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### The Electric Train of the Future

New York has been termed the city of troglodytes, but if the predictions of Walter G. Oakman, president of the Hudson Company, come true, the future city will be one of moles. Mr. Oakman believes that the new rapid transit tunnels between New Jersey and New York are simply the precursors of a series of similar tubes, and that the time is soon coming when the rivers and waters around the city will be almost as thickly interlaced with tunnels as the

streets of New York are at present with subways and elevated railroads. The prediction does not seem at all unreal, and some of the New York papers in commenting upon it express the belief that these modern methods of transit present an excellent subject for the lyric poet. Certainly, there is enough of the weird and novel about underground travel to appeal to poetic imagination. As yet none in this country seems to have realized the opportunities presented, but not so abroad, where the ambitious electric railway projects in many of the European capitals have inspired varied speculations on the possibilities of the future. Among those which have been put in verse is one in the *Lustige Blätter*, of Berlin. According to this account, the electric train 50 years hence will not only enable one to commence his breakfast in Hamburg and finish it in Berlