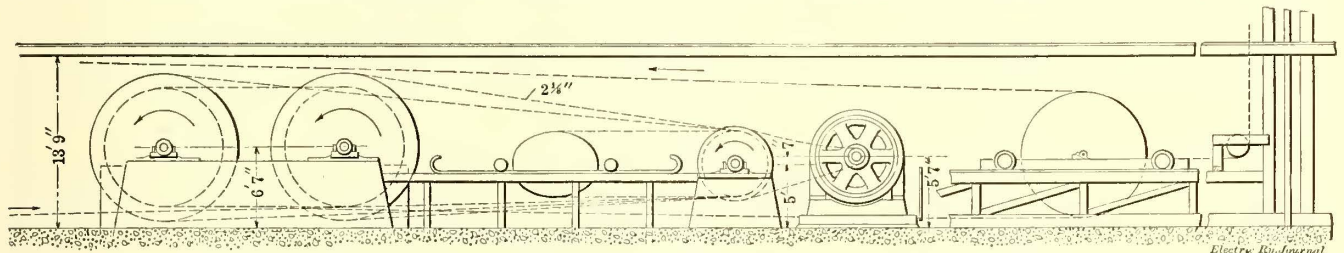
The Madison and James Street cables both ran with a

more even tension than the Yesler cable under steam driving, but with the electric drive the conditions of the latter were greatly improved.

A study of the accidents occurring brought out a number of cases where a splice, strand or unequally sized rope coming into the grip while starting the car caused a violent jerk. Increased care in patching and splicing was seen to be necessary. A log book is now kept at each cable station by the cable crews, and in this are entered the time and results of all cable inspections, with a description of all work done on the system. It was suggested by the investigating committee that the company's cable splicer be broken in as a gripman in order that the relation of cable condition to car operation may be better judged.

It appeared that many jerks on the Yesler line occurred from the overheating of the gripping surfaces of the dies as the grip was being closed to bring the car up to rope speed to a point where the surfaces suddenly adhered to the

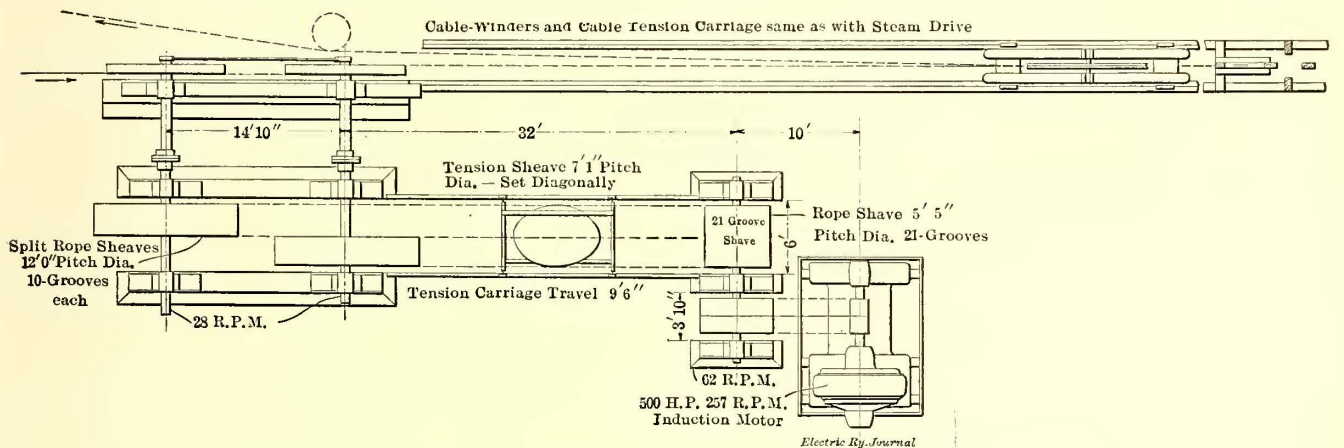
carhouse, with three step-down transformers rated at 200 kw each for lowering the potential from 13,200 volts to 2300 volts, the supply being taken through the James Street substation over a three-phase No. 4 copper overhead line 11,500 ft. long. The transformers are of the water-cooled type and with the motor are of General Electric make. The motor is designed for operation at various speeds ranging from 25 to 257 r.p.m., the changes being effected by an external resistance in the rotor circuit. Two Morse silent chains, each 17 in. wide, are installed between the motor and a countershaft which is connected by rope drives to 12-ft. sheaves on the winder shafts. The latter are driven at a speed of about 28 r.p.m. The cable-winding sheaves are 10 ft. in diameter. The winder shafts are spaced 14 ft. 10 in. apart on centers, and the motor and machinery foundations are of concrete construction and are installed on piles. An operating switchboard at the carhouse includes in its equipment an ammeter for each phase of the



Seattle Cable Lines—Elevation of Rope Drive for Main Cable

metal of the cable and caused the grip to lock prematurely. In one instance the dies were actually welded to the cable to such a degree that the cable had to be shut down before the car could be stopped. In other cases the dies were found to be burned at the points where the greatest friction would

motor circuit, a reversing 2300-volt oil switch for running the cable system backward, a wattmeter and a rheostat. Seventeen cars are at times operated on the line, each weighing about 20,000 lb. The installation of the motor has reduced the cost of boiler service at the carhouse to



Seattle Cable Lines—Plan Showing Motor Connected to Rope Drive by Silent Chain

have been expected at the time of the accident. As the starting of a cable car is produced through the gradually increasing friction of the dies on the cable, there is always more or less heating of the dies, but as only excessive heating causes trouble, it appeared that a reduction in cable speed would in most cases help matters. Here the constant torque of the electric motor was a great advantage, and on the Yesler cable it is noteworthy that the schedule can be maintained electrically with a reduction of more than 10 per cent in the maximum speed required by steam operation.

NEW EQUIPMENT INSTALLED

Although the Yesler Way line is in operation about nineteen hours per day, the original steam engine drive was removed without serious traffic interruption and replaced by the present electrical installation, in which twenty driving ropes are in use, with a greatly improved mechanical layout. The motor is installed at the company's Lake Washington

that required for low-pressure steam heating in the winter. About 20,000 passengers per day are carried on the Yesler Way line.

Renzo Norsa, an electrical consulting engineer of Milan, Italy, has reprinted in pamphlet form, from the April transactions of the Milan Engineering and Architectural College, an extended survey of traction problems in metropolitan cities. Signor Norsa devotes particular attention to the United States, where he resided for several years. The publication is divided into four chapters as follows: (1) Growth and distribution of population and causes of congestion in New York, Chicago, Philadelphia, Boston and Pittsburgh. (2) Traffic statistics and diagrams of large American cities compared with several European cities. (3) Transit systems of American cities. (4) American elevated and subway construction. (5) Economic and financial aspects of large urban transit systems.

CHANGES IN THE GENERAL ELECTRIC COMPANY

The important announcement was made this week that Charles A. Coffin had been elected chairman of the board of directors of the General Electric Company and that E. W. Rice, Jr., had been selected his successor as president. Although it is understood that this action signifies in no sense Mr. Coffin's retirement from active work or any alteration in the policies of the company, his change in title will seem an important event in the industry.

Mr. Coffin was born in Maine in 1844 and, after an early graduation at the Bloomfield (Me.) Academy, embarked in commercial pursuits. In 1881, when in the boot, shoe and leather trade, then as now a very important industry in eastern Massachusetts, his attention and that of a number of his friends at Lynn was called to the rising technical genius of Prof. Elihu Thomson, who with Professor Houston had then recently organized the American Electric Company at New Britain. Mr. Coffin directed an investigation into the affairs of this company and the future possibilities of practical electrical development throughout the world. This resulted in the purchase of the American Electric Company by the Lynn financial group, so called, and the formation of the Thomson-Houston Electric Company, one of the predecessors of the present General Electric Company. Mr. Coffin was elected vice-president and treasurer of this new organization and from the first became its guiding spirit.

At the outset he adopted these fundamental business principles which, directed by his genius, have been primarily responsible for the success of the Thomson-Houston and General Electric companies: First, the advancement of the art through fearless expenditures for technical talent and experiments; second, that moral and financial assistance rendered to local electrical enterprises expands the market for electrical appliances and material, and, third, the creation of a commercial organization whose members should be imbued with a spirit of loyalty and co-operation paramount to personal ambition and advancement.

His self-sacrifice for the interests which he has served, with his magnetic personality, have been a constant inspiration to his associates and subordinates, no matter whether they have been financiers, engineers or commercial men. As early as 1888 the Thomson-Houston Electric Company had outstripped all of its manufacturing competitors in the number of central lighting stations installed in the United States. Mr. Coffin at this time, with his usual foresight, became alive to the possibilities of electric railway development and so caused the purchase of the Bentley-Knight and Vandepoele electric patents by the Thomson-Houston company, and in an extremely short period this company had become even more prominent in this field than in that of electric lighting.

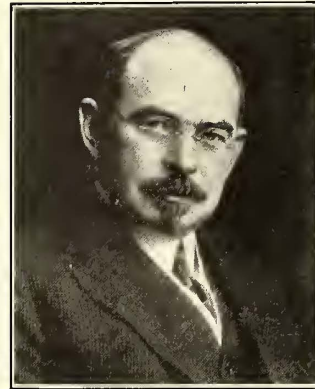
The first absorption of a leading competitor by the interests under Mr. Coffin's direction was that of the Brush Electric Manufacturing Company about 1890. Early in 1892 came the consolidation of the Edison General Electric Company and its associate interests with the Thomson-Houston company, into the present General Electric Company, of which Mr. Coffin was elected president. Shortly following this organization came the financial crash of 1893 and the subsequent years of depression. A further complication for the new organization was the fact that in many of the important cities and towns in the United States there were local companies operating under the Edison-Brush and Thomson-Houston licenses, seriously competing with each other and serious handicaps not only upon the General Electric Company but upon the development of the central station industry as a whole. Nevertheless, Mr. Coffin piloted and brought his company through the storm most successfully and at this time inaugurated a system of accounts and publicity in connection with the affairs of the General Electric Company that has since

served as a model in this regard for all other large industrial companies.

The subsequent growth and success of the General Electric Company under his guidance are so well known as to require no elaboration, but it may be well to emphasize in this connection that the company in its later and more prosperous years, following Mr. Coffin's policy outlined at the outset of his career in the electrical field, has aimed at the development of the electrical art above all else and considered this to be the keynote to future business successes.

CAREER OF MR. RICE

Edwin Wilbur Rice, Jr., the new president, is a native of Wisconsin, where he was born in 1862, and entered the General Electric Company through the Thomson-Houston



E. W. Rice, Jr.

company. He became acquainted with Professor Thomson in the later seventies and joined the forces of Professor Thomson's organization at New Britain, the American Electric Company, in 1880. The principal business of this company then was the manufacture of arc-lighting apparatus under the Thomson-Houston patents, and Mr. Rice took an active part in the work not only in the details of manufacture but also as an inventor in association with Professor Thomson.

In 1882 control of the company was purchased by H. A. Pevear, C. A. Coffin and S. A. Barton, and it was moved to Lynn and renamed the Thomson-Houston Electric Company. There the enterprise grew with great rapidity, and in 1885 Mr. Rice, although only twenty-three years of age, was asked to accept the position of superintendent of the works. A short trial of the new duties was sufficient to show those about Mr. Rice that he was the right man for the place and also to convince him that his new responsibilities would not necessarily impair his fertility as an inventor. Under his able and tactful management work was systematized, production was hastened and costs were cut down. To constant-current arc-lighting were quickly added motor work, constant-potential, incandescent and railway work, while the alternating-current transformer system of lighting was developed.

From the few hundred who were employed in the Thomson-Houston factory at Lynn when Mr. Rice took charge in 1885 the number of hands grew until 3700 were at work in 1892, when the next great change in his career took place—the Thomson-Houston and Edison General Electric companies being consolidated into a new concern known thereafter as the General Electric Company, with Mr. Coffin as president and Mr. Rice as technical director. To follow his career after 1892 would be to write a history of the technical department of the General Electric Company. On June 26, 1896, he was elected to the office of third vice-president of the company in charge of all its technical and manufacturing departments, eventually becoming senior vice-president and on the retirement of Mr. Coffin the unanimous choice of the directors as president.

Mr. Rice is a member of the American Institute of Electrical Engineers, the Institution of Civil Engineers and the Institution of Electrical Engineers of Great Britain, the Engineers' and University clubs of New York, the University Club of Boston and the Pilgrims. After the Paris Exposition in 1900 he was created Chevalier of the Legion of Honor. In 1903 the degree of A.M. was conferred on him by Harvard University, and in 1906 Union College honored him with the degree of D.Sc.

MEETING OF COMMITTEE ON SIGNALS

A meeting of the joint committee on signals, composed of representatives of the American Electric Railway Engineering and Transportation & Traffic associations, was held in New Haven on Friday, June 13. There were present J. M. Waldron, signal engineer Interborough Rapid Transit Company, chairman; John Leisenring, superintendent overhead lines Illinois Traction System; C. H. Morrison, signal engineer New York, New Haven & Hartford Railroad; Gaylord Thompson, vice-president New Jersey & Pennsylvania Traction Company; C. D. Emmons, general manager Chicago, South Bend & Northern Indiana Traction Company; J. J. Doyle, general manager Washington, Baltimore & Annapolis Electric Railroad Company, and G. K. Jeffries, general superintendent Terre Haute, Indianapolis & Eastern Traction Company. Mr. Jeffries has been appointed to this committee in place of C. F. Conn, who has severed his connection with the electric railway industry.

Mr. Morrison, whose offices are in New Haven, had made special arrangements for the reception of the committee, including the erection of a set of standard light signals 1500 ft. away from the windows of the room in which the meeting was held so that the arrestive effect of the different colors could be compared by the committee members under the varying sunlight conditions during the day. A trip in a special car was arranged for Saturday in order to give the committee a chance to inspect the signals in use on a number of the Connecticut Company's lines. This was followed by a visit to the Cos Cob power station of the electrified lines of the New York, New Haven & Hartford Railroad.

At the opening of Friday's session Mr. Waldron presented the report of the sub-committee to which had been assigned the work of bringing the record of signal progress up to date. In the discussion it was decided to consider in the records only the actual installations which were made prior to July 1 of the present year.

It was decided by the committee to obtain the most accurate data possible with regard to all installations of signals on electric railways in addition to those which had been made during the year. This information would establish the total mileage of electric railway signals in the different states of the country.

The sub-committee on standards, composed of Messrs. Waldron and Morrison, reported that Mr. Leisenring had been requested to confer with a committee from the signal manufacturers with regard to the matter. Mr. Leisenring stated that he had endeavored unsuccessfully to establish through the manufacturers a list of the parts of signal equipment which were susceptible to standardization at the present time. Owing to the difficulty of getting the manufacturers together, it was decided by the committee as a whole to continue the subject until next year, making a special effort to get the manufacturers together on the fundamental requirements of a signal.

The matter of the various recommendations for signal installations for five different classes of service, as requested by the association from the committee, had been assigned to a committee composed of Messrs. Leisenring, Emmons, Thompson and Merwin. Owing to the important influence of local conditions in the present state of the art, it was decided by the committee to avoid making direct recommendations at this time but instead to submit schemes representative of the practices now followed by electric railways. An extended discussion took place during the presentation of this sub-committee's report regarding the desirability of the exclusive use of trolley contact signals for city service under the present state of development of the art of signaling. The advisability, with trolley contact systems, of having the signals located beyond the limits of the blocks so that motormen could see that they were properly operated by the cars was also discussed at

length. On account of the necessity, with such an arrangement, of having cars run past red lights, the use of a pilot light was generally considered preferable, although the former scheme was in satisfactory use. The use of car-counting devices with double-track trolley contact systems and indicators for their operation was also discussed and accepted by the committee as desirable.

A number of different schemes for each of the five different operating conditions as submitted at the last convention to the committee had been prepared by Mr. Leisenring, and these after review by the committee were referred back to him for consideration in collaboration with the signal manufacturers in order to harmonize the methods of operation suggested by the different makers of apparatus.

It was decided that the committee in its report should make no reference to the matter of clearances, a subject which had been assigned to Messrs. Morrison, Leisenring and Thompson, owing to the wide variations necessarily existing on different railways on account of local physical conditions. The sub-committee which was appointed to confer with the committee on rules, and which was composed of Messrs. Doyle and Waldron, gave an account of the proceedings at its conference, and the sub-committee on the subject of progress with automatic stops, which was composed of Messrs. Waldron and Morrison, presented a report giving a brief history of the development of the device leading up to the present time.

HEARING BEFORE PUBLIC SERVICE COMMISSION ON SMOKING IN CARS

On June 18 a hearing was held before the Public Service Commission for the First District of New York relative to the practice of smoking in the street cars, railway trains, waiting rooms, ferry stations, etc., of all railroad corporations, street railway companies and other common carriers subject to the jurisdiction of the commission within the district. The purpose of the hearing, as set forth in the order, was to inquire and determine whether the regulations and practices of the corporations, particularly as to the "smoking and carrying of lighted cigars, cigarettes or pipes," are "unreasonable, unsafe, improper or inadequate," and if so to determine and prescribe the proper regulations and practices.

The order for the hearing followed the receipt of complaints from the Non-Smokers' Protective League, of which Charles G. Pease is president and Twyman O. Abbott general counsel. The first complaint from this organization was received last year, but owing to the demands of the subway situation, which was then absorbing the attention of the commission, no action was taken upon it. With the beginning of the open-car operation this year the organization renewed its complaint and asked for a public hearing. In the complaint it is set forth that the fundamental principle upon which the league is founded is "that the right to breathe fresh and pure air, uncontaminated by unhealthful or disagreeable odors, is one of the inalienable rights guaranteed by the constitution and laws of the land," and that the purpose of the organization is "to protect said right from invasion by the users of tobacco in public places and semi-public places and to secure the enactment and enforcement of laws, ordinances, rules and regulations prohibiting tobacco smoking in all such places."

Supervising Inspector Edward D. Hutchinson, C. A. Stanford and C. J. Pommerer, of the commission, were first placed on the stand to testify to the present regulations concerning smoking on the various car lines, such information being obtained both by interviews with the railroads and by personal observation. Mr. Hutchinson reported that the steam railroads under the jurisdiction of the commission carried one smoker and sometimes a maximum of three. Mr. Stanford said that the Interborough Rapid

Transit Company allowed smoking in subway stations that were above ground, and on the elevated lines it was permitted in the stations and on the open cars of the Third Avenue line. According to Mr. Pommerer, the New York Railways allowed smokers to occupy the four rear seats of the open cars, and Mr. Smith, assistant supervising engineer, reported that on the Brooklyn surface lines smoking was allowed on the four rear seats and the running board opposite them on open cars, on the back platform of closed cars, and in the three rear seats of semi-convertible cars. In general it was testified that on the Manhattan and Bronx surface lines the three or four rear seats of open cars were open to smokers, and that the rule forbade smoking on the rear platforms of closed cars, although this rule was often violated.

Before the hearing proceeded farther, Commissioner Maltbie asked for information concerning any existing laws or ordinances. Mr. Chamberlain, of counsel for the commission, said that he had been able to unearth only two restrictive acts, one (Part III, Section 60, of the code of ordinances of Greater New York) which makes it unlawful to smoke inside or on the platforms of cars or public conveyances in Brooklyn; the other (Section 187 of the Sanitary Code) prohibiting the carrying of any lighted cigarette, pipe or cigar into or upon the stairways, platforms, stations or cars of the subway. A report had also been made that there was a Fire Commission order prohibiting smoking on the elevated lines, but the counsel was unable to secure any copy of such order.

Those in favor of the abolition of smoking were led by Dr. Charles G. Pease, of the National Non-Smokers' Protective Association. The burden of testimony was that smokers, even restricted as they are, make trolley rides uncomfortable and unpleasant. The witnesses testified concerning hats and gowns burned by lighted cigarettes and cigars and eyes and throats filled with smoke and ash. Dr. Pease himself took the stand to testify that he thought the present ordinances poorly enforced, and he brought out the point that more attention would be paid to an order of the commission than to any present ordinance, as a violation of a commission order would carry with it a penalty of \$5,000. This would be an inducement to the companies to take more active steps to eliminate smoking than they did at the present time.

After more than two hours of testimony, Dr. Pease and his witnesses, who included many women, were compelled to give way to the smokers. C. L. Addison, of the Long Island Railroad, immediately recalled Dr. Pease to the stand. "You consider smoking detrimental to the public health and a nuisance?" he asked, and Dr. Pease assented. "Then I ask the commissioner to dismiss the motion, as the Court of Appeals has decided that the commission has no jurisdiction over nuisances." Counsel Chamberlain objected, and Commissioner Maltbie denied the motion, reserving, however, his decision on the legal point involved. Roy McCardell, a newspaper man, furnished considerable amusement by relating incidents of his family life and personal ambitions and concluded his plea by asking the indulgence of the commission in order that he might finish saving up cigar coupons for a yacht, which privilege would be denied him if the only place where he could now smoke was closed to him.

All the railroads in the case were represented by counsel, but their attitude in the whole proceeding is shown by the statement of Mr. Peacock, representing the Interborough Rapid Transit Company and the New York Railways, to the effect that the railways desire to please the public, that they have set aside a certain number of seats for smokers with the idea that the majority of the public was being pleased by such accommodations, and that they are willing to adopt any steps that the public as a whole desires. With this statement from the railroad companies the hearing was closed.

DECISION IN THE CLEVELAND CASE

The board of arbitrators in the Cleveland hearing, which has been reported fully in the *ELECTRIC RAILWAY JOURNAL* during the last few weeks, rendered a decision on June 19. The board was requested to decide nine questions and the decisions are presented below:

(1) The allowance for operating expenses was unanimously increased from 11.50 cents to 12.10 cents per car mile, effective as of March 1, 1913. The board unanimously recommended that the over-expenditure of the allowance, as of March 1, 1913, be made up by transfer from the interest fund forthwith.

(2) The majority of the board, Mr. Duffy dissenting, refused to increase the allowance for maintenance, renewal and depreciation. The board unanimously recommended that, after operating over-expenditure was made up, the Council should authorize transfers to make up over-expenditures in the maintenance, renewal and depreciation fund, as of March 1, 1913, as rapidly as possible, out of the interest fund, without reducing the latter below the sum of \$400,000.

(3) As an alternative to the making up of the over-expenditures in the two funds, in case of default by the Council to follow its recommendations, the board awarded an increase in each allowance in an amount sufficient to make up the several over-expenditures by Feb. 1, 1914.

(4) In answer to the question: "Is there \$700,000 in the interest fund as of April 1, 1913?" the board decided that after the deductions which the board recommends are made from the fund there will be less than \$700,000.

(5) The board decided that the Cleveland Railway Company had a legal right to exceed the ordinance allowances without the consent of the city or an award.

(6) On the point whether the Cleveland Railway Company had a legal right to maintain other reserve or surplus funds than those specifically provided for, the board unanimously decided that insurance reserve may not be maintained. A majority, Mr. Duffy dissenting, determined that no accident reserve should be carried over the expiration of an ordinance year.

(7) The board unanimously held that the stock of the company held in the name of Horace E. Andrews, trustee, was the property of the company, and that it should, through a sale or otherwise, be exchanged for that which would enhance the physical property without adding to the capital value. The earnings on these securities should be put into the interest fund.

(8) The question of the surpluses of the old companies was disposed of by stipulation.

(9) The board decided that the scrapping of the company's old power equipment should be charged off at once.

The fees and expenses for the hearing as reported by the board were \$19,561.80, divided as follows: Mr. Duffy, \$5,327.60; Mr. Du Pont, \$5,000; Judge Killits, \$5,079.85; Nau, Rusk & Sweringen, accountants for the city of Cleveland, \$1,950; the Cleveland Railway Company, to cover the employment of Ernst & Ernst and other expenses incurred, \$1,243.10; Fred H. Kruse, reporter, \$961.25.

The new Bernese Alps Railway (Berne-Lötschberg-Simplon) was opened on June 1. This event realizes the idea of a passage through or over the Bernese Alps which has been attempted again and again since the Middle Ages and so solves an ancient traffic problem. Berne, besides taking a leading part in the construction of the new railway, has lately steadily worked for a consolidation of the several subsidized Berne railways. The canton of Berne, as chief stockholder, has combined under one management the Lake of Thun Railway, the steamer services on the lakes of Thun and Brienz and the Bernese Alps Railway, an enterprise which represents an aggregate capital of \$40,000,000.

PAPERS AT THE MASTER CAR BUILDERS' CONVENTION

At the Master Car Builders' convention held at Atlantic City during the past week, a number of matters of particular interest to electric railways were discussed. The papers dealing with these subjects are given in abstract in the following paragraphs.

STEEL CENTER-SILL DESIGN

Owing to statements to the effect that in some of the new all-steel and steel underframe equipments the center-sill section had been reduced to such an extent that the cars were no stronger than the wooden cars, the committee on car construction made a report upon center sills for new and for existing cars.

It was generally agreed that the relative values of steel and wood used in car construction for direct tension or compression should be based upon the elastic limits of these materials, or in a ratio of four to one. Compared with a wooden car having two 4-in. x 8-in. center sills the equivalent steel car must have an effective center-sill area of not less than 16 sq. in. between the points where the end strains take effect.

The strains in underframes due to loading were not, in the opinion of the committee, an important factor in adding to the stresses due to end shocks. Modern steel cars had the center line of draft generally below the horizontal neutral axes of the center sills, and this tended to set up eccentric strains in center sills which were not properly tied together at the rear draft stop. The strains acting on the longitudinal members of the car framing were liable to buckle the long sills so that it was customary to set limits for ratio of length to radius of gyration in order to restrict the excess strains caused by this tendency to buckle. The committee recommended the adoption of a ratio of seventy for length to radius of gyration, which corresponded to a ratio of twenty between length and depth of a rectangular section. In other words, the length of a member should not be greater than twenty times its depth, or else the member must be securely anchored at intervals not exceeding twenty times its depth. The committee therefore recommended that steel or steel underframe cars having center sills with an area of less than 16 sq. in. and with a ratio of stress to end strain more than 0.09 and in which the distance between braces was greater than twenty times the depth of the center sills should be classified with wooden cars and should be subject to the same rules for combination defects.

For new cars the committee considered that a greater strength was required and that for all cars built after 1913 the area of center sills should be not less than 24 sq. in., the ratio of stress to end strains not more than 0.06 and the length of center or draft sills or parts of these members between braces not more than twenty times the depth of the member measured in the direction in which buckling might take place.

END DOORS FOR FREIGHT CARS

The committee also recommended the use of metal reinforcements for the car ends owing to the increase in damage from shifting loads. In answer to a communication it was stated that cars both with and without end doors had been commonly used for loading lumber in the past and that each year fewer new cars were built with end doors because end doors were available only on roads handling long lumber directly from the lumber yards. Roads which formerly had equipped all box cars with end doors had eliminated them from new cars and were permanently fastening them in place on some of their older equipment, leaving the end doors operative only on the shortest types of box cars.

This indicated, in the opinion of the committee, that with the adoption of the 40-ft. box car the end door would gradually become obsolete. The committee recommended

that, since end doors were necessary only on roads having long lumber loaded in box cars as an essential feature of traffic, when end doors were used they should be so constructed that when closed they would lock automatically by means of an inside lock, thus avoiding necessity for taking seal records. Sealing appliances in use at the present time and not accessible from ground or from end ladders should be changed in order to promote the safety of employees.

At the convention the question was considered of eliminating further interchange service in the case of all cars of 40,000 lb. and 50,000 lb. capacity and restricting the use of this light-capacity equipment to the lines of the owners.

AIR-BRAKE EQUIPMENT

The committee on train brake and signal equipment at the convention presented a report in which it was recommended that all freight cars weighing between 37,000 lb. and 58,000 lb. should be equipped with 10-in. brake cylinders and that the braking power for freight equipments should be made 60 per cent of the light weight of the car based upon a brake cylinder pressure of 50 lb. Under these circumstances a total leverage ratio of 9 to 1 need never be exceeded.

Since it was one of the primary aims of the Master Car Builders' Association to standardize equipment wherever possible, the committee considered that the time was now opportune for adopting a standard triple valve for all freight car equipment. After correspondence with the manufacturers it was decided to recommend the use of K-1 triple valves for 8-in. brake cylinders and K-2 triple valves for 10-in. brake cylinders as permanent standards. In regard to the proper size of brake pipes for passenger cars the committee recommended that no pipe having an internal diameter less than that of 1-in. standard-weight pipe should be used on passenger cars and that for all new equipment 1¼-in. extra heavy pipe should be used. The use of galvanized pipe and fittings for refrigerator and coal cars was also recommended in order to decrease the deterioration on account of acid and salt water drippings from the car bodies.

The committee further recommended that for passenger cars the ends of the brake pipe and air signal line should be supported by swinging clamps or hangers so that no trouble need be experienced from hose parting while the train was passing over crossovers. The recommended plan was the use of a pipe clamp with a swinging hinge at one end, the other part of the butt being bolted to the end sill so that when hanging in normal position the signal line should be 10½ in. from the center of the car and the brake pipe 13 in. from the center of the car. From the pulling face of the coupler back to the opening of the angle cock of the brake pipe and the elbow of the signal line the dimensions were recommended to be 10¾ in. and 13 in. respectively, not less than 15 ft. being provided between the face of the coupler and the first connecting fitting or clamp on either of the two pipes.

AIR-HOSE SPECIFICATIONS

The committee on air-brake hose specifications recommended a new label for hose and proposed a revision of the specifications for air-brake and signal hose which included the following list of tests:

"Porosity Test.—A hose will be selected at random and filled with air at 140 lb. pressure for five minutes. At the end of this time the rubber cover will be split with a knife and the hose submerged under water. This test is to determine the porosity of the inner tube. The escape of air must be distinct enough so that the porosity will not be confused with the escape of air which is confined within structure of the hose. This test determines whether or not the lot of 200 is accepted or rejected.

"Bursting Test.—The hose selected for test will have a section 5 in. long cut from one end, and the remaining 17

in. will then be subjected to a hydraulic pressure of 100 lb. per square inch, under which pressure it shall not expand more than $\frac{3}{4}$ in. in circumference nor develop any small leaks or defects. This section must then stand a hydraulic pressure of 500 lb. per square inch for ten minutes without bursting.

"Friction Test.—A section 1 in. long will be taken from the 5-in. section previously cut off and the quality determined by suspending a 20-lb. weight to the separated end, the force being applied radially, and the amount of unwinding shall not exceed 8 in. in ten minutes.

"Stretching Test.—Another section 1 in. long will be cut from the remainder of the 5-in. piece, and the rubber tube or lining will be separated from the ply and cut at the lap. Marks 2 in. apart will be placed on the section, and then the section will be quickly stretched until the marks are 10 in. apart and immediately released. The section will then be re-marked as at first and stretched to 10 in. and will remain so stretched ten minutes. It will then be completely released, and within thirty seconds of the time of releasing the distance between the marks last applied will be measured and the initial set must not be more than $\frac{1}{4}$ in. At the end of ten minutes the distance between the marks will be again measured, and the final set must not be more than $\frac{1}{8}$ in. The small strips taken from the cover will be subjected to the same test.

"Tensile Strength.—Test pieces $\frac{1}{2}$ in. wide and with a net length of $2\frac{1}{4}$ in. will be cut from the tube and cover and pulled in a tensile machine with a test speed of 20 in. per minute. After an elongation of at least 12 in. the inner tube must have a tensile strength of between 800 lb. and 1200 lb. per square inch, and the cover 700 lb. to 1100 lb. per square inch.

"Sampling.—For each lot of 200, one extra hose shall be furnished free of cost."

COUPLER AND DRAFT EQUIPMENT

The committee on coupler and draft equipment submitted a report showing the progress which is being made toward the development of a proposed universal standard coupler. A number of tests of present types of couplers were reported which showed among other results that in pulling tests the load giving $\frac{5}{8}$ -in. permanent set to the knuckle opening ranged from 192,000 lb. to 255,000 lb. for all couplers tested. The ultimate strength of coupler lugs was found to range from 147,000 lb. to 273,000 lb. for the top lug and from 210,000 lb. to 235,000 lb. for the bottom lug. Ultimate strengths of material ranged between 50,000 lb. and 87,000 lb. A number of road tests were also reported by the committee.

The committee reported that the general investigation of coupler conditions and the result of tests had demonstrated beyond a doubt that the present types of coupler were inadequate in strength to meet the increased demands placed upon them. In consequence the life of couplers was becoming considerably curtailed. The investigations made during the past year had satisfied the committee that the required increase in strength could be accomplished but that the weight of the coupler with the necessary increase in strength would have to be raised between 30 and 40 per cent. The committee proposed to select several designs to be tried out in service during the coming year in order to determine definitely the best contour lines, efficiency of operation and strength of the various parts, with a view to harmonizing all of the different designs and eliminating unsatisfactory details so that a universally standard coupler might be established.

The April 5 issue of the *Tramway and Railway World* contains the following figures showing the number of journeys per head of the population per annum in the larger English cities: Birmingham, 144; Liverpool, 145; Newcastle, 164; Bradford, 167; Leeds, 172; Manchester, 184; Glasgow, 240; Sheffield, 198.

COMMUNICATION

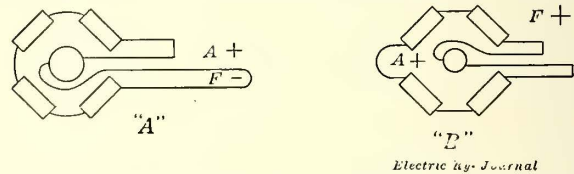
RAILWAY MOTOR CONNECTIONS

RICHMOND, VA., June 1, 1913.

To the Editors:

Will you kindly explain how with an ordinary sewing needle and a positive lead from a water rheostat one can test the polarity of the fields and then that of the armature of any new motor so that the motor will rotate in the right direction upon the first application of emf? There should be some method more scientific than connecting up the field with ground wire absolutely right and taping the joints of the same but leaving the armature terminals bare for reversing the connections in case the motor does run in the wrong direction. After once connecting any new motor, applying the current and noting the direction of rotation, anyone should be able to figure out the various connections for all different local conditions. In short, it should be possible to figure out the correct connections, then connect up by all four motors, tape the twenty connectors, cleat the wires and upon starting find that all four motors run correctly.

I should also like to know why a series motor when running full speed will not generate a dynamic braking load if the free $A +$ and $F -$ leads are connected as shown in



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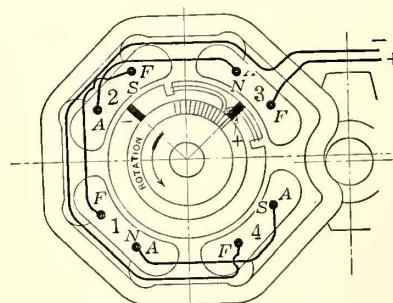
Non-Effective and Effective Connections to Make Motor Act as Generator

the left-hand sketch, whereas it will do so when connected as shown in the right-hand sketch, herewith, and furthermore will draw a big arc if opened before the rotation of the armature ceases.

JOSEPH L. CRANE.

REPLY

The using of a sewing needle is not desirable as the polarity of the needle is liable to change because of the influence of the fields. One method of determining the polarity of field magnets is by means of a compass. If a small current is passed through a field coil and a compass



Electric Ry. Journal

Determining the Direction of Rotation

is held a short distance away, the south pole end of the needle will point toward the field if it is a north pole and the north pole end will point toward it if it is a south pole. When the direction of the winding about the pole is known, its polarity may be determined by the direction in which the current flows around it. One simple rule for remembering this relation is that when a person is looking at a north pole the current is flowing around that pole in a counter-clockwise direction to him, and when he looks at a south pole the current is flowing around that pole in a direction which is clockwise to him.

The following method of testing the polarity of the fields of railway motors after they are connected is employed by several large railway shops. Two bars of iron about 8 in. long are used. One end of each bar is placed in the center

of two adjacent pole faces, and the other ends are held about 1 in. apart. A current of about 1 amp is then passed through the field coils, and if the connections are properly made the iron bars will be drawn together by their attraction for each other. With one end of each iron in the center of two opposite pole faces, the other ends will be forced apart. Care should be taken to use but a small current through the fields, or the iron bars will be drawn together with such force as to be liable to injure the person holding them. If much testing is to be done it is best to provide the irons with handles about 3 ft. or 4 ft. long so that a man can hold them without danger. The accompanying illustration shows the polarities of a four-pole railway motor. The two north poles are directly opposite each other, and the two south poles are opposite each other.

When the polarity of the field magnets of a motor is known the direction that the current must pass through the armature coils to produce a given direction of rotation is easily determined. One simple rule, sometimes called the rule of the thumb, is the following: Place the palm of the left hand toward a north pole and the extended thumb pointing in the direction it is desired to have the armature rotate. Then the current through the armature coils underneath this pole must flow in the direction the fingers are pointing.

Referring again to the accompanying illustration, the poles 3 and 1 are north poles, and to make the armature rotate in the direction indicated by the arrow—that is, counter-clockwise—the current in the armature coils under 3 and 1 must flow away from the observer. Looking at the commutator end of this armature, it is therefore necessary that the positive brush holder should be located in front of field coil 3, so that the coils to which it is connected through the commutator will have the current flowing in the proper direction.

In reply to the second question: a series motor will not generate if the field excitation and the residual magnetism are not in the same direction. When the current used to drive a motor is shut off, a small emf is generated in the armature by the residual magnetism of the fields. This sends a small magnetizing current through the fields, and if this current produces lines of force in the same direction as the residual magnetism there will be an increase of the emf and field current so that the motor will build up and generate. If this current does not excite the field in the same direction as the residual magnetism, the field magnetism is decreased so the motor cannot build up and generate. To use a motor for electric braking it is therefore necessary to reverse the connections from those used as a motor so that the current generated will flow through the fields in the same direction as when the machine is used as a motor.—[Eds.]

RELATIVE COSTS OF ALUMINUM AND COPPER CABLES

In the issue of May 24, page 924, the possibilities lying in the use of aluminum for feeder cables in place of copper were outlined in accordance with a report presented before the Christiania convention of the International Street & Interurban Railway Association last year. A formula was included which had been worked out by the Copenhagen Tramways and expressed in the cost in English currency to show the relative economy of the two metals and the price at which it would be advantageous to use aluminum. The report was presented by K. Otto, of the Grosse Berliner Strassenbahn. When the prices are expressed in cents per pound for both metals this formula will read as follows:

It will be advantageous to use aluminum if its price in cents per pound is less than the amount given in the subjoined expression:

$$2.08N - 6.4,$$

where N is the price of copper in cents per pound.

It will be seen from this that if copper should cost 15 cents per pound the expression would work out to the equivalent one of $(2.08 \times 15) - 6.4$ cents, which again is equivalent to $31.2 - 6.4$, or 24.8. In consequence aluminum would have to sell at less than 24.8 cents per pound to be an advantageous substitute for copper at 15 cents.

AUTOMATIC TRAIN STOP AND SPEED CONTROL

The offer of the New York, New Haven & Hartford Railroad to award a prize of \$10,000 for the best train control device has led to the submission to that and other railroads of a new system, devised for use with standard block signal systems and any means of motive power, by L. W. Horne and W. N. Crane, two engineers of the car equipment department Interborough Rapid Transit Company, New York. Their system is based on using the varying force with which trains travel at various velocities to actuate their own tripping mechanism. The faster a train may be traveling at a speed control point, the greater will be the train line reduction and the longer the period of the corresponding brake application. The Horne & Crane devices are made to meet all of the requirements of the train control board of the Interstate Commerce Commission, some of which are referred to below.

This system is mechanical and pneumatic, although an electrically operated cab signal for giving a continuous indication can be added if desired. The only part that can be removed is the plug of the friction valve which holds the handle at open position after the engagement of the track trip. This removal would leave the train line pipe open and exhaust the entire train pressure, this action thus corresponding to the display of a stop signal. The device is made to operate even under conditions of heavy snow, as it is only necessary to counterweight the track trips enough to offset the snow pressure.

The apparatus permits two or more engines to be used with one train, or a train may be allowed to assist another train without causing the brakes to be set on the second or following engine when passing a signal which indicated "proceed" when passed by the head of the train. This is provided for by a detent which prevents the track trip from rising as a train bridges the insulated section until after the rear wheels have left the section. The system also provides for operation only in the normal direction of traffic except in connection with signals governing reverse movements. The train may also back up without engaging its control devices.

The device carries a speed control rocker handle which is actuated by the speed control trip, causing it to strike a valve stem in a cylinder connected to the air-brake system. The amount of kinetic energy in the rocker handle determines the speed of the train passing the trip. Any force applied to the compression spring back of the valve stem causes a slide valve to move upward in proportion to the force exerted. The spring immediately exerts a downward pressure on the slide valve equal to the force which caused it to compress, but it is held from creating any independent movement by the automatic engagement of a valve pawl with a dash-pot rack. The downward pressure exerted by the spring therefore acts through the dash-pot piston, which responds to the pressure by forcing the fluid in the dash-pot through a regulating port. The exact method of timing the return of the slide valve is therefore obtained as in a door check, and the brakes are thereby released after the train speed has been reduced to a predetermined limit.

If the train speed is within the regulation rate, the kinetic energy of the trip handle will not be sufficient to cause the brake pipe exhaust port to be opened. When the engineer realizes that his train has been tripped, he moves the handle of his brake valve to release position, and a timing device releases the brakes automatically.

News of Electric Railways

Electrification of the Paoli Line of the Pennsylvania

An official of the Pennsylvania Railroad whose name is not given is quoted as follows by the *Philadelphia Ledger* in a recent issue in regard to the progress of the plans of that company for the electrification of its Paoli line out of Philadelphia:

"We have sought information from manufacturers of electrical supplies, from railroad managers and in every place where facts worth getting could be supplied, but we are at the beginning of this problem. We do not know whether we will use the direct or alternating current. So rapid are the improvements in the field of electricity that equipment that will be modern to-day may be antiquated a year or so hence. We are finding out new things about the steam locomotive, while even swifter development is being made in the rival field of electrical propulsion, so it is impossible to give detailed information, for we do not know, except in a general way, what the coming installation will be like. We must all come to the use of electricity for operating trains, and, therefore, it is not a question of rivalry but of what is best and at the same time most economical. But whatever system is adopted the expenditure will be very great. We cannot discard our locomotives, but we will have to place many of these engines at less remunerative work. That, alone, is no small consideration."

It is stated that the installation of electricity at the Pittsburgh terminal has not been considered in the information now being collected.

Sixty trains a day are run as far as Paoli and back. More than thirty other trains run to local points beyond.

Detroit Settlement Plan Ready for Submission to Council

Allan H. Frazer, special attorney for Mayor Marx of Detroit, Mich., has completed a revision of the street railway settlement plan devised by Attorney Lawson. It is said that the plan now meets the ideas of the Mayor so well that it will be presented to the Common Council for consideration at once. The plan is said to be based upon certain concessions from the company, including lower fares, increased service and specified extensions, in return for the privilege of operating on Fort Street and other thoroughfares where its franchises have expired.

Police Commissioner Gillespie is working out plans to relieve congestion in the business section of the city during the evening hours. He says that the suggested plan to limit the number of passengers to be carried in cars would result in people in the downtown section having to wait until 8 p. m. for cars. He advocates additional trackage and additional lines.

Philadelphia's Rapid Transit Plans

Transit Commissioner A. Merritt Taylor's preliminary report on the Broad Street subway is expected by Director Cooke, of the Department of Public Works of Philadelphia, Pa., to be ready by July 1, 1913. The bills to enable the city to build the subway system have been signed by Governor Tener as noted in the department "Legislation Affecting Electric Railways" elsewhere in this issue.

Common Councilman John P. Connelly, chairman of the finance committee, is quoted as follows:

"There will not be undue delay of a day as far as Councils are concerned, but every step must be taken with care. I have not heard a single voice in opposition to the subway plans among members of Councils. I am informed that at least a year and six months will be required to make the engineer's plans; then will come the interim in which bids are sought. I am satisfied from what I have learned that at least two years will elapse before the contractors can be ready to go on with the work."

The finance committee has reported with favorable recommendation all the bills desired by Commissioner Taylor, and according to Mr. Connelly will report favorably the bill authorizing a contract with Ford, Bacon & Davis, New

York, N. Y., involving the expenditure of \$60,000 for expert assistance to the transit department.

In regard to legal obstacles likely to be encountered Mr. Connelly is quoted as follows:

"I am informed that a bill in equity will be filed to test the personal property act. In this instance the city proposes to borrow on what has been assessable for a county tax, and one of the questions to be brought before the court will be whether Philadelphia is part of the county, whether city and county are co-extensive and whether a county and a city tax are co-determinate."

Union Station Plans in Chicago

A statement reviewing at length the terminal plans now under consideration by the committee on railway terminals of the Chicago City Council was presented before that committee on June 9, 1913, by Robert Redfield, attorney for the Union Station Company, and was signed by officials of the Pennsylvania Lines, the Chicago, Burlington & Quincy Railroad and the Chicago, Milwaukee & St. Paul Railway. The statement is made that during the hearings held before the committee on railway terminals of the City Council the data presented, while complete, have necessarily been more or less scattered and the primary consideration sometimes obscured on this account. Besides, as a result of their observation and experience, the railroads have arrived at certain views which they consider pertinent, and it seemed that an analysis of the various plans might aid the committee, the Council and the public in understanding the problem and in reaching a correct conclusion. The statement which has been submitted is made in three parts—first, a brief outline of the various plans which have been proposed for the railroads; second, a consideration of the essentials of these plans from the standpoints of efficiency and feasibility, and, third, an analysis of the plans evolved by the railroads themselves. Four plans have been proposed as alternatives to the plan of the West Side railroads which is embodied in the ordinances now pending before the Council. They are the Wacker plan, the Hunt plan, the Delano plan and the Pond plan. These plans all embody provisions for passenger facilities and suggestions for freight terminals, although the freight aspects of the plans are in general rather vaguely developed. Each of the four plans as an alternative to the plan of the West Side railroads is taken up in turn and dealt with at length in its various phases. The terminal plans of the West Side railroads as proposed by these roads involve, first, a passenger terminal for the railroads now using the Union Station to be erected in the block bounded by Adams Street on the north, Jackson Boulevard on the south, Clinton Street on the west and Canal Street on the east, with a concourse located directly east of this block between Canal Street and the Chicago River. Tracks will be brought into the station from the north and the south below the street level at an elevation of approximately 4 ft. above the Chicago datum. In concluding the statements which it makes in regard to the terminal plans of the West Side railroads, the Union Station Company in the statement which has been submitted to the Council committee says:

"The essentials, therefore, of the problem before the City Council and the people of Chicago are these: There is an admitted need for new passenger and freight terminals for the Union Station group of railroads. On the one hand are various plans volunteered for the railroads, open to grave objections from the standpoint of efficient operation and public service and impossible of accomplishment. On the other are the plans which the railroads have evolved as a result of their experience and study of the situation. They will provide efficient terminal service, both for freight and passenger traffic, and they can be executed at once.

"The question is not between the plans evolved by the railroads and the plans proposed for the railroads, because the latter run counter to fixed railroad and business conditions and are therefore outside the realm of practical affairs; they cannot be realized. The question is between the essential principles of the plans which are embodied in

the ordinances now pending before the City Council and the continuance of present conditions. This is the issue for the committee on railway terminals and ultimately for the City Council to decide."

The plans of the Pennsylvania Lines and the other railroad companies interested with that system in the Union Station at Chicago for a new and larger terminal are being held in abeyance pending action by the City Council. As previously stated, the proposed new terminal, according to the plans of the Pennsylvania Lines, will be near the present Union Station on the West Side of Chicago. It is intended for the use of the Pennsylvania Lines, the Chicago, Milwaukee & St. Paul Railway and the Chicago, Burlington & Quincy Railroad. The plan, however, conflicts with a suggestion which has been made by various public and private interests, including F. A. Delano, president of the Wabash Railroad, that the terminals of all companies be concentrated on Twelfth Street. In reference to the independent suggestion made by Pond & Pond, architects, for the retention of a terminal on the West Side, that firm says that its program contemplates electric services for the railway terminal and in the station, and that it offers a longer radius than that now being used successfully by the New York Central & Hudson River Railroad in New York City. No announcement regarding electrification has been made in connection with the proposed plan of the Pennsylvania Lines, but it has been stated that there is nothing in the plan which would prevent electrification. The City Club of Chicago has asked the City Council to postpone definite action until an expert inquiry can be made.

Proposed Agreement in Regard to Improvements in Akron

The Northern Ohio Traction & Light Company will be requested to consider a form of agreement for the construction of extensions and double track within the city limits of Akron, Ohio, prepared by A. B. duPont, Cleveland, acting in the interests of the City Council. The city has been insisting upon extensions for some time, but the company has contended that the business will not bear the additional investment. This proposed agreement was prepared as a kind of guarantee to the company, with the provision that the city may pay for and own the improvements at the date of expiration of the company's franchise. The proposed agreement as presented to the company follows:

"1. The company shall construct tracks as indicated by the city and operate cars thereon as a part of the existing railway in the city of Akron and according to the terms and conditions of said railway's franchise, excepting as modified herein.

"2. Before constructing the extensions to and doubling certain of its tracks, the plans and specifications shall be approved by the city and the railway shall keep true and accurate account of the cost thereof and these accounts shall be subject to inspection and verification by the city.

"3. The city of Akron shall pay to the railway this cost, modified as hereinafter provided at the end of the existing grant, on July 1, 1924. If said city should fail so to do, said railway shall have the right to operate its entire railway system, within the limits of Akron, under the terms of its existing franchise, except as modified herein, until said cost is paid by the city of Akron or from earnings as herein indicated.

"4. Addition to said construction cost shall be made annually in the amount of the operating deficit, if any, accruing from the operation of said extensions and double track. Deductions from said construction cost shall be made annually in the amount of the operating surplus, if any, accruing from the operation of said extensions and double track.

"If at the end of any year prior to ——— there is a surplus after paying all operating expenses greater than the amount of said construction cost at the beginning of the same year, the excess of said surplus shall be paid to the city, and if on July 1, 1924, or at any time thereafter (if said city fails to purchase the property herein contracted to purchase) said surplus becomes as great as said construction cost, the railway shall at once convey to the city title to said property, which the city hereby contracts to purchase in the same manner as if the city had paid said cost at said date.

"5. In determining operating surplus or deficit, the following methods of accounting shall be used as applied to such extensions and double track:

"(A) The gross earnings of track extensions and double track shall consist of that part of the gain in all the earnings of said railway within the city of Akron above \$—— (the —— to be filled by the total of said gross earnings during the past year) that the number of car miles operated on the extensions and one track of double track bears to the whole number of car miles operated by the railway in Akron.

"(B) Operating expenses shall be at the same rate per car mile that the entire cost of operating the railway within Akron (without interest or dividends) is per car mile, excluding maintenance of extensions and of double track, of power plant and cars in each year with the following modifications.

(a) On track extensions add per mile —— cents for power, —— cents for car rental, and add the actual cost of maintaining said extensions and 6 per cent on the cost of said extensions.

"(b) On double track charge only for the excess of car miles made on one track of the double track above one-half of the car miles made in the past year on the single track replaced. Add 1¼ cents per car mile for power and 2 cents per car mile for car rents for the number of car miles charged for and add the actual maintenance, cleaning and sprinkling cost of one track and 6 per cent on the cost of said track.

"6. The city shall have the right to require said railway to make to it monthly reports of a form satisfactory to the city of the earnings and operating expenses herein indicated, and shall have opportunity to verify the same.

"7. At any time the company is paid for the cost of the extensions and double track herein provided—first, by the application of the surplus provided for in Section 4; secondly, by payment at the termination of the existing grant—the company shall thereupon convey to the city all its right, title and interest in said track extensions and double track, free and unencumbered, including good will, franchise value and physical property of every kind, and upon said payment in any of the methods provided herein all rights of the company in said extensions and said double track shall cease forthwith, and to insure the faithful performance of said conveyance and the release of the rights therein the company, its successors or assigns, on the acceptance of this proposal, shall forthwith give bond in the sum of \$——, it being the true intention of this agreement that upon payment of the city for the extensions, as herein provided, the said city shall own said extensions absolutely free from claims of any nature or description."

No action was taken at the recent meeting of the City Council at Akron, Ohio, on the agreement proposed between the city and the Northern Ohio Traction & Light Company relative to extensions and improvements. Arrangements were made, however, for conferences between the street railway committee and officers of the company. A. B. duPont will meet with those interested and explain the various points in the proposed agreement. The company has notified the Public Service Commission that its orders regarding extensions and improvements in Akron and Canton will receive attention within the time specified.

Chicago Association of Commerce on Electrification

The Chicago Association of Commerce issued on June 11 an open letter to Mayor Harrison, the City Council of Chicago and citizens of the city, urging delay in action on the proposed smoke abatement and electrification ordinance until its report on this subject is ready. The letter says in part:

"Briefly stated, the facts are:

"That the association undertook the study of the problem of smoke abatement and electrification because it recognized this issue as one of greatest moment to the people of Chicago.

"When the results of this study showed the necessity of a comprehensive engineering investigation the association undertook this task because it was qualified to conduct a cooperative investigation, fairly representing all parties at in-

terest, which neither the city nor the railroads acting alone were then in a position to carry out successfully.

"That as a result of this investigation the association will be able to lay before the City Council and the citizens a constructive report that may be the basis of intelligent legislation not for the abatement merely but for the elimination of smoke.

"That the period of this investigation has been a period not of delay but of progress and that Chicago is vastly nearer the realization of the desired solution of this vexing problem by reason of the association's undertaking.

"In October, 1909, the association appointed a special committee of seven to study the feasibility of electrification and the elimination of smoke in general. This committee reported to the executive committee of the association on July 8, 1910. On Aug. 19, 1910, this report was the subject of a joint meeting of the board of directors and the executive committee with the committee of seven. On Sept. 22, 1910, this report was the subject of a joint meeting of the board of directors and the executive committee with railroad officials.

"A complete stenographic record of the proceedings of this latter conference was referred back to the committee of seven, and in consideration of the facts developed the committee of seven on Nov. 28 supplemented its findings with the recommendation 'that the features involved in the problem of electrification should have proper detailed study and investigation.'

"Accordingly, the Association of Commerce conferred with the city administration and learned that the city desired a comprehensive investigation of smoke abatement and electrification, that it had made such preliminary inquiry through engineers selected by it as to determine that such an investigation would involve an expense of from \$300,000 to \$500,000, and that the city had no funds available for this purpose.

"Receiving from the city administration and from the City Council as well as the railroads both concurrence and co-operation, the association took the initiative in the organization of a committee of seventeen members, four selected by and representing the city of Chicago, four the railroads of Chicago and nine the general public as represented in the membership of the Association of Commerce. This investigation has been most searching, and the expense, now approaching \$300,000, has been defrayed by funds contributed by the railroads of Chicago, the association, like the city, having no funds for so large an undertaking.

"It is expected that a complete and constructive report will be presented about Jan. 1, 1914.

"The full text of the preliminary report was not published for the same reason that the present incomplete data of the committee on smoke abatement and electrification have not thus far been published—for the reason that this problem, in the opinion of the Chicago Association of Commerce, is too important to the city's welfare to permit the solution that may be found most advantageous to the entire community to be jeopardized by a general understanding, or misunderstanding, based upon an incomplete review of the facts.

"Early realization of the city's desire for a practical and complete solution of the problem of railroad smoke can be obtained more surely, the association submits, through co-operation than through litigation. The electrification of the extensive freight terminals of Chicago is not a matter to be determined by legislation enacted without proper comprehension of the facts. The solution of this problem demands the kind of an investigation that the association is now conducting, and we confidently believe that time, which reverses all hasty decisions, will prove the wisdom of the association's course and prove no less surely its value to the citizens of Chicago and to the city's future."

Subway Construction Accident in New York.—In an accident which happened at 6.30 p. m., on June 14, 1913, in section No. 8 of the Lexington Avenue branch of the dual subway, which is being constructed under the supervision of the Public Service Commission of the First District of New York, nine men were killed and several others were severely injured.

Funds Authorized for Electrification.—The Ontario government has authorized the Buffalo & Fort Erie Ferry Railway Company, Buffalo, N. Y., to increase its capital stock and its bonded debt to provide funds to electrify the line of the company between the Fort Erie ferry and Fort Erie Beach, Ont. It is said that the company plans to extend the line to Bridgeburg and Port Colborne.

Prospectus of the Society for Electrical Development, Inc.—The Society for Electrical Development, Inc., New York, N. Y., of which J. M. Wakeman is general manager, has issued a twenty-four-page prospectus setting forth the aims, personnel and plans of the society. The president of the society is Henry L. Doherty and the board of directors includes five representatives of the central stations, five representatives of the manufacturers, five representatives of the jobbers and five representatives of the contractors.

No More T-Rail in Houston.—David Daly, manager of the Houston (Tex.) Electric Company, is quoted as follows by the *Houston Chronicle*: "Our company will lay no more T-rails on paved streets in Houston, unless specially requested to do so by the people and the city administration. We intend to replace all the T-rails on Main Street from Capitol Avenue to the viaduct within the next six months. The grooved girder rail will be put down and the entire foundation and the street paving between the tracks will be replaced by our company."

Differences in Buffalo Before Arbitrators.—Mayor Louis P. Fuhrmann, Assemblyman Edward D. Jackson and Bert L. Jones, the arbitrators who are to adjust the differences between the International Railway, Buffalo, N. Y., and its employees, were to meet on June 17, 1913, in the Special Term court room at the city hall and begin their work. The sessions will be executive, Mr. Jackson having been outvoted by the other two members in his efforts to have them public. Each side is to be allowed three representatives to present its case. The evidence of the men will be submitted first.

Mr. Arnold Before Ontario Railway & Municipal Board.—Bion J. Arnold was called before the Ontario Railway & Municipal Board recently in regard to the report which he prepared on traffic in Toronto. Mr. Arnold said that the building and operation of the proposed new lines on the various streets mentioned in the report would open up districts not served by the existing routes. He favored cross-town lines to develop the city symmetrically and properly and avoid congestion. Mr. Arnold stated that in his report he had not considered the people living adjacent to the city to any great extent. The hearing was adjourned until June 25, 1913.

Punitive Measures Adopted in Roanoke.—Steps are being taken by the employees of the Roanoke Railway & Electric Company, Roanoke, Va., who have been on strike since May 1, 1913, to form a corporation for the operation of a bus line in the city. An interesting feature in connection with the strike is that every candidate for public office has been requested to state whether or not he is a user of the company's service. The introduction of punitive measures in the Council has also been attempted. It has been proposed that the company be taxed \$5 on every car operated and that it be required to place all high-tension lines underground. The company has maintained normal service from the beginning of the trouble.

Marginal Railway Plans for Brooklyn.—Collector of the Port Mitchel, who while president of the Board of Aldermen acted as chairman of the terminal committee of the Board of Estimate, has completed his report on the organization and construction of the proposed marginal freight railway along the waterfront of Brooklyn between the Brooklyn Bridge and Sixty-fifth Street, Bay Ridge. The report recommends that the city acquire the property of the New York Dock Company and part of that owned by the Bush Terminal Company, and that it build the marginal railway and lease it to the various trunk line railways entering New York. The cost is estimated at \$11,236,510. The Bush Terminal Railroad is operated by electricity.

Examinations for Appointments in Connection with Interstate Valuation Work.—The United States Civil Service Commission has issued announcements of examinations to

be held for filling positions in the Interstate Commerce Commission under the act providing for the valuation of the property of the carriers. The examinations which are to be held include senior electrical engineers, inspectors of car equipment and electrical engineers. The positions will pay respectively \$1,800 to \$4,800, \$1,200 to \$1,500 and \$1,080 to \$1,500. Necessary expenses when absent from headquarters in the discharge of official duties will be allowed. The announcement in regard to the examinations is made by John A. McIlhenny, acting president, by direction of the United States Civil Service Commission, Washington, D. C.

Decision Reserved by Court in Brake Case.—The Appellate Division of the Supreme Court of New York has reserved decision in an application made by the Brooklyn Heights Railroad and subsidiaries, Brooklyn (N. Y.) Rapid Transit System operating companies, to the courts to dismiss the order of the Public Service Commission of the First District of New York which requires the company to equip its cars with power brakes in addition to the regular hand brakes. The company contended that the requirement was unreasonable, as to equip its cars with power brakes in accordance with the order of the commission would involve an expenditure of more than \$500,000. The commission stated that every other company in Greater New York had obeyed similar orders of the commission, a concession having been made by the commission, however, in the case of a few very light cars in the Borough of Manhattan.

Franchise Negotiations in Kansas City.—The receivers of the Metropolitan Street Railway, Kansas City, Mo., and Mayor Jost of that city have concluded to take Judge Hook of the federal court at Kansas City into their confidence to see if a satisfactory agreement in regard to the value of the property of the company cannot be reached. R. J. Dunham, one of the receivers, told the Mayor that they could not accept the proposal to fix the physical valuation at \$30,000,000 and deny the bondholders the right to participate in the surplus earnings until the capital valuation was reduced to the physical valuation. He submitted the following alternative propositions: A valuation of \$35,000,000, stockholders to have a return of 6 per cent and the entire surplus after this payment and the payment of the operating expenses to go toward amortization. A valuation of \$30,000,000, with a 6 per cent return to stockholders, who are also to receive 25 per cent of the surplus after this payment and the payment of operating expenses, the remaining 75 per cent of the surplus to be applied to amortization.

Appropriation Urged for Elimination of Grade Crossings.—The Public Service Commission for the First District has written a letter to Governor Sulzer asking him to urge the special session of the Legislature to make an appropriation of \$1,278,025 as the State's one-quarter of the estimated cost of eliminating grade crossings on the Atlantic Avenue division of the Long Island Railroad between the end of the present elevated structure and the westerly end of the Jamaica improvement. This line is equipped with the third-rail. The crossings are twenty-four in number and extend from Norwood Avenue to Beech Street. Ultimately there will be about forty streets crossing between these points, but at present only twenty-four streets are opened across the tracks. In the letter to the Governor the commission sets forth the number of accidents which have occurred since the commission was organized on July 1, 1907. These include fifteen fatalities and a large number of serious injuries. The conditions at the most dangerous of the crossings are set forth in detail. The train movement over this division is very heavy, and one observation showed that in an hour and a half twenty-five express trains and eleven local trains passed over one of the crossings. So the commission recommends that the tracks be elevated on a structure having a solid concrete floor and resting on three columns, the streets to be carried underneath the tracks so that there will be no longer any grade crossings at all. It is on this type of structure that the estimate of cost is based. The commission says that hearings have been held and the required testimony taken in regard to these crossings; that the railroad is willing to undertake the work immediately and bear one-half of the cost, as provided by law. Before the elimination order can be issued,

however, it is necessary that the State make an appropriation for its share of the cost and accordingly the Governor is urged to present the matter to the Legislature.

LEGISLATION AFFECTING ELECTRIC RAILWAYS

ILLINOIS

The public utilities bill drafted by the public utilities committee of the House of Representatives passed the House on June 12, but the "home rule" features were eliminated on the floor of the House. A commission of five members will supervise rates, capitalization and service. Following the passage of the bill by the House it was reported that the Senate would pass the bill in practically the same form. Representatives spoke against the home rule features because the tendency in Illinois to merge companies and abolish isolated plants would make it difficult for a city to regulate a company doing business in ten other cities and towns.

The Senate sitting as a committee of the whole gave a hearing the night of June 16 on the public utilities bill which already had been passed by the House. The hearing was devoted to pleas for "home rule" coming from Chicago. Senator Dailey asked if a city commission for Chicago and a state commission would not conflict. Alderman John A. Richards, of Chicago, said the City Council would furnish to a state commission all data referring to utility investments in Chicago. C. E. Merriam said the bill would deal a death-blow to utility regulation in Chicago. Governor Dunne entered a plea for the restoration of the home rule feature. His original plan was to have all cities of 20,000 or over under the home rule plan with the privilege of going under the jurisdiction of the state commission if they desired. He favored changing this to 25,000 or 30,000, but declared that Chicago was in favor of home rule. The bill was passed to second reading in the Senate on June 17 without reference to a committee.

Senate bill No. 538, the administration bill authorizing cities to own and operate public utilities, has been advanced to third reading on the calendar of the House. The bill was amended by the House committee before it was reported out to require only 5 per cent of the voters of the city to petition for the submission of the question of ownership of the utilities. As passed by the Senate the bill called for 10 per cent.

MASSACHUSETTS

Unless an unexpected stand is made in the Senate, the nine-hours-in-eleven bill will be passed over the veto of Governor Foss. On June 18 the House passed the bill over the executive disapproval by a vote of 175 yeas to 43 nays, and on that date the Senate adjourned until June 20, when it was expected that a final vote would be taken. The new public service commission law, which was passed over the veto of Governor Foss, increases the power of the Railroad Commission, enlarges the membership and renders the issuance of securities by railroads less difficult. Another bill which has become a law in spite of the disapproval of Governor Foss authorizes the Berkshire Street Railway, a subsidiary of the New York, New Haven & Hartford Railroad, to purchase the Springfield Street Railway, the Worcester Consolidated Street Railway, the Milford, Attleboro & Woonsocket Street Railway, and the Chester & Becket Railroad, thus centralizing the important electric railway systems of the middle and western parts of the State under a single management. Fares are not to be increased or service decreased by reason of the purchase, which is granted on condition that \$5,000,000 be expended in new electric railway construction in or near Huntington and other mid-state centers, under the general supervision of the Public Service Commission.

PENNSYLVANIA

The lower house of the General Assembly has passed a resolution providing for adjournment June 26, but the Senate has not as yet concurred in the action. The present session has been one of the longest on record and it is by no means certain that the two houses will be ready for adjournment on the date above mentioned.

The public utilities measure is ready to be reported

favorably from committee of the Senate with a number of amendments, including one eliminating the provision which permits public utilities to build through municipalities without the consent of the local authorities, also an amendment eliminating the section compelling public utilities to interchange their facilities.

The McNichol bill to permit electric railways to operate self-propelled omnibuses over streets not now occupied by street passenger railway tracks, upon obtaining the consent of the local authorities, will be taken up by the Senate committee on corporations. This measure has been introduced in the interest of the Philadelphia Rapid Transit Company, which is understood to desire to operate self-propelled vehicles, independent of overhead wires, on a number of boulevards and highways in Philadelphia.

Governor Tener has signed the two all-Philadelphia bills enabling that city to build a system of subways, construct terminals, wharves and docks, and to raise the necessary funds to do this work through the personal property tax, all of which is to go to the city for this purpose. At present three-fourths of this tax goes to the county and one-fourth to the State. This bill will mean an annual increase in the revenue of Philadelphia County of about \$660,000, thus increasing the borrowing capacity of the city of Philadelphia about \$40,000,000. A. M. Taylor, transit commissioner of Philadelphia, is quoted as saying that work along Broad Street will be started soon. The third of the all-Philadelphia bills, providing that the work can be begun after the approval of the popular loan, is expected to pass next week.

Vigorous onslaughts have been made in the House on certain items in the general appropriation bill, without success in most cases. The unsuccessful attempts include efforts to reduce the amount for the expenses of the State Railroad Commission from \$100,000 to \$60,000 and to eliminate the item of \$1,500 for clerical hire for a board to examine patent letters relative to underground railways and elevated railways.

PROGRAMS OF ASSOCIATION MEETINGS

Central Electric Railway Accountants' Association

The twenty-second regular meeting of the Central Electric Railway Accountants' Association will be held in the main cabin of the steamer *St. Ignace* on the afternoon of Thursday, June 26. The program will be as follows:

Report of standing committee on freight accounts.

Report of standing committee on passenger accounts.

Report of committee on query box questions and answers.

Address, "Essentials of Modern Accounting," by A. F. Elkins, auditor of the Columbus, Delaware & Marion Railway.

Address, "Voucher Indexing Simplified," by George L. Ford, auditor of the Evansville Railways.

Address, "Nuts to Crack," by A. J. White, traveling auditor of the Ohio Electric Railway.

On account of the length of the program, it may not be possible to finish on the afternoon of June 26, but the fore part of the afternoon of June 27 will be available in case any extra time is required.

The meeting has been so arranged that there will be no conflict with the meeting of the Central Electric Railway Association, which will hold its business sessions during the mornings of June 26 and 27. It is expected that the arrangement by which the two associations join in the trip will insure a larger attendance than usual at the meetings of both associations. As stated in previous issues of the *ELECTRIC RAILWAY JOURNAL* the steamer *St. Ignace* of the D. & C. line will leave the dock at the foot of Madison Street, Toledo, Ohio, at 3 p. m. on June 25.

For the benefit of members of the Central Electric Railway Association and their friends who will attend the meeting to be held on board the steamer *St. Ignace* on June 26 and 27, 1913, the Union Traction Company of Indiana will run a special car, leaving the Traction Terminal Station, Indianapolis, Ind., on June 24 at 3 p. m., for Fort Wayne, stopping over at Fort Wayne that night, and leaving at 7.20 a. m. on June 25, arriving at Toledo at 11.35 a. m., thus affording delegates several hours' time in the latter city before the steamer leaves.

Pacific Claim Agents' Association

The fifth annual meeting of the Pacific Claim Agents' Association will be held at Vancouver, B. C., on July 10, 11 and 12, 1913. The sessions will all be held in the social hall at the clubrooms of the employees of the British Columbia Electric Railway, which adjoin the general offices of the company. The convention will be called to order at 10 a. m. on July 10. The address of welcome will be delivered by T. S. Baxter, Mayor of the city of Vancouver. R. H. Sperling, general manager of the British Columbia Electric Railway, will respond. The rest of the morning will be given over to the routine business of the association. The program of papers which are to be presented at the meeting follows:

JULY 10—2 P. M.

Paper, "Required Legislation for the Modification of Court Procedure in the Trial of Personal Injury Cases," by Harrison Allen, attorney for the Portland Railway, Light & Power Company, Portland, Ore.; C. H. Winders, attorney for the Northern Pacific Railway, Seattle, Wash., and A. J. Falknor, attorney for the Puget Sound Traction, Light & Power Company, Seattle, Wash.

Oral discussion led by T. G. Newman, attorney for the Bellingham division of the Puget Sound Traction, Light & Power Company, and John Ferrin, claim agent of the Oakland (Cal.) Traction Company.

JULY 11—9:30 A. M.

Paper, "The Value of Safety Committees: How They Are Organized and Put to Work," by George Carson, claim agent of the Puget Sound Traction, Light & Power Company, Seattle, Wash.; G. N. Smith, claim agent of the Oregon-Washington Railroad & Navigation Company, Portland, Ore., and T. G. Aston, claim agent of the Washington Water Power Company, Spokane, Wash.

Oral discussion by E. M. Grover, claim agent of the Northern Pacific Railway, Tacoma, Wash., and J. M. Hone, claim agent of the Spokane & Inland Empire System, Spokane, Wash.

JULY 11—2 P. M.

Paper, "The Value of an Index Bureau in Dealing with Fraudulent Claims," by B. F. Boynton, claim agent of the Portland Railway, Light & Power Company, Portland, Ore., and S. A. Bishop, claim agent of the Pacific Electric Company, Los Angeles, Cal.

General discussion.

Paper, "National Workmen's Compensation and Industrial Insurance Laws," by H. K. Relf, claim agent of the Spokane, Portland & Seattle Railroad, Portland, Ore., and A. M. Lee, district claim agent of the Northern Pacific Railway, Seattle, Wash.

Paper, "State Workmen's Compensation and Industrial Insurance Laws," by E. H. Odell, Tacoma, Wash., and T. J. Rupli, assistant claim agent of the Puget Sound Traction, Light & Power Company, Seattle, Wash.

Oral discussion by A. E. Beck, claim agent of the British Columbia Electric Railway, Vancouver, B. C., and George Newell, superintendent of transportation of the Pacific Northwest Traction Company, Everett, Wash.

JULY 12—9:30 A. M.

Paper, "The Unreported Accident or 'Blind' Case," by J. H. Handlon, claim agent of the United Railroads of San Francisco, Cal.; W. H. Moore, claim agent of the San Diego (Cal.) Electric Railway, and C. F. Young, of the Puget Sound Traction, Light & Power Company, Seattle, Wash.

General discussion.

JULY 12—2 P. M.

General discussion of claim department work, such as settlement of claims, preparation of cases for trial, handling of witnesses, etc., led by D. L. Flynn, assistant claim agent of the Great Northern Railway, Seattle, Wash.; J. E. Newton, claim agent of the Northern Pacific Railway, Tacoma, Wash.; J. H. Handlon, of the United Railroads of San Francisco, Cal., and T. A. Cole, claim agent of the Los Angeles (Cal.) Railway.

The convention will close with the election and installation of officers. At the afternoon session on July 12 the report of the committee appointed for the purpose of selecting a place for the meeting which is to be held in 1914 will be presented.

Financial and Corporate

Stock and Money Markets

June 18, 1913.

The prices of securities dealt in on the New York Stock Exchange to-day rose enough to show a net gain of close to one point in the average level of quotations. The trading was moderate. The Interborough-Metropolitan issues maintained the strong tone shown recently and were established at a substantially higher range. Rates in the money market to-day were: Call, 2@2½ per cent; sixty days, 3¾@4 per cent; ninety days, 4¼@4½ per cent; four months, 4¾@5¼ per cent; six months, 5¼@5½ per cent.

In the Philadelphia market the demand for local issues was light, but toward the close prices were bid up sharply, Philadelphia Rapid Transit going at 22½.

In the Chicago market the tone was better to-day than for some time past and the demand for bonds increased.

The Boston market to-day was quiet but generally strong.

The Baltimore market to-day was broader than for some time past, but the volume of transactions was not large. In the bond market sales were recorded to-day of \$5,000 of Chicago Railways 5's and \$16,000 of United Railways incomes.

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

	June 11	June 18
American Brake Shoe & Foundry (common).....	89	91
American Brake Shoe & Foundry (preferred).....	128	128½
American Cities Company (common).....	34	35
American Cities Company (preferred).....	68¾	72¼
American Light & Traction Company (common).....	345	365
American Light & Traction Company (preferred).....	106	106
American Railways Company.....	37½	37¾
Aurora, Elgin & Chicago Railroad (common).....	38	38½
Aurora, Elgin & Chicago Railroad (preferred).....	82	*82
Boston Elevated Railway.....	86	87¾
Boston Suburban Electric Companies (common).....	a7½	7½
Boston Suburban Electric Companies (preferred).....	*66	*66
Boston & Worcester Electric Companies (common).....	a8	a8
Boston & Worcester Electric Companies (preferred).....	40	40
Brooklyn Rapid Transit Company.....	83¾	87¾
Capital Traction Company, Washington.....	120½	117½
Chicago City Railway.....	150	*150
Chicago Elevated Railways (common).....	24½	*24½
Chicago Elevated Railways (preferred).....	75	*75
Chicago Railways, pteptg., ctf. 1.....	91	91½
Chicago Railways, pteptg., ctf. 2.....	18½	18½
Chicago Railways, pteptg., ctf. 3.....	6½	6½
Chicago Railways, pteptg., ctf. 4.....	2¾	2¾
Cincinnati Street Railway.....	104½	110
Cleveland Railway.....	103	102½
Cleveland, Southwestern & Columbus Ry. (common).....	6	6
Cleveland, Southwestern & Columbus Ry. (preferred).....	29	29
Columbus Railway & Light Company.....	18	18
Columbus Railway (common).....	a69½	69½
Columbus Railway (preferred).....	83	88
Denver & Northwestern Railway.....	107	*107
Detroit United Railway.....	70	70
General Electric Company.....	130	136
Georgia Railway & Electric Company (common).....	116	115
Georgia Railway & Electric Company (preferred).....	83½	83½
Interborough Metropolitan Company (common).....	12¾	16½
Interborough Metropolitan Company (preferred).....	46½	59¾
International Traction Company (common).....	30	30
International Traction Company (preferred).....	a95	95
Kansas City Railway & Light Company (common).....	18	18
Kansas City Railway & Light Company (preferred).....	36	36
Lake Shore Electric Railway (common).....	6	6
Lake Shore Electric Railway (1st preferred).....	a92	92
Lake Shore Electric Railway (2d preferred).....	a25	25
Manhattan Railway.....	126	125
Massachusetts Electric Companies (common).....	13	12½
Massachusetts Electric Companies (preferred).....	68	68
Milwaukee Electric Railway & Light Co. (preferred).....	100	100
Norfolk Railway & Light Company.....	25	25
North American Company.....	63	65
Northern Ohio Light & Traction Company (common).....	a80	80
Northern Ohio Light & Traction Company (preferred).....	a105	105
Philadelphia Company, Pittsburgh (common).....	37	40½
Philadelphia Company, Pittsburgh (preferred).....	40	39
Philadelphia Rapid Transit Company.....	20½	21
Portland Railway, Light & Power Company.....	62	62
Public Service Corporation.....	112	111
Third Avenue Railway, New York.....	28½	2
Toledo Railways & Light Company.....	2	3
Twin City Rapid Transit Co., Minneapolis (common).....	101½	103½
Union Traction Company of Indiana (common).....	4½	4½
Union Traction Company of Indiana (1st preferred).....	80	80
Union Traction Company of Indiana (2d preferred).....	30	30
United Rys. & Electric Company (Baltimore).....	24	26
United Rys. Inv. Company (common).....	17	19
United Rys. Inv. Company (preferred).....	30	35½
Virginia Railway & Power Company (common).....	50	52
Virginia Railway & Power Company (preferred).....	90	87½
Washington Ry. & Electric Company (common).....	84	85½
Washington Ry. & Electric Company (preferred).....	87¾	87½
West End Street Railway, Boston (common).....	71	71
West End Street Railway, Boston (preferred).....	88	88
Westinghouse Elec. & Mfg. Company.....	54	60
Westinghouse Elec. & Mfg. Company (1st preferred).....	111	106

*Last sale. a Asked.

Proposed Agreement for Refinancing of Terminal Railways

The trustees of F. M. Smith and the trustees of the United Properties Company, Oakland, Cal., have under consideration an agreement for the refinancing of the San Francisco-Oakland Terminal Railways, Oakland, Cal., with the underwriting syndicate, in which E. H. Rollins & Sons have joined N. W. Halsey & Company. In a statement issued by the trustees the proposed agreement is described as follows:

"Its purpose is to provide tentatively, according to the provisions of the memorandum, for financing the Oakland Railways and the San Francisco-Oakland Terminal Railways, which latter company owns and operates the Oakland Traction and Key Route properties. This financing consists in raising, by the issuance and sale of \$4,000,000 of 6 per cent five-year notes, funds sufficient to pay off and retire the \$2,500,000 note issue maturing June 12, to provide for new construction imperatively required, and to reimburse the company for improvements paid for out of earnings during recent months.

"Two million dollars of additional notes will be reserved for future issue for the purpose of providing for extensions and additions to the Terminal Railways property. Certain conditions, however, must first be complied with before it will be possible for N. W. Halsey & Company and E. H. Rollins & Sons to proceed with their plans, and the committees have agreed to use their best endeavors to see that the following conditions are fulfilled:

"1. To obtain authority from the Railroad Commission for the issue by the San Francisco-Oakland Terminal Railways of certain securities necessary for the carrying out of the plan.

"2. To secure a refunding of the outstanding \$1,100,000 note issue of the Oakland Terminal Company guaranteed by the Oakland Railways and due on Aug. 20 this year.

"3. To secure the deposit of the shares of stock of the Terminal Railways, the Oakland Traction and the Key Route companies which are not owned by the Oakland Railways for the purpose of exchange, according to the plan.

"4. To secure the expenditure of the \$1,000,000 cash now on deposit with the Union Trust Company, trustee, in the construction of a solid-fill pier out as far as the present official bulkhead line and such other construction as may materially increase the capacity of the Key Route system.

"The committees under the memorandum will have until July 15, 1913, to cause these things to be done. If by that time they have succeeded in complying with these and other incidental conditions, then N. W. Halsey & Company and E. H. Rollins & Sons will have until Aug. 15 to form an underwriting syndicate to purchase the \$4,000,000 of notes.

"The success of this plan is dependent upon the co-operation of the creditors of F. M. Smith and of the Realty Syndicate and of the stockholders of the companies interested and of the note holders of the \$1,100,000 note issue of the Oakland Terminal Company due Aug. 20.

"Meanwhile, the interest on the \$2,500,000 note issue due on June 12 will be paid.

"It is believed that the successful consummation of the plan will put the railways' properties on a sound financial basis and permit of a decided improvement in the service afforded the various transbay communities."

Financing Plans of Columbus Consolidation Approved.

The Columbus Railway, Power & Light Company, Columbus, Ohio, has been authorized by the Ohio Public Service Commission to issue its common capital stock of the par value of \$1,353,930. An amount of \$500,000 thereof is to be sold for the best price obtainable but for not less than par value, it being the opinion and finding of the commission that the issue of all of said common capital stock and the money to be secured by the sale of \$500,000 principal amount thereof are reasonably required for the proper purposes of the corporation.

The proceeds arising from the sale of the common capital stock of the par value of \$500,000 are to be devoted to and used for the following purposes and no other: To provide a working capital, the expenditures wherefrom shall be made as follows:

Supplies, \$235,503; coal, \$5,233; accounts receivable, \$147,-

000; bills receivable, \$15,000; deposits with the city of Columbus, \$1,000; prepaid insurance, \$26,000, and cash, \$79,364.

The common capital stock of the par value of \$853,930 of the Columbus Railway, Power & Light Company is to be issued, transferred and delivered to the Columbus Railway & Light Company in full and final payment of the following indebtedness and securities: For the reimbursement of the Columbus Railway & Light Company for expenditures made by it for the extension and improvement of the properties of the Columbus Railway, the Columbus Edison Company, the Columbus Light, Heat & Power Company and the Columbus Railway, Power & Light Company, common capital stock of the par value of \$534,630; in equal exchange for \$253,000, principal amount, of the first consolidated 4 per cent bonds of the Columbus Railway now in the possession of the Columbus Railway & Light Company, common capital stock of the par value of \$283,000; and in equal exchange for \$36,300, principal amount, of the first mortgage 6 per cent bonds of the Columbus Light, Heat & Power Company now in the possession of the Columbus Railway & Light Company, common capital stock of the par value of \$36,300. The Columbus Railway, Power & Light Company, upon the acquisition of the first consolidated 4 per cent bonds of the Columbus Railway and said first mortgage 6 per cent bonds of the Columbus Light, Heat & Power Company, must cancel the same.

The Ohio Public Service Commission on June 7 declined to grant the application of several stockholders of the Columbus Light, Heat & Power Company to reopen the proceedings in regard to the consolidation of the subsidiaries of the Columbus Railway & Light Company in order that they might present objections to the basis of exchange of securities, which opposition was described in detail in the *ELECTRIC RAILWAY JOURNAL* of May 31, 1913. Meetings of the stockholders of the various companies will now be called to approve the reorganization plans as submitted.

Attack on Elevated Roads in Chicago

State's Attorney Hoyne began quo warranto proceedings in the Cook County Circuit Court, Chicago, Ill., on June 16, against the Metropolitan West Side Elevated Railway, the South Side Elevated Railroad and the Union Elevated Railroad on the ground that they have violated their State charters by over-capitalizing. Mr. Hoyne says that the companies were organized under the railroad act and that the constitution and this act provide that a company shall not issue stock or bonds except for money, labor or property actually received and applied to the purposes for which the corporation was created, and that any stock dividends or other increase of capital stock or indebtedness shall be void. He declares that the suits will show the actual costs and real investments of the companies and clear the situation.

A similar proceeding against the Northwestern Elevated Railroad was filed a few days earlier. It is charged in the suit filed against that company that the railroad violated its charter by using the union loop and also in extending its lines northward beyond the prescribed limit.

The court is asked to compel the companies to answer the suits and to show by what right they operate under the alleged illegal conditions named by Mr. Hoyne.

Mr. Hoyne issued a statement in reference to his action in which he said that the difference between the companies and the city of Chicago arose in regard to the value of the properties concerned and that it was doubtful whether any substantial benefits could be obtained for the public through the pending negotiations with the city until the question of the real investment in the properties was determined. He said that the legislation suggested by the companies authorizing the extension of the loop platforms would be merely a temporary expedient.

Mr. Hoyne declared that if at any time it appeared that the prosecution of the suits was a hindrance rather than an aid to a settlement which would give the public more comfortable, convenient and rapid transportation, or if for any other reason the suits were ill-advised, they could be dismissed or discontinued. He thought that there was nothing in his action that should alarm legitimate investors or the holders of stocks or bonds issued legitimately under

the laws of the State, but that apparently the elevated railways were over-capitalized.

Gilbert E. Porter, attorney for the Chicago Elevated Railways, said that if the courts should decide that the roads at some time in their history violated the provisions of their charters by issuing stock for which they exacted no return and their charters should for that reason be declared void, it would make no difference either to the companies or to the public. Such a ruling, he said, would mean merely that the franchises and other properties of the companies would be turned over to a new corporation organized for the purpose. Mr. Porter said that the negotiations with the local transportation committee of the City Council had never had any reference to the amount of capitalization of the elevated lines and that the suit brought by State's Attorney Hoyne would have no effect on the negotiations for new routes on the elevated lines and the use of a new subway to be built by the city and leased by the companies.

Mr. Byllesby on Results of Minnesota Rate Decision

In a recent interview with a representative of the *ELECTRIC RAILWAY JOURNAL* H. M. Byllesby of H. M. Byllesby & Company, Chicago, Ill., said in referring to the decision of the Supreme Court in the Minnesota rate case that he believed it was better that there should be few rather than many commissions with jurisdiction over the same properties. According to him, it is better to have questions of regulation decided by one responsible body, particularly if it is not political in character, than by several bodies. All recognize that the policy of regulation is here to stay. All that companies ask is that regulative policies be wise and framed and carried out in the interests of all concerned. One difficulty that will probably result from the decision will be a lack of harmonious action between different state commissions so that eventually federal action will be necessary. In some respects the states will be unhampered but in other matters the federal government should have control. Ultimately the situation will lead to a development of new conditions in which employees of properties will share in the profits, and this evolution will be an important factor in the settlement of problems which now exist.

Hudson & Manhattan Railroad, New York, N. Y.—The plan for the readjustment of the debt of the Hudson & Manhattan Railroad was approved at a special meeting of the stockholders of the company on June 12. The plan, as previously outlined in the *ELECTRIC RAILWAY JOURNAL*, provides for an issue of \$65,000,000 of 5 per cent first lien and refunding mortgage bonds, payable on Feb. 1, 1957, and for the issue of \$33,574,000 of 5 per cent adjustment income bonds, payable on the same date. It also provides for the delivery of mortgages and deeds on railroad property to Kuhn, Loeb & Company, New York, N. Y., Robert Fleming & Company, London, Eng., and Harvey Fisk & Sons, New York, N. Y.

Inter-State Public Service Company, Indianapolis, Ind.—The Inter-State Public Service Company, a subsidiary of the Middle West Utilities Company, in April, 1913, filed a mortgage to the Union Trust Company, Indianapolis, Ind., as trustee, to secure an issue of bonds, the present issue, if not the total authorized, amounting, it is reported, to \$2,350,000. The making of this mortgage followed the purchase of the plant or control of the New Castle Light, Heat & Power Company. The Inter-State Public Service Company has a 999-year lease of the property of the Indianapolis, Columbus & Southern Traction Company.

Lackawanna & Wyoming Valley Rapid Transit Company, Scranton, Pa.—The reorganization of the Lackawanna & Wyoming Valley Rapid Transit Company will shortly be consummated under the title of Scranton & Wilkes-Barre Traction Corporation, in accordance with the plan presented as of March 15, 1913, by Guy E. Tripp, Charles A. Terry and Calvert Townley, the reorganization committee, which on May 29 bid in the holdings of the old company for \$2,500,000 at the sale noted in the *ELECTRIC RAILWAY JOURNAL* of May 10, 1913. Under the proposed capitalization of the new company there will be an authorized issue of \$5,000,000 of 5 per cent thirty-eight-year gold

bonds callable at 105 and interest, under the trusteeship of the Guarantee Trust Company, of which \$2,112,000 are to be issued forthwith, \$888,000 reserved to retire 5 per cent collateral trust bonds held by the public, and \$2,000,000 reserved for improvements and additions in connection with the subsidiaries. There will be 6 per cent preferred stock (7 per cent after June 30, 1914) in the amount of \$1,250,000 and common stock in the amount of \$3,000,000.

Lehigh Valley Transit Company, Allentown, Pa.—Owing to an oversight of the directors of the Lehigh Valley Transit Company in not appointing judges of election at a special stockholders' meeting of the company, which was scheduled to be held on June 12, as noted in the *ELECTRIC RAILWAY JOURNAL* of May 31, 1913, in Allentown for the purpose of voting on an issue of \$1,000,000 ten-year 6 per cent bonds to be utilized, in part, in acquiring the Easton Consolidated Electric Company stock, it was necessary to adjourn the meeting until June 19 to give the directors an opportunity to appoint the judges.

Manila Electric Railroad & Lighting Company, Manila, P. I.—As European fiscal agents, the Municipal & General Securities Company, Ltd., has issued the eighth annual report of the Manila Electric Railroad & Lighting Company. The report states that the gross earnings for the year ended December 31, 1912, were \$1,597,674, being an increase over the previous year of \$144,986 or 9.98 per cent; operating expenses and taxes increased \$821,648 or 12.87 per cent, while the net earnings from operation were \$873,187, an increase of \$62,337 or 7.68 per cent. Interest charges during the year were \$277,500 and sinking fund requirements were \$28,250, leaving surplus earnings for the year of \$567,437. Dividends have gradually increased since 1906 from 3 per cent, and with the quarter ended March 31, 1913, the directors increased the rates from 6 per cent to 7 per cent per annum. Since the beginning of the current fiscal year, \$33,000 face value of the 5 per cent fifty-year first lien and collateral trust sinking fund gold bonds have been added to the sinking fund, making a total of bonds in that fund of \$183,000.

Middle West Utilities Company, Chicago, Ill.—The Middle West Utilities Company has sold to N. W. Halsey & Company, Russell, Brewster & Company, McCoy & Company and A. H. Bickmore & Company \$2,000,000 of an authorized issue of \$3,500,000 of three-year 6 per cent collateral notes, secured by a deposit of \$8,667,000 of bonds of subsidiary companies. On April 30, 1913, the company had outstanding \$7,356,200 of common stock, \$8,470,100 of preferred stock, \$1,600,000 of collateral loans and \$563,500 deferred payments on purchase contracts.

New York (N. Y.) Municipal Railway Corporation.—The Public Service Commission of the First District of New York will hold a hearing on June 26 on the application of the New York Municipal Railway Corporation for permission to issue \$400,000 of its capital stock. The company last January applied for permission to issue \$1,000,000 of capital stock, and the commission at that time authorized an issue of \$100,000. The company now asks for leave to issue \$400,000 of the remaining \$900,000 of such stock to provide working capital for the performance of the company's obligations under the dual system contracts.

Oskaloosa Traction & Light Company, Oskaloosa, Ia.—New officers and directors have been elected for the Oskaloosa Traction & Light Company and the Oskaloosa & Buxton Electric Railway, which were taken over on June 1, 1913, by W. B. McKinley, president of the Illinois Traction System, and his associates. The new officers of the Oskaloosa Traction & Light Company follow: W. B. McKinley, president; H. E. Chubbuck, vice-president; H. W. Garner, secretary; George M. Mattis, treasurer and assistant secretary; H. W. Garner, George Kalbach, M. J. Cruzen, A. Rosenblatt, W. B. McKinley, George M. Mattis, E. A. MacNutt, H. E. Chubbuck and W. H. Carnahan, directors. The new officers of the Oskaloosa & Buxton Electric Railway follow: W. B. McKinley, president; H. E. Chubbuck, vice-president; H. W. Garner, secretary; George M. Mattis, treasurer and assistant secretary; H. W. Garner, Charles E. Lefland, W. R. Lacey, C. E. Sawyer, W. B. McKinley, George M. Mattis, E. A. MacNutt, W. H. Carnahan and H. E. Chubbuck, directors.

Philadelphia (Pa.) Rapid Transit Company.—Thomas S. Gates, president of the Philadelphia Trust Company, has been elected a director of the Philadelphia Rapid Transit Company to represent the city on the board. He succeeds the late James Hope.

South Shore Traction Company, Patchogue, N. Y.—Judge Chatfield in the United States District Court at Brooklyn, N. Y., on June 11, on application of Paul T. Brady, one of the stockholders, signed an order permitting the sale at auction of the assets of the South Shore Traction Company in Nassau and Suffolk Counties on June 27, in the District Court, Brooklyn. The assets consist principally of franchises in Amityville, Babylon Town, Islip Town and Sayville, a franchise to run a cross-island line from Sayville to Port Jefferson and steel, rails and cut-outs. The sale will be subject to the lien of the Babylon Railroad on its portion of the road lying between Babylon and Amityville, now operated by the receiver of the South Shore Traction Company as a separate concern.

Springfield, Clear Lake & Rochester Interurban Railway, Springfield, Ill.—Judge James A. Creighton of the Sangamon County Circuit Court has ordered the sale of the Springfield, Clear Lake & Rochester Interurban Railway within fifty-six days from June 9.

Springfield (Ohio) Railway.—The stockholders of the Springfield Railway on June 11 authorized an issue of \$500,000 of preferred stock, of which \$340,000 will now be issued, and a new \$2,500,000 mortgage. The bonds, it is said, will be applied as follows: Reserved to retire first mortgage 6's due Jan. 1, 1933, \$500,000; to pay floating debt, \$700,000; to provide for improvements and additions, new carhouse, rolling stock, etc., \$500,000; reserved for future requirements, \$800,000.

United Properties Company, Oakland, Cal.—The trustees in charge of the affairs of F. M. Smith, the United Properties Company and other corporations which Mr. Smith controlled have made a revised estimate of his liabilities. The first estimate of the trustees placed the liabilities at \$14,500,000, but it has now been found that the Pacific Borax Company is liable for \$3,000,000 debentures and bonds issued by the Tonopah & Tidewater Railway, which, with the \$3,000,000 it is said Mr. Smith owes the United Properties Company, brings the total liabilities up above the twenty-million-dollar mark. The trustees place Mr. Smith's resources, if properly conserved, at at least \$20,000,000, not counting the prospective value of the lands held by the realty syndicate of which Mr. Smith owns all the stock.

United Railways, St. Louis, Mo.—The United Railways has announced that the following bonds will be paid at maturity on July 1, 1913: \$1,000,000 of 6 per cent bonds of the Compton Heights Union Depot & Merchants' Terminal Railroad; \$500,000 of 6 per cent bonds of the Taylor Avenue Railway, and \$250,000 of 5 per cent bonds of the St. Louis Railroad.

Dividends Declared

American Cities Company, New York, N. Y., 3 per cent, preferred.

Asheville Power & Light Company, Asheville, N. C., quarterly, 1¾ per cent, preferred.

Bangor Railway & Electric Company, Bangor, Me., quarterly, 1¾ per cent, preferred.

Boston & Worcester Electric Companies, Boston, Mass., \$1, preferred.

Capital Traction Company, Washington, D. C., quarterly, 1½ per cent.

Carolina Power & Light Company, Raleigh, N. C., quarterly, 1¾ per cent, preferred.

Cincinnati (Ohio) Street Railway, quarterly, 1½ per cent.

Consolidated Traction Company of New Jersey, Newark, N. J., 2 per cent.

Duluth-Superior Traction Company, Duluth, Minn., quarterly, 1 per cent, preferred; quarterly, 1 per cent, common.

Frankfort & Southwark Passenger Railway, Philadelphia, Pa., quarterly, \$4.50.

Little Rock Railway & Electric Company, Little Rock, Ark., 3 per cent, preferred; 5 per cent, common.

Mohawk Valley Company, New York, N. Y., quarterly, 1½ per cent.

Northern Ohio Traction & Light Company, Akron, Ohio, quarterly, 1½ per cent, preferred.

Philadelphia Company, Pittsburgh, Pa., 2½ per cent, non-cumulative preferred; quarterly, 1 per cent, common.

Twin City Rapid Transit Company, Minneapolis, Minn., quarterly 1 per cent, preferred; quarterly, 1½ per cent, common.

United Light & Railways Company, Grand Rapids, Mich., quarterly, 1½ per cent, first preferred; quarterly, three-quarters of 1 per cent, second preferred.

Union Traction Company, Philadelphia, Pa., \$1.50.

Washington, Baltimore & Annapolis Electric Railroad, Baltimore, Md., quarterly, 1½ per cent, preferred.

West End Street Railway, Boston, Mass, \$2, preferred.

West India Electric Company, Ltd., Kingston, Jamaica, quarterly, 1¼ per cent.

ELECTRIC RAILWAY MONTHLY EARNINGS

AURORA, ELGIN & CHICAGO RAILROAD, CHICAGO, ILL.						
Period	Gross Earnings	Operating Expenses	Net Earnings	Fixed Charges	Net Surplus	
1m., April, '13	\$146,266	\$95,923	\$50,344	\$32,735	\$17,609	
1 " " '12	141,975	86,432	55,543	32,005	23,538	
10 " " '13	1,602,216	956,167	646,049	322,061	323,988	
12 " " '12	1,504,799	887,858	616,942	317,070	299,872	
CLEVELAND, PAINESVILLE & EASTERN RAILROAD, WILLOUGHBY, OHIO.						
1m., April, '13	\$29,683	\$16,501	\$13,182	\$10,607	\$2,575	
1 " " '12	27,838	17,619	10,221	9,809	412	
4 " " '13	110,307	64,306	46,000	41,727	4,273	
4 " " '12	100,245	66,676	33,569	39,525	†5,956	
CLEVELAND, SOUTHWESTERN & COLUMBUS RAILWAY, CLEVELAND, OHIO						
1m., April, '13	\$94,941	\$57,567	\$37,374	\$31,237	\$6,137	
1 " " '12	91,091	54,288	36,803	30,498	6,305	
4 " " '13	304,163	231,043	123,889	124,213	326	
4 " " '12	290,646	213,099	121,828	120,965	863	
DETROIT (MICH.) UNITED RAILWAY						
1m., April, '13	\$1,066,696	\$687,013	\$376,663	\$179,882	\$196,771	
1 " " '12	931,829	590,045	341,777	177,052	164,725	
4 " " '13	4,035,876	2,671,773	1,364,103	717,295	646,808	
4 " " '12	3,449,918	2,226,441	223,477	714,217	509,260	
EL PASO (TEX.) ELECTRIC COMPANY						
1m., Mar., '13	\$77,164	\$43,009	\$35,155	\$4,181	\$30,974	
1 " " '12	63,055	35,523	29,532	7,019	22,513	
12 " " '13	832,230	448,740	383,490	58,750	324,740	
12 " " '12	712,372	405,751	306,622	82,412	224,210	
FEDERAL LIGHT & TRACTION COMPANY, NEW YORK, N. Y.						
1m., April, '13	\$188,822	\$107,001	\$81,122	
1 " " '12	169,127	100,549	68,578	
4 " " '13	816,547	458,177	358,370	
4 " " '12	710,912	404,128	306,784	
KENTUCKY TRACTION & TERMINAL COMPANY, LEXINGTON, KY.						
1m., April, '13	\$60,668	\$30,148	\$30,520	\$19,177	\$7,343	
1 " " '12	55,938	33,277	22,661	17,102	5,558	
10 " " '13	635,085	335,910	299,175	186,916	112,259	
12 " " '12	589,421	350,832	238,589	173,655	64,933	
LAKE SHORE ELECTRIC RAILWAY, CLEVELAND, OHIO.						
1m., April, '13	\$100,219	\$70,320	\$29,898	\$35,063	†\$5,164	
1 " " '12	97,806	59,889	37,918	34,854	3,064	
4 " " '13	382,561	258,018	124,543	139,892	†15,348	
4 " " '12	359,197	230,684	128,513	139,047	†10,536	
NORTH CAROLINA PUBLIC SERVICE COMPANY, GREENSBORO, N. C.						
1m., Mar., '13	\$415,722	\$270,233	\$145,489	\$75,179	\$71,310	
1 " " '12	360,307	236,113	124,194	69,509	54,685	
NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO						
1m., Mar., '13	\$238,546	\$154,621	\$83,926	\$45,214	\$38,712	
1 " " '12	221,784	128,168	93,616	43,821	49,795	
4 " " '13	925,727	582,406	343,321	180,296	163,026	
4 " " '12	845,271	495,537	349,733	175,287	174,446	
SAVANNAH (GA.) ELECTRIC COMPANY						
1m., Mar., '13	\$67,003	\$45,232	\$21,772	\$22,606	†\$6,366	
1 " " '12	58,964	42,965	15,999	15,993	6	
12 " " '13	770,495	565,431	205,064	204,689	375	
12 " " '12	712,263	525,021	187,243	186,098	1,145	
TAMPA (FLA.) ELECTRIC COMPANY						
1m., Mar., '13	\$65,678	\$34,361	\$31,318	\$4,897	\$26,421	
1 " " '12	62,057	33,363	28,693	4,361	24,333	
12 " " '13	767,559	400,169	367,389	54,621	312,768	
12 " " '12	706,428	384,422	322,007	58,705	263,301	
UNITED LIGHT & RAILWAYS COMPANY, GRAND RAPIDS, MICH.						
1m., April, '13	\$462,870	\$284,192	\$178,678	\$122,799	\$65,899	
1 " " '12	396,106	246,953	149,153	92,446	56,707	
10 " " '13	4,743,665	2,750,297	1,993,368	982,220	1,011,148	
10 " " '12	4,220,042	2,509,637	1,710,405	924,780	785,625	
VIRGINIA RAILWAY & POWER COMPANY, RICHMOND, VA.						
1m., April, '13	\$406,086	\$198,207	\$207,879	\$126,557	\$81,122	
1 " " '12	380,095	193,172	186,923	118,964	67,959	
10 " " '13	4,099,747	2,012,128	2,087,619	1,243,990	843,629	
10 " " '12	3,847,530	2,008,884	1,848,686	1,183,018	655,668	

*Includes taxes. †Deficit.

Traffic and Transportation

President Josselyn on Oregon Fare Case

In commenting on the decision of the United States Supreme Court confirming the right of the Oregon Railroad Commission to order the Portland Railway, Light & Power Company to reduce its fare between Portland and Milwaukie to 5 cents, B. S. Josselyn, president of the company, said:

"We contended in the Milwaukie rate case that we were entitled to a reasonable compensation owing to the fact that we run high-speed interurban trains from Milwaukie, a service which costs a great deal more money than ordinary electric railway service. The issue involved in the case was one of discriminatory rates. It was held that we charged 5 cents to carry a passenger to Lents and that therefore we should charge no more in carrying a passenger to Milwaukie. The service to Lents is very different from the service to Milwaukie. For that reason we believed that the court would take our viewpoint of the question. Inasmuch as it did not we have decided to put the new rate into effect at once, and we have prepared a tariff which becomes effective June 11. It will take sixty days for the mandate of the court to reach us and we have decided to waive all formality and to give the patrons immediate benefit of the decision. Under the law of the State we are compelled to charge not to exceed 5 cents for the transportation of a passenger in one continuous direction within the city limits. Milwaukie and Lents are both outside the city limits, and for whatever distance they are beyond the city limits we shall receive no compensation for the service, and it is in this respect that we have felt that the rights were with our side."

Residents of Milwaukie, claiming that the 10-cent fare was discriminatory, that it retarded the growth of the community and that it was unjust, appealed to the State Railroad Commission of Oregon for relief in 1907. After hearings on the complaint the commission ordered a 5-cent fare. The Portland Railway, Light & Power Company secured a temporary injunction to prevent the commission from enforcing the new rate. In the summer of 1908 argument was heard in the Circuit Court and the modified order of the commission was affirmed. The case went to the Supreme Court of Oregon on appeal and this court adopted the finding of the Circuit Court and entered a decree. The case was then carried to the United States Supreme Court.

Since the appeal of the case from the order of the railroad commission about 300,000 rebate checks have been issued to the patrons on the line. The amount necessary to redeem these rebate checks is estimated at \$15,000.

The decision was referred to briefly in the *ELECTRIC RAILWAY JOURNAL* of June 14, 1913, page 1091.

New Publication for Detroit Patrons

The Detroit (Mich.) United Railway issued under date of June 13, 1913, the first number of *Electric Railway Service*. The paper is 3½ in. wide by 8 in. high and the first number contained eight pages. Under the caption "The Reason for This Little Publication," the company said in part:

"*Electric Railway Service* is issued by the publicity department of the Detroit United Lines and will be followed weekly by succeeding numbers, and when occasion demands, there will be 'extra' editions. The distribution will be free through the medium of the little boxes you find in the cars. Copies may also be found in the interurban waiting rooms. The Detroit United Lines are composed of 800 miles of track of which less than one-quarter lie within the limits of Detroit. The major portion makes possible the magnificent interurban service of the company as well as the city service in the several cities along the system. The town man is a frequent patron of the interurban line and the country man is, likewise, a frequent patron of the city line. We desire that each become thoroughly familiar with all the lines and with the people and places served, for becoming more familiar all will learn of the social and business conveniences of the lines as the means of trans-

portation. Advertising is the great necessity in the production of new business, and this publication is to be one of the several means used by the publicity department in telling the patrons of the purposes of the Detroit United Lines."

Electric & Cable Car Postal Service

According to a report submitted by the Second Assistant Postmaster General to Postmaster General Hitchcock for the year ended June 30, 1912, the appropriation for electric and cable car service for the fiscal year was \$725,500. The sum estimated as necessary for the fiscal year ending June 30, 1914, is \$847,400, being \$119,400, or 16.40 per cent more than the appropriation for the previous year (3.763 per cent for normal increase and 12.637 per cent for increase due to parcels post).

The annual rate of expenditure for electric and cable car service authorized at the various rates provided by law was on June 30, 1912, as follows:

At 3 cents a mile	\$207,496
At 4 cents a mile	27,492
Under special provision	6,898
At railroad rates	45,199
At schedule rates other than 3 and 4 cents a mile	38,652
At apartment and independent car regular rates	45,344
At apartment and independent car maximum rates	311,129
At special agreement rates less than regular rates	4,345
	\$686,555

The appropriation act for the fiscal year of 1913 continued the provision in connection with the item for electric and cable cars authorizing the expenditure of not exceeding \$100,000 of the appropriation for regulation screen or motor wagon service, which may be substituted in lieu of electric and cable car service. This could not otherwise be done on account of the fact that the appropriation for regulation screen-wagon service is generally no more than sufficient to care for existing contract obligations and increases in service which are foreseen.

For the year ended June 30, 1912, the number of electric and cable car routes was 557; the length of the routes 74,729 miles; the annual travel 12,239,638 miles; the annual rate of expenditure \$686,555; the average rate of cost per mile of length \$91.87; the average rate of cost per mile traveled 5.61 cents, and the average number of trips per week 15.75. A comparison with the previous year shows an increase in the number of routes of 10 or 1.828 per cent; an increase in the length of the routes of 125.46 miles or 1.707 per cent; an increase in the annual travel of 104,370 miles or 0.86 per cent; an increase in the annual rate of expenditure of \$5,482 or 0.805 per cent; a decrease in the average cost per mile of length of \$0.82 or 0.885 per cent; no change in the average rate of cost per mile traveled, and a decrease in the average number of trips per week of \$0.13 or 0.819 per cent.

Calling the Streets

The Portland *Carman*, which is issued in the interests of the employees of the Portland Railway, Light & Power Company, Portland, Ore., published in its May number a very interesting article, "Calling the Streets," contributed by Edward Nedweig, a chorister. Mr. Nedweig says in part:

"If I were instructing conductors in calling out streets and in shouting instructions to passengers, about the first thing I should insist on would be to have every man practise saying the alphabet in a full voice, each letter to be pronounced distinctly before the next would be said. To do that would demonstrate to the pupil that it is not noise that counts as much as distinctness. How often do we sit in a car and hear the conductor utter something that sounds about as follows: 'W-a-a-abash av-vv-e-new a-n-d Penstreet, transferto northans outh bound cars.' The call is totally wasted and the passenger is perturbed by being forced to ask someone near by what the conductor said. It is learning to speak every word and every sentence clearly and distinctly, every syllable accented as it should be, before the next one is uttered, that develops elocutionists.

"Emphasis is not gained by drawling or allowing the voice to dwell on a tone, at least in speaking. The proper

way to utter the syllable clearly and distinctly and gain the desired emphasis is by pausing between the words. This does not mean that the syllables of a word or the words of a sentence are to be chopped off with a click. It means that the syllables are to be said in an even tone, the accented one a little stronger than the others. In this way we obtain the desired effect and do not utter a lot of noise that nobody understands.

"My advice to any man who is endeavoring to learn the rudiments of correct speaking is to go to some place where a good speaker is to be heard. Listen to the way he utters his sentences and take particular pains to see that every syllable of each word and every word of a sentence is clear, regardless of the speed of his delivery or the softness with which he utters parts of his address. It is never necessary to drawl the voice to gain the effect and the good speakers never do. The tones are always full when a good speaker uses them, regardless of the volume he is lending to his voice. The softest word of a lullaby is understood in the remote corner of the theater, when sung by the finished singer, and the high note of the amateur is indistinguishable wherever heard.

"It is the same in using the voice any place. It matters little whether it is on the platform of the car or in the assembly halls, the elements of clear speaking are the same. The man who will give a little attention to the following rules will have no trouble in making his passengers understand every word of his calls:

"Never attempt to speak until you are sure of what you are going to say.

"Never say it any louder than necessary to make your voice carry to the farthest point from you which you wish to reach.

"Never drawl. Never hold the voice in the throat. Never shout.

"If any trainman will practise talking with the above rules in mind, I will assure him of success in calling the streets."

Service Order in Madison.—The Southern Wisconsin Railway, Madison, Wis., has been ordered by the Railroad Commission of Wisconsin to continue its owl service until 1 a. m. Heretofore the company has discontinued service at 12:20 a. m.

Through Service Between Albany and Cohoes.—The United Traction Company, Albany, N. Y., has re-established through service between Albany and Cohoes. The operation of through cars between the cities was suspended at the time of the recent floods.

Increase in Wages on Indiana Roads.—The Union Traction Company of Indiana, Indianapolis, Ind., has voluntarily increased the wages of its motormen and conductors. The new scale provides for 21 cents to 30 cents an hour, according to length of service. The old rate was 20 cents to 28 cents an hour. About 700 trainmen are affected by the new schedule.

Accident on California Road.—A two-car train of the San Francisco, Napa & Calistoga Railway, Napa, Cal., from Vallejo, running at high speed collided head on with an electric car from Papa on a curve a mile north of Vallejo on June 19. The accident was caused by a mistake in orders. Ten are reported killed and twenty-five injured. The passengers were mostly San Franciscans going to summer resorts. The Southern Pacific Company took the survivors to Vallejo on a relief train.

Attractive Traffic Folder.—The Northern Electric Railway, Chico, Cal., has issued a very attractive folder of six pages and cover in regard to the opening of its Marysville and Colusa branch. The folder is printed in brown and green on cream paper and contains considerable information in regard to the road and the territory through which it operates. In the center of the folder there is a map which covers the territory between Chico and Sacramento. The cover is of brown paper embossed in gold with the name of the company and its insignia.

Petition for Fare Inquiry in New Jersey.—The committee on internal trade affairs of the Board of Trade of Newark, N. J., has petitioned the Board of Public Utility Commis-

sioners of New Jersey to conduct an inquiry to determine the reasonableness of the fares charged by the Hudson & Manhattan Railroad between Park Place, Newark, and Summit Avenue, Jersey City. It is declared that the rates charged by the railroad, which operates into New York under the Hudson River, are discriminatory and that they tend to divert trade to New York to the detriment of Newark.

Hearing in Regard to Standing on Train Platforms.—The Public Service Commission of the First District of New York has ordered that a hearing be held on June 24 to determine whether the practice of permitting passengers to stand on the rear platforms of the end cars of trains operated by the Interborough Rapid Transit Company, the New York Consolidated Railroad, the Nassau Electric Railway and the South Brooklyn Railway should be changed. Complaints have been made to the commission that the practice of riding on the rear platforms on the rear cars of trains on the elevated lines is on the increase, and that it has lately become a nuisance.

Motion Pictures in Safety Campaign.—A reel of motion pictures illustrating the classes of accidents common to the operation of street railways has been taken for the Chicago (Ill.) Railways and will be used by that company in a public safety campaign. The films were shown by the Chicago & Joliet Electric Railway at the efficiency show in Joliet, Ill., on June 10. A report shows that in the safety first campaign conducted jointly by the Illinois Steel Company and the Chicago & Joliet Electric Railway nearly 8000 public and parochial school children viewed the film "Dangers of the Streets" at the lecture room of the Steel company.

Meeting of New Albany Booster Club.—The Employees' Booster Club of the Louisville & Northern Railway & Lighting Company and the Louisville & Southern Indiana Traction Company, with offices in New Albany, Ind., has held its final meeting before adjourning for the summer. Monthly meetings are held by the employees, and the year just closed has recorded some extremely valuable developments growing out of the meetings. The final session before the vacation was addressed by Chester P. Wilson, president of the companies and those associated with them in New Albany, Ind., where the Middle West Utilities Company controls the public service plants. Mr. Wilson emphasized the value of co-operation and stated that the booster meetings showed a fine spirit of this kind on the part of those who are connected with the properties controlled by the companies.

Opinion of Indiana Commission in Regard to Transportation of Policemen and Detectives.—The Public Service Commission of Indiana has notified the city attorney of Indianapolis that in the opinion of the commission it would not be a violation of the law for the street railways by the order of the proper authorities to carry free, while on duty, policemen and detectives in plain clothes who wear their badges for the purpose of identification and show their authority as prescribed by those over the police department. The commission, however, says that any determination it might reach would in no way modify the terms of the law and that a prosecution for the violation of the law might be had even though the commission should place a positive construction upon the law. The opinion is not a decision or an order and is subject to revision or change upon the proper hearing, and it is taken to mean nothing more than that the commission, in its present understanding of the matter, would not set on foot any prosecutions against street railways for violation of the law under the conditions previously mentioned. Before the Public Service Commission law became effective on May 1, 1913, policemen and firemen were permitted to ride free on cars when wearing their uniforms and badges, and plain clothes men were allowed to ride free on pass books issued by the company. The new public utilities act provided that only peace officers in full uniform and wearing their badges should be permitted to ride free upon the cars of any company, and on May 1, 1913, the privileges extended to firemen and plain clothes men were withdrawn. Under the opinion of the Public Service Commission passes will again be issued to plain clothes men until such time as a definite ruling may be given on the matter.

Personal Mention

Mr. C. A. Coons has resigned as superintendent of the Buffalo city division of the International Railway, Buffalo, N. Y.

Mr. Ralph Ward, manager of the Lowell (Mass.) Opera House, has been appointed publicity agent for the parks controlled by the Bay State Street Railway, Boston, Mass.

Mr. A. Benham, who has been assistant general manager of the Ohio Electric Railway, with offices in Springfield, Ohio, has been appointed general manager of the company to succeed Mr. B. J. Jones, resigned.

Mr. C. F. Handshy, who has been general superintendent of interurban lines of the Illinois Traction System, Peoria, Ill., has been appointed assistant general manager of the company in charge of the interurban lines, reporting to Mr. H. E. Chubbuck, vice-president executive.

Mr. John Reed has been appointed assistant superintendent of the Rapid Railway, Detroit United Lines, to succeed Mr. A. H. Cady, who has become assistant superintendent of the Detroit, Jackson & Chicago Railway, Detroit United Lines. Mr. Reed was formerly day carhouse foreman of the Flint city lines.

Mr. A. H. Cady has been appointed assistant superintendent of the Detroit, Jackson & Chicago Railway, Detroit United Lines, to succeed E. C. Allen, resigned. Mr. Cady was formerly assistant superintendent of the Rapid Railway, Detroit United Lines, with headquarters at Port Huron. He will reside in Ann Arbor.

Mr. H. E. Chubbuck, vice-president executive of the Illinois Traction System, Peoria, Ill., has been elected vice-president of the Oskaloosa Traction & Light Company and the Oskaloosa & Buxton Electric Railway, Oskaloosa, Ia., which have been taken over by Mr. W. B. McKinley, president of the Illinois Traction System, and those associated with him.

Mr. A. R. Myers, who has been assistant general manager and electrical engineer of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., has been appointed general manager of the company to succeed Mr. J. S. Pevear, who continues with the company as vice-president. The election of Mr. Pevear as vice-president of the International Railway is referred to elsewhere in this column.

Mr. Edward C. Shankland has been elected chairman of the harbor and subway commission of Chicago, Ill., in place of John Ericson, city engineer, who had held the chairmanship since the organization of the commission. This is in pursuance of an agreed policy of rotating the chairmanship. Mr. Ericson expected to leave for Europe on June 21 to study harbor and subway projects in foreign cities.

Mr. J. S. Pevear, who has been vice-president and general manager of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., has been elected vice-president of the International Railway, Buffalo, N. Y. Mr. Pevear became connected with the Buffalo & Lake Erie Traction Company in 1911 as general superintendent. He had previously been connected with the Twin City Rapid Transit Company, Minneapolis, Minn., and the General Electric Company. Mr. Pevear will continue as vice-president of the Buffalo & Lake Erie Traction Company.

Mr. N. H. Brown has been appointed superintendent of the Buffalo city lines of the International Railway, Buffalo, N. Y., to succeed Mr. C. A. Coons, resigned. Before he became connected with the International Railway in February, 1913, as assistant superintendent of the Buffalo city lines, Mr. Brown was superintendent of the Albany Southern Railway, Rensselaer, N. Y. Mr. Brown entered railway work with the Syracuse (N. Y.) Rapid Transit Railway in March, 1894, and was also connected with the Worcester (Mass.) Consolidated Street Railway.

Mr. B. J. Jones has resigned as general manager of the Ohio Electric Railway, Cincinnati, Ohio. He has been general manager of the company for the last four years and previous to that was general manager of the electrical department of the Union Gas & Electric Company, Cincinnati, Ohio, for four years. Mr. Jones has had a wide ex-

perience in the installation and operation of large electric railway and electric lighting systems, and supervised the installation of some of the early electric railways during the period from 1889 to 1894. He was general superintendent of the South Chicago City Railway from 1894 to 1897. From 1897 to 1905 he was with Sargent & Lundy, Chicago, engineers, and was supervising engineer during the changing of the motive power of the South Side Elevated Railway, Chicago, from steam to electricity. This was the first road on which the Sprague multiple-unit system of control was installed. Mr. Jones has also taken out a number of patents for improvements in electric railway apparatus. He has not yet decided his plans for the future.

Mr. Delos F. Wilcox has resigned as chief of the bureau of franchises of the Public Service Commission of the First District of New York, effective July 1, 1913, to engage in private practice as a consulting franchise and public utility expert, with offices in New York. Mr. Wilcox was graduated from the University of Michigan with an A. B. degree and later took his A. M. at Michigan and his Ph.D. at Columbia. In 1897 he was secretary of the Cleveland Municipal Association; in 1902, secretary of the Grand Rapids Civic Club and in 1905 secretary of the Detroit Municipal League. While in Grand Rapids and Detroit he edited and published a paper on civic affairs, called *Civic News*. In 1907 he became connected with the Public Service Commission of the First District of New York. His doctor's dissertation was written on "Municipal Government in Michigan and Ohio" in 1896; his other works are "The Study of City Government," 1897; "The American City," 1904; "Great Cities in America," 1910; "Municipal Franchises," 1910-11, and "Government by All the People," 1912. Mr. Wilcox has traveled widely over the States in connection with conferences on civic problems. He was one of the first to advocate the plan of decapitalization of public utilities by amortizing capital out of earnings so as to prevent increases in capital value such as characterize the Chicago and other franchise settlements. At present Mr. Wilcox is chairman of the committee on franchises of the National Municipal League.

Mr. P. D. Sexton has resigned his position with the elevated railway companies of Chicago to become treasurer of the banking and bond house of McCoy & Company, Chicago. Mr. Sexton was secretary of the Metropolitan West Side Elevated Railway, the Northwestern Elevated Railroad and the South Side Elevated Railroad. He was also assistant secretary of the Chicago Elevated Railways, the holding association which controls the operating companies. In addition to the duties of these offices Mr. Sexton has also been engaged in important work of investigation and inquiry for the companies, and in this connection has visited many cities of this country. He also made a trip to Europe on business for the companies. Mr. Sexton entered railroad work in 1890 in the office of the comptroller of the Kansas City, Fort Scott & Memphis Railroad at Kansas City, Mo. He remained there two years. In 1892 he went to Chicago, where he became transfer clerk in the office of the Metropolitan West Side Elevated Railway. Later he was made cashier and in 1901 he was elected assistant secretary and assistant treasurer. He held these offices for four years, when he became secretary and treasurer of the company. When the Chicago Elevated Railways was formed in 1911 to acquire control of the various elevated properties, Mr. Sexton resigned as treasurer of the Metropolitan company to devote his time to the new duties in the organization from which he has just resigned. The banking house of McCoy & Company is largely interested in public utilities and Mr. Sexton will continue to devote part of his time to properties of that character.

OBITUARY

Howard A. Mock, who was long connected with the Coney Island & Brooklyn Railroad, Brooklyn, N. Y., as a department superintendent, is dead.

James W. Courtenay, managing director of the *Tramway and Railway World*, London, Eng., is dead. Mr. Courtenay was born at Newcastle in 1857, and at the age of twenty-three began business in the same city as a tramway advertising contractor. In 1892 he with others established the

Tramway and Railway World and in the following year he acquired a controlling interest in the paper and became its managing director. In 1899 he transferred his headquarters to London. His business was extended in various directions. In India and South Africa the advertising house of James W. Courtenay became well known.

Amos F. Gerald, Fairfield, Me., a pioneer in the development of electric railways in that State, died in Portland on June 15. Mr. Gerald was interested in twelve of Maine's earliest electric railways, including the Portsmouth, Kittery & York Street Railway, now a part of the Atlantic Shore Railway, Skowhegan & Norridgewock Railway, Fairfield & Waterville Railway, Somerset Traction Company, Lewiston, Brunswick & Bath Street Railway, Brunswick, Freeport & Yarmouth Railway, Bangor, Orono & Old Town Railway and the Fairfield & Shawmut Railway. He was president and general manager of the last-mentioned line at the time of his death.

New Secretary of the Association

The executive committee of the American Electric Railway Association has selected a secretary to succeed Mr. H. C. Donecker, who, as previously mentioned in this paper, has resigned from the association to become assistant general manager of the Public Service Railway of New Jersey.

The new appointee is Mr. E. B. Burritt, who is now representative of the association at Washington, D. C., and also secretary to the president of the Washington Railway & Electric Company, with which he has been connected since 1907, first as secretary to the vice-president and since then in his present office. Mr. Burritt will not enter fully into the duties of the office of secretary of the association until after the next convention and the work of that office will be conducted in the meantime by Mr. Donecker.



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E. B. Burritt

Mr. Burritt is thirty-six years old and was educated in the public schools of Washington, D. C. Upon graduation in 1893 he began a six years' service in the general offices of the Southern Railway, Washington. In December, 1899, he enlisted in the army as a member of Troop A of the United States Cavalry and served for eleven months in the Philippines. After seven months of active service he was invalided back to Manila and honorably discharged for disability in November, 1900. After a month spent in an army hospital he took a position with the subsistence department in Manila and within a year was placed in a position of responsibility and trust with the commissary branch of the army transport service. In the discharge of these duties he visited all of the important ports in the islands and spent some time in China. Later he was recalled to assume charge of the manifest department of the Manila depot, probably the most important assignment in the establishment. Deciding to return to this country, he secured a transfer to the subsistence department at Washington Barracks, District of Columbia, but resigned from this department in January, 1907, to enter the employ of the Washington Railway & Electric Company, with which he has since been connected.

As the accredited representative in Washington, D. C., of the American Electric Railway Association during the past year, Mr. Burritt has been brought into contact with association work and has impressed the many association members who have met him as a man of pleasing personality, executive ability and energy, who will bring to bear on the work of his office a marked degree of intelligence and a familiarity with the wide phases of public utility policies that can come only to one who has been in a position where he received an insight into company affairs from the viewpoint of the executive.

Construction News

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

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

RECENT INCORPORATIONS

Muskegon-Ludington & Manistee Electric Railway, Muskegon, Mich.—Application for a charter has been made by this company to build an electric railway from Muskegon to Ludington and from Ludington to Manistee. Headquarters, Muskegon, Mich., and Chicago, Ill. Capital stock, \$1,500,000. Incorporators: Thomas Jacobs, Walter Hieston, Henry R. Baldwin and Sidney M. Well, Chicago, and Charles P. Williams, Washington.

***Scranton & Wilkes-Barre Traction Company, Scranton, Pa.**—This company will succeed the Lackawanna & Wyoming Valley Rapid Transit Company, the proposed reorganization of which is referred to in the Financial and Corporate department, page 1122, of this issue. Officers: Thomas B. Gray, president; E. B. Flippen, treasurer, and H. H. Chalkley, secretary.

FRANCHISES

Birmingham, Ala.—The Birmingham Railway, Light & Power Company has asked for a franchise for an extension of the East Lake line from the present terminus in Birmingham to Eighty-seventh Street, from which point the line will be extended ultimately to Roebuck Springs.

Birmingham, Ala.—The Kelley Street Railway has received a franchise in Birmingham. George C. Kelley is interested. [E. R. J., Aug. 10, '12.]

Little Rock, Ark.—The City Council has practically paved the way for an agreement between the city and the Little Rock, Pine Bluff & Eastern Traction Company, by which the latter company will be able to obtain a franchise to use the free bridge and construct an interurban line between Little Rock and Pine Bluff.

***North Vancouver, B. C.**—The Lynn Valley Scenic Railway has petitioned the City Council for a franchise to build an electric line through the Lynn Valley into the park of that name. J. P. Crawford is interested.

Fresno, Cal.—The Fresno Traction Company has asked the Supervisors for a fifty-year franchise over the Fresno County road.

Los Angeles, Cal.—The Los Angeles Railway has asked for a franchise on Hill Street from Temple Street to California Street in Los Angeles.

Los Angeles, Cal.—The Pacific Electric Railway has received permission from the Railroad Commission of California to construct a double-track line along San Pedro Street at grade across intersecting streets and tracks between Aliso Street and Ninth Street in Los Angeles.

Wood River, Ill.—The Alton, Granite & St. Louis Traction Company has asked for a franchise on the county road east of Upper Alton. This company plans to extend its line from Alton to Bethalto, passing the site of the new State Hospital east of Alton.

New Orleans, La.—The New Orleans Railway & Light Company will bid for the franchises of the proposed new Broadway and Claiborne lines and for the extension of the Clio line in New Orleans.

Rochester, N. Y.—The New York State Railways has asked the Common Council for a franchise to double-track and extend its lines over certain streets in Rochester.

Rochester, N. Y.—The Rochester & Suburban Railway has asked the Common Council for a franchise to extend and double-track some of its lines in Rochester.

Cincinnati, Ohio.—The Cincinnati, Newport & Covington Railway has asked the Council for a new twenty-five-year franchise in Cincinnati.

Dunnville, Ont.—The Dunnville, Wellandport & Beamsville Electric Railway has received a franchise from the Council in Dunnville.

York, Ont.—The Forest Hill Electric Railway has asked the Council for a franchise in York. [E. R. J., March 15, '13.]

Richmond, Va.—The Council committee on streets has recommended that the Virginia Railway & Power Company be granted permission to extend its Broad Street line to Roseneath Road in Richmond.

Seattle, Wash.—The Puget Sound Traction, Light & Power Company has asked the City Council for permission to change the route of the Fauntleroy Park Street line, asking that it be allowed to abandon service on the line between the steel works at Youngstown and Thirty-sixth Avenue, S. W. The company also asks permission to lay tracks on Avalon Way, Sixth Avenue, West, and West Snoqualmie Street, beginning at Youngstown and connecting with the present line at Thirty-sixth Avenue, S. W.

TRACK AND ROADWAY

Dauphin Island Railway & Harbor Company, Mobile, Ala.—Plans are being contemplated by this company for the development of Dauphin Island as a port and terminal. This company is under the management of the Tidewater Securities Corporation, of which J. M. Dewberry, Birmingham, is president. [E. R. J., May 20, '11.]

Calgary (Alta.) Municipal Railway.—This company is now building about 17 miles of new track in Calgary.

Vancouver Island Hydroelectric & Tramway Company, Victoria, B. C.—Arrangements have been completed by this company for building an electric railway at Ladysmith, Vancouver Island. The town has granted a franchise and the company proposes to build extensions to Chemainus, Duncan, Nanoose and Nanaimo. Montague Yates, Victoria, is interested. [E. R. J., April 12, '13.]

Northern Electric Railway, Chico, Cal.—This company has completed its line between Yuba City and Colusa, via Meridian. Plans are being made to build a 50-mile road from the Yuba City-Colusa line at Meridian, on the Sacramento River, and extending south through Fair Ranch to Woodland, forming a loop and giving direct connection for all points on the west side with Sacramento and San Francisco over the Vallejo & Northern Railway.

Fresno (Cal.) Traction Company.—Contracts have been signed by this company and the Bullard Land Company whereby the Fresno Traction Company agrees to extend the Roeding Park line through the Bullard lands to the San Joaquin River, 10 miles.

Geary Street Municipal Railway, San Francisco, Cal.—Work has been begun by this company on the extension down Market Street to the ferry building in San Francisco, the State Supreme Court having affirmed the compromise between the city and the United Railroads.

Southern Pacific Company, San Francisco, Cal.—This company plans to extend its electric lines into Contra Costa County and has completed the survey and purchased the right-of-way for a line extending from one of the Berkeley branches through the foothills into San Ramon Valley, where it will connect with the steam line extending from Avon through Walnut Creek to Livermore.

Big Four Electric Railway, Tulare, Cal.—Right-of-way has been secured by this company and grading has been completed as far as Tulare. This line will connect Porterville, Lindsay, Tulare and Visalia. [E. R. J., April 19, '13.]

Visalia (Cal.) Electric Railroad.—This company plans to build about 1 mile of new track to the Redbanks Orchard Company's packing house in Exeter during June.

Jacksonville & St. Augustine Public Service Corporation, St. Augustine, Fla.—Work has been begun by this company in Ancient City on surveys over its right-of-way. This is part of a plan to build a 55-mile railway between Jacksonville and St. Augustine and a 16-mile branch from Jacksonville to Diego and Pablo Beach. Thomas R. Osmond, general manager. [E. R. J., March 8, '13.]

***Benton, Ill.**—Plans are being considered to build a 30-mile electric railway from Benton to Christopher, then south to Herrin and Johnson City. Among those interested are George C. Ferguson and F. S. Tainter, New York, and D. F. Darnell, Decatur.

Danville, Crescent City & Kankakee Traction Company, Crescent City, Ill.—This company has voted to increase the capital stock from \$10,000 to \$250,000. This line will connect Kankakee and Danville. E. E. Meyer, Crescent City, president. [E. R. J., June 14, '13.]

Freeport Railway & Light Company, Freeport, Ill.—Work has been begun by this company on the extension to Krape's Park.

***Springfield, Ill.**—The Capital City Park & Amusement Company, which operates the Zoo Park, announces that a separate company will be organized to build an electric railway through the park.

Clinton (Ia.) Street Railway.—This company is building about 1¼ miles of new track in Clinton from the "Frisco" depot to the Orient depot.

Topeka (Kan.) Railway.—This company has been asked to consider plans for an extension to Gage Park in Topeka.

***Lancaster, Ky.**—Plans are being made to build an electric railway from Lancaster to Richmond, via Marcellus, Bryantsville and other contiguous points. The promoters of the railway are said to have secured all of the necessary right-of-way and expect to obtain power from the proposed hydroelectric power plant of the Dix River Power Company.

Paducah (Ky.) Traction Company.—During the next two months this company will award contracts to rebuild 1¼ miles of suburban track, using 60-lb. rails laid on standard oak ties with gravel ballast.

Nahant & Lynn Street Railway, Lynn, Mass.—This company is double-tracking its line on Flash Road.

Muskegon-Casnovia Land & Development Company, Muskegon, Mich.—This company, which was organized to promote the building of an interurban railway between Muskegon and Saginaw, is considering plans for the purpose of selecting a tentative route for this line. [E. R. J., April 19, '13.]

Gulfport & Mississippi Coast Traction Company, Gulfport, Miss.—This company has purchased 60,000 lb. of copper wire and will make other improvements to its lines.

Jefferson City Bridge & Transit Company, Jefferson City, Mo.—Work has been begun by this company on the extension in the West End in Jefferson City.

Moberly, Huntsville & Randolph Springs Railway, Moberly, Mo.—This company has awarded the contract for the construction of its line to the A. J. Jennings Construction Company, Joplin. C. H. Dameron, Huntsville, president. [E. R. J., Feb. 22, '13.]

Springfield (Mo.) Traction Company.—Work has been begun by this company double-tracking its Talmage Street line in Springfield.

Great Falls (Mont.) Street Railway.—This company is constructing 4000 ft. of new track, with 6-in. T-rails in paving, to form a loop in the business section of Grand Falls.

Fallon (Nev.) Electric Railroad.—About 4 miles of grading has been completed by this company on its line between Fallon, Stillwater and Harrigan South. Storage battery cars will be used. Power will be obtained from the power company in Fallon. Capital stock authorized, \$500,000; issued, \$18,000. Officers: C. A. Hascall, president; A. R. Merritt, vice-president; A. E. Wilson, secretary; J. S. Harmon, treasurer, and H. Latten, chief engineer, all of Fallon. [E. R. J., April 26, '13.]

***Asbury Park, N. J.**—It is reported that plans are being considered to build an electric railway from Asbury Park to Freehold. Charles Leland, Asbury Park, is interested.

***Albuquerque, N. M.**—The Commercial Club is advocating the construction of an electric railway to connect Albuquerque, Bernalillo, Jemez Springs, Silla, Santa Anna, Alameda, Pajarito, Padillas, Isleta, Los Linas and Belen. The use of the McKeon motor cars has been suggested. E. J. Hall, Albuquerque, is interested.

Falconer, N. Y.—Surveys are being made to build a 55-mile electric railway between Falconer and Buffalo, via Ellington, Clear Creek, Leon, South Dayton, Wesley, Persia, Gowanda and thence extending parallel with the Buffalo & Southwestern Railroad to Hamburg. This line will connect with the Jamestown Street Railway at Falconer and with the Buffalo & Lake Erie Traction Company at Hamburg. The terminals will be at Falconer and at Hamburg. C. D. Meade is interested. [E. R. J., Nov. 23, '12.]

New York & Queens County Railway, Long Island City, N. Y.—Work has been begun by this company double-tracking its line across the causeway at College Point. The company received permission from the Public Service Commission, First District, to proceed with the work.

Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y.—Plans are being considered by this company to build an extension to the Fifth Ward in Amsterdam.

New York, Westchester & Boston Railway, New York, N. Y.—This company is now building about 1.2 miles of double track between New Rochelle and Larchmont.

Chardon, Jefferson & Meadville Railway, Cleveland, Ohio.—This company has awarded the contract for the preliminary surveys for its line between Chardon, Jefferson, Meadville and Cleveland to the Pease Engineering Company, Cleveland. It is stated that this company will use storage battery cars.

Middletown, Reading & Cincinnati Interurban Railway, Middletown, Ohio.—Financial arrangements have been completed by this company and plans are being made to begin soon the construction of its line to connect Norwood, Reading, Sharonville, West Chester, Monroe, Middletown, Germantown and Dayton. George T. Adler is interested. [E. R. J., May 31, '13.]

***Muskogee, Okla.**—Plans are being considered to build an electric railway between Muskogee and Oklahoma City, via Okmulgee, Shawnee and Tecumseh. The plan is to extend a branch a few miles east of Okmulgee to Sapulpa, thence to Tulsa, utilizing a short interurban line now in operation between these points. Among those interested are John W. Shartel, vice-president of the Oklahoma City Railway, and R. D. Long, general manager of the Muskogee Electric Traction Company.

Berlin & Waterloo Street Railway, Berlin, Ont.—This company has been authorized to double-track its line from Wellington Street to the Waterloo lines to Niagara Falls, Port Colborne and thence along the Lake Shore to Fort Erie, 45 miles. T. R. Cumming, Welland, chief engineer.

Niagara, Welland & Lake Erie Railway, Niagara Falls, Ont.—This company plans to build at once a 1-mile branch up North Main Street to Parkway Heights, Welland. This will involve the construction of a pile trestle over the Welland River. It is also proposed to build a branch along East Main Street to Rosedale and an extension from the Michigan Central Railway on South Main Street to the Dain Manufacturing Company's plant at Dainville. These lines will involve the crossing of the Grand Trunk Railway in the one case and the Michigan Central Railway in the other. An interlocking plant will be installed at the Grand Trunk Railway, but it has not yet been decided whether the Michigan Central Railway will be crossed at grade or by a subway. The company has power to extend its boundary line. The by-law provides for an expenditure of \$30,000.

Ottawa & St. Lawrence Electric Railway, Ottawa, Ont.—The Ontario government has authorized this company to increase its capital stock to \$5,000,000 and to issue bonds for \$30,000 a mile. The government has extended the time for construction and allowed the company to acquire the North Lanark Railway shares, etc. A meeting of the shareholders was held at Ottawa on June 3 to approve of an agreement with the Ottawa & St. Lawrence Construction Company for constructing the line. It is also proposed to change the main office from Ottawa to Toronto. F. Iveson, Toronto, secretary. [E. R. J., Feb. 22, '13.]

Dunnville, Wellandport & Beamsville Electric Railway, Wellandport, Ont.—This company has nearly completed the grading on its line between Dunnville and St. Anns. Bridges have been built and ties have been laid for some distance. The line will connect at St. Anns with the Toronto, Hamilton & Buffalo Railway, and it is expected to have this section in operation by the fall. J. A. Ross, Wellandport, president. [E. R. J., Sept. 7, '12.]

Erroll Heights Railway, Portland, Ore.—This company, which is a subsidiary company of the Portland Railway, Light & Power Company, has completed its line from East Thirty-second Street and Knapp Street eastward 1½ miles to the old Milwaukee Road.

Portland, Eugene & Eastern Railway, Portland, Ore.—Work will soon be begun by this company on extensive improvements of its lines. Among the improvements will be a steel truss bridge over Mill Creek at the North Commercial Street crossing, and numerous curves will be eliminated on North Commercial Street. Grading for the line between Monroe and Eugene has been completed and the trestle in Long Tom Bottom is being erected. There will be twenty-six trestles on the 22-mile line. The work will be done under the supervision of J. W. Hall, assistant engineer. The company also plans to build an electric line from Albany to Independence.

East Berlin, Pa.—The citizens of East Berlin have voted stock subscriptions amounting to over \$20,000 for the construction of an electric railway in East Berlin. This is part of a plan to build an electric line between East Berlin and York, via Weiglestown and Taxville. Surveys will soon be made. [E. R. J., Feb. 22, '13.]

West Penn Traction & Water Power Company, Pittsburgh, Pa.—Surveys are being made by this company in Avonmore for the extension of its Avonmore, Salina & Apollo Street line.

Quebec (Que.) Rapid Transit Company.—The Canadian House of Commons has authorized this company to construct electric lines from Quebec in an easterly direction through Limoilou and Beauport, thence northerly through Charlesbourg, Rivière Jaune, Lake St. Charles and Indian Loretto, also taking in Ste. Foy, Cap Rouge and Montcalmville. Another line will run from St. Grégoire to Ste. Anne de Beaupré, crossing thence the St. Lawrence to the island of Orléans and circling the island. The company is also empowered to construct a bridge from the north shore to the island. The capital stock is \$1,000,000. [E. R. J., Jan. 11, '13.]

Chattanooga Railway & Light Company, Chattanooga, Tenn.—Grading has been completed and rails are being laid by this company on its extension to Walden's Ridge.

Nashville Railway & Light Company, Nashville, Tenn.—This company has been asked to extend its line 1½ miles from Eastland Avenue, Nashville, to Rock City.

Guadalupe Valley Railroad, Seguin, Tex.—This company, the Central Texas Traction Company and the Guadalupe Water Power Company announce that they are considering construction, and that all inquiries should be forwarded to Seguin, Tex.

***Charlottesville, Va.**—Surveys are being made for the construction of an electric railway from Charlottesville to Alberene, 12 miles. It is planned to connect this line with the branch of the Chesapeake & Ohio Railway from Warren to Alberene. The cars will be run by storage batteries.

***Anacortes & Eastern Railway, Anacortes, Wash.**—This company plans to build a 50-mile railway from Anacortes across Whidby Island, crossing Deception Pass and through Oak Harbor, Coupeville and Langeley. Right-of-way is being obtained. J. I. Buchanan and J. L. Wirtz are interested.

Willapa Harbor Railway, Olympia, Wash.—Plans are being made to begin surveys for a line from Raymond to Menlo at once.

Puget Sound Traction, Light & Power Company, Seattle, Wash.—Plans are being considered by this company to build a line from Puyallup to Sumner, thence to Bluff, where it will join the main line to Seattle.

Grafton (W. Va.) Traction Company.—It is reported that surveys are being made by this company to build a connecting line on St. Mary's Street in Grafton.

***Lancaster, Wis.**—Thomas McDonald, Lancaster, and associates are considering plans to build a 65-mile electric railway from Lancaster to Stockton.

SHOPS AND BUILDINGS

Calgary (Alta.) Municipal Railway.—This company plans to build a new yard room and improve its shops and buildings in Calgary.

Sandpoint & Interurban Railway, Sandpoint, Idaho.—It is announced that this company plans to build a one-story brick building on Second Street and Main Street in Sandpoint for terminal office purposes.

Louisville (Ky.) Railway.—This company is adding to its carhouse equipment at Eighteenth and Walnut Streets in Louisville, having recently purchased a 26-ft. Aurora drill. Other machine tools will be purchased for installation at the new carhouses at Twenty-ninth Street and Garland Street.

Paducah (Ky.) Traction Company.—During the next two months this company will award contracts to rebuild its present carhouse, retaining a small portion of the old structure, but erecting an entirely new machine shop and storage shed.

St. John (N. B.) Railway.—This company plans to build an additional carhouse on Wentworth Street and to install four additional sidings in St. John.

Middle Tennessee Traction Company, Franklin, Tenn.—This company plans to build soon its new repair shops in Franklin. P. E. Cox, Franklin, general manager.

Southern Traction Company, Dallas, Tex.—Plans are being considered by this company to build a new carhouse on North Fourth Street in Waco.

POWER HOUSES AND SUBSTATIONS

Pacific Electric Railway, Los Angeles, Cal.—This company will add to its substation equipment four 1000-kw two-bearing motor-generator sets, which will be built and installed by the General Electric Company.

Oakland, Antioch & Eastern Railway, Oakland, Cal.—This company has placed an order with the Westinghouse Electric & Manufacturing Company for one 750-kw synchronous motor-generator set consisting of one 11,000-volt, three-phase, 60-cycle motor and one 11,000-volt D.C. generator.

Peninsula Railway, San José, Cal.—During the next few weeks this company expects to purchase one 300-kw generator for its Los Altos substation and one 300-kw generator for its Alum Rock substation.

Rome Railway, Light & Power Company, Rome, Ga.—This company, which has been operated for some time with current from the hydroelectric power station of the Tennessee Power Company on Ocoee River, now has additional service of this character, having arranged for current from the plant of the Georgia Power Company, which was recently opened.

Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind.—This company has awarded the contract for building an addition to its Spy Run power house in Fort Wayne to the Adams Construction Company, Chicago. The structure will be 140 ft. x 34 ft.

Manhattan City & Interurban Railway, Manhattan, Kan.—This company has placed an order with the Westinghouse Electric & Manufacturing Company for one 300-kw, 600-volt D.C., three-phase, 60-cycle, 1200-r.p.m. self-starting rotary converter and one 200-kw, 600-volt D.C., three-phase, 60-cycle, 1200-r.p.m. self-starting rotary converter, three 110-kva, 33,000-volt, single-phase, 60-cycle O.I.S.C. transformers and three 75-kva, 33,000-volt, single-phase, 60-cycle O.I.S.C. transformers and two two-panel switchboards, also one outdoor-type transformer substation consisting of a steel tower on which will be mounted three 37½-kva, 33,000-volt, 220-to-110-volt, 60-cycle O. I. S. C. transformers.

Detroit (Mich.) United Railway.—This company has placed an order with the General Electric Company for a new 7500-kw Curtis turbo-alternator with a 100-kw motor-driven exciter and three 40-kw transformers.

Lake Shore Electric Railway, Cleveland, Ohio.—This company's power house and waiting rooms at Berlin Heights were destroyed by fire on June 16. The loss is estimated to be about \$25,000.

Mansfield Railway, Light & Power Company, Mansfield, Ohio.—This company has placed a contract for two 500-kw rotary converters for its power house in Mansfield.

Portland Railway, Light & Power Company, Portland, Ore.—This company has placed an order with the Westinghouse Electric & Manufacturing Company for one 500-kw synchronous motor-generator set consisting of one three-phase, 60-cycle, 720 r.p.m. motor and 600-volt D.C. generator with direct-connected exciter and starting apparatus.

Manufactures and Supplies

ROLLING STOCK

Regina (Sask.) Municipal Railway expects to build several cars in its own shops.

York (Pa.) Railways is building one car in its own shops and is reported as expecting to purchase four more.

Peninsular Railway, San José, Cal., is in the market for eight interurban cars and one combination freight-and-express car.

Edmonton (Alta.) Radial Railway has ordered twenty-five single-truck semi-convertible cars from the Preston Car & Coach Company.

Sioux City, Crystal Lake & Homer Electric Railway, Sioux City, Ia., is in the market for one single-truck motor car and one trail car.

Johnstown (Pa.) Passenger Railway has ordered five 28-ft. pay-as-you-enter motor cars mounted on 27-GE-1 trucks from the G. C. Kuhlman Car Company.

Toledo Railways & Light Company, Toledo, Ohio, has ordered thirty double-end motor cars from the McGuire-Cummings Manufacturing Company.

A. C. Torbert, First National Bank Building, Chicago, Ill., is in the market for one 70-ton locomotive for Eastern delivery, two 20-ton or 25-ton locomotives for delivery in Ohio and two 35-ton locomotives for Western delivery. These locomotives may have either alternating-current or direct-current motors.

Springfield (Mass.) Street Railway, noted in the ELECTRIC RAILWAY JOURNAL of March 29, 1913, as having ordered six 30-ft. 3½-in. closed cars from the Wason Manufacturing Company, has specified the following details for these cars: Seating capacity.....44 Curtain fixtures,

Weight (car body only),	19,000 lb.	Keeler Eccentric
Length of body...	30 ft. 2¼ in.	Destination signs....Hunter
Length over vestibule,	39 ft. 8½ in.	Fenders
Width over sills...	8 ft. 2¾ in.	Gongs.....Brill Dedenda
Width over all.....	8 ft. 6 in.	Hand brakes.....Peacock
Height, rail to sills,	2 ft. 8¼ in.	Heaters
Sill to trolley base...	8 ft. 9¼ in.	Headlights
Body	wood	Motors.....4 G.E. 80
Interior trim.....	mahogany	Paint
Headlining	agasote	Sanders
Roof	monitor	Sash fixtures.....
Underframe	composite	Seats.....H. & K.
Car trimmings,	oxidized bronze	Seating material....
Curtain material...Pantasote		Step
		Trucks
		Varnish
		Ventilators
		Wheels...34-in. forged steel

Ohio Valley Electric Railway, Huntington, W. Va., has specified the following details for the ten prepayment closed cars which it recently ordered from the St. Louis Car Company:

Seating capacity.....	52	Curtain material...Pantasote
Bolster centers, length,	26 ft. 7 in.	Destination signs.....
Length of body...	50 ft. 7 in.	Gongs
Length over vestibule,	49 ft. 7 in.	Hand brakes.....
Width over sills...	8 ft. 4½ in.	Heaters
Width over all.....	8 ft. 8 in.	Headlights
Height, rail to sills...	35¾ in.	Journal boxes....
Sill to trolley base...	8 ft. 11 in.	Motorman's stool,
Body	composite	E. S. Sup. Co.
Interior trim,	polished bronze	Registers,
Headlining	agasote	Rec. Reg. F. Box Co.
Roof	turtle-back	Sanders
Underframe	steel	Sash fixtures.....
Bumpers,		Seats
Hedley anti-climber		Seating material....
Car trimmings.....	St. L.	Step treads.....
Couplers	Tomlinson	Trolley catchers...Keystone
Curtain fixtures...Cur. S. Co.		Trucks
		Wheelguards
		Wheels...34-in. rolled steel

TRADE NOTES

Tilsonburg Electric Car Company, Ltd., Tilsonburg, Ont., has been organized to manufacture cars, snow sweepers, etc.

Grip Nut Company, Chicago, Ill., has moved its general offices from the Old Colony Building to 661 McCormick Building.

The J. G. Brill Company, Philadelphia, Pa., has received an order from the Wilkes-Barre (Pa.) Railway for two 27-M. C. B. special trucks.

Star Brass Manufacturing Company, Boston, Mass., has opened an office in Chicago, Ill., at No. 6 East Lake St. Arthur F. Mundy, Western representative, has been appointed manager of this office.

Baker Motor Vehicle Company, Cleveland, Ohio, recently received an order from the Northern Ohio Traction & Light Company, Akron, Ohio, for one tower wagon and a 1-ton and a 2-ton line truck, equipped with "Ironclad" batteries.

Canadian General Electric Company, Ltd., Toronto, Ont., has placed John S. MacLean, of Montreal, Que., in charge of its publicity and advertising. Mr. MacLean will also have charge of a similar line of work for the Canadian Allis-Chalmers Company, Ltd.

Buckeye Steel Castings Company, Columbus, Ohio, has appointed J. G. Bower manager of its New York (N. Y.) office, which it will soon open. Mr. Bower was formerly sales manager of the Hale & Kilburn Company, Chicago, Ill., which position he resigned a few weeks ago.

Curtain Supply Company, Chicago, Ill., has received recent curtain orders from the following railways: Meridian Light & Railway Company, Meridian, Miss.; Lookout Mountain Railway, Chattanooga, Tenn.; Toronto (Ont.) Suburban Street Railway; Calgary (Alta.) Street Railway and the Jefferson County Traction Company, Beaumont, Tex.

Pyrene Manufacturing Company, New York, N. Y., has received recent orders for its fire extinguishers from the Claremont Power Company, Cavendish, Vt.; the Great Shoshone & Twin Falls Water Power Company, Twin Falls, Idaho, and an additional order for 100 extinguishers from the New York Central Railroad.

Atlas Preservative Company of America, New York, N. Y., has received an order from the New York State Railways, Rochester, N. Y., for its "Atlas-A" weed killer, to be applied to 29 miles of track. The chemical is being shipped in a regular tank car, while a sprinkling car is also being sent by the company, from which to apply the liquid.

Lord Manufacturing Company, Brooklyn, N. Y., has received an order for its lightning arrester equipment from the Queensboro & Manhattan Street Railway. The multi-vapo-gap arresters and the drive hydroground are called for in the specifications. The Cedar Falls, Waterloo & Northern Railway has also ordered the multi-vapo-gap arrester for its 1913 extensions.

Electric Service Supplies Company, Philadelphia, Pa., has placed on the market a trolley car adapter known as the type RB. This adapter has been very popular in mining work for use in supporting grooved trolley wires after the groove has been badly worn or the wire twisted, owing to the fact that the wire is used a number of times and its location frequently changed. These adapters are used in connection with standard three-screw, 5-in. clamp ears and are also used by railway companies for emergency work. They are made for grooved trolley wire of all sizes and for any standard screw clamp ear.

Theodore Hardee has been appointed chief of the liberal arts department of the Panama-Pacific Exposition, to be held in San Francisco, Cal., in 1915. Mr. Hardee has had wide experience in exposition practice. He was assistant to Walter B. Stevens, who was the general secretary and also director of exploitation for the St. Louis World's Fair of 1904. Prior to the opening Mr. Hardee spent considerable time abroad, circling the globe as special commissioner with John Barrett, the commissioner-general for foreign countries. While in St. Louis he also acted as St. Louis representative for the Lewis and Clark Exposition, at Portland Ore. Mr. Hardee first became associated with this exposition in a voluntary capacity during 1910.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., has maturing between June 23 and Sept. 27, this year, a total of \$7,500,000 of 6 per cent collateral notes. Although final plans are not ready, part of these will probably be permanently retired through the sale of collateral and the balance refunded. The company has written down its foreign investments to a point where not more than \$1,500,000 remains to be charged off. A very interesting fact has been the steady decrease in the item of royalties due to the dissolution of the patent pool with the General Electric Company. These royalties in 1911 were \$628,177. By March 31, 1913, two years later, they had dwindled to the insignificant total of \$53,768, a decrease of nearly \$600,000, equal to more than 1½ per cent on the common stock.

Monarch Brake Company, Cumberland, Ohio, has recently made an improvement in the engaging principle of the "Monarch" worm-gear hand brake. The cam used in place of the grip-eccentric levers, which carries out the same automatic principle and makes a positive lock at any point, follows up all lost motion caused by wear or strain and holds the worm and gear wheel in perfect mesh when the heaviest pull is on. The torsion spring on the cam automatically re-engages the worm and gear wheel by forcing the cam against a roller concealed in the stem of the movable worm bearing. To release the brake for starting the car, or for operating from opposite end, the handle of the cam is pressed down, which disengages the gear by pulling against two small lugs on the end of the stem back of the rim on the cam. To hold the gear disengaged the pin is placed through the hole in the cam, which is held in position by a set-screw, giving it 1-in. travel.

Union Switch & Signal Company, Swissvale, Pa., has received the contract from the Butte, Anaconda & Pacific Railway, Butte, Mont., recently electrified at 2400 volts, for the installation of alternating-current block signals to be installed on 7 miles of single track on its smelter line, at the Anaconda Mines, Mont. The double-rail return scheme of track-circuit arrangement is being supplied, and the entire signaling system, including signals, switch indicators and track circuits, will operate and be controlled by alternating current. This will be distributed throughout the territory at 2080 volts, single-phase, 60 cycles, transmitted over two No. 8 bare copper wires carried on the pole line. The installation includes a total of sixteen one-arm style "B" signals, which are being arranged to clear at 60 deg. in the upper quadrant, left-hand indication. These signals are of the same design as those which have been installed on the Illinois Traction Company's line during the past two years.

ADVERTISING LITERATURE

Electric Service Supplies Company, Philadelphia, Pa., has printed a catalog on its "Protected" rail bonds and appliances.

Monarch Brake Company, Cumberland, Md., has issued a small booklet illustrating and describing its worm-gear hand brake.

Guy Morrison Walker, New York, N. Y., has published an article on "Reorganization as a Branch of Trust Company Business."

De Laval Steam Turbine Company, Trenton, N. J., has issued Catalog C, which illustrates and describes its velocity-stage type steam turbine.

Ohio Brass Company, Mansfield, Ohio, has issued a folder illustrating and describing its type D trolley frog, which is made either of all bronze or with a malleable iron pan and bronze tips.

Joseph Dixon Crucible Company, Jersey City, N. J., has issued *Graphite* for June, 1913. Among the feature articles are the following: "Graphite in the Boiler" and "Phoenix Bridge of the Beebe Trolley System."

Sprague Electric Works, New York, N. Y., have issued Bulletin No. 521, which illustrates and describes their steel armored hose and also contains several views of this hose installed on different types of cars.

Chicago Pneumatic Tool Company, Chicago, Ill., has issued Bulletin No. 127, illustrating and completely describing its pneumatic drills, reamers, wood borers, flue rolling and tapping machines and grinders.

Steel Car Forge Company, Pittsburgh, Pa., has issued a folder describing its combination brace tie plates. The folder also contains a large track view taken on one of the lines of the Public Service Railway, Newark, N. J., which shows these braces installed.

Ohmer Fare Register Company, Dayton, Ohio, has issued a folder describing its improved rapid transit equipment, operating the Ohmer fare register. The folder also contains illustrations of this equipment installed in cars of the People's Railway Company, Dayton, Ohio.

Kelsey, Brewer & Company, Grand Rapids, Mich., have published in pamphlet form an article by Joseph H. Brewer, vice-president and general manager of the American Public Utilities Company, on "Public Utility Companies, Their Construction, Financing and Management."

Drew Electric & Manufacturing Company, Indianapolis, Ind., has issued a folder describing its I. B. C. motorman's mirror for both open and closed cars, with views of how it is applied and the vision it gives the motorman of the full length of the car without his having to change his position.

Locomobile Company of America, Bridgeport, Conn., has issued a folder entitled "A Universal Catalog of Five-Ton Trucks." The folder, in addition to illustrating and describing its own truck and power-operated demountable dumping body, contains a table giving the specifications of all the leading makes of trucks.

Standard Underground Cable Company, Pittsburgh, Pa., has printed Bulletin No. 700-1 on outdoor cable terminals. The bulletin contains twenty-eight pages of descriptive matter, illustrations and tables of dimensions, voltages, weights, etc., together with instructions for ordering and installing these outdoor cable terminals.

Brown Hoisting Machinery Company, Cleveland, Ohio, has issued a very attractive catalog containing a general description of the Brownhoist locomotive cranes, portal-pier cranes, traction cranes and work-car cranes, showing by numerous illustrations how the cranes are used by contractors, manufacturers, railways, shippers, etc.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., has printed a book entitled "Resuscitation," by Dr. Charles A. Lauffer, medical director of the company. The book includes a reprint of a paper on this subject delivered by the author before the Philadelphia Section of the National Electric Light Association. The author, after explaining a number of successful results which have been obtained from employing resuscitation methods on men who were supposedly dead, gives a clear description of the mechanism of respiration, illustrating this by a number of anatomical views. The prone pressure or Schaefer method of resuscitation, which has been adopted by the National Electric Light Association and a number of other technical societies, is described in detail. This book brings out in a concise manner the necessity of general acquaintance with principles of resuscitation and clearly shows how these can be learned so as to prove valuable to persons in the ordinary walks of life.

NEW PUBLICATION.

The Solution of Railroad Problems by the Slide Rule. By E. R. Perry. Cloth, 136 pages. New York: D. Van Nostrand Company. Price, \$1 net.

This work was developed for the purpose of enabling engineers to solve problems in railroad curves with ease and rapidity by the use of the slide rule. It is intended primarily for the convenience of those who have studied railroad curves and also the theory of the slide rule. The author, however, devotes a chapter to the use and principles of the slide rule and also one to the theory of simple railroad curves. From these he develops a series of problems which are solved by typical slide-rule methods, including not only the laying out of curves but also the necessary work involved in changing actual installations in any desired manner. Chapters on the compound curve, the vertical curve, turnouts, the easement curve and on estimates of earthwork are included, and in addition a number of tables applicable to this class of engineering work are given at the end of the book.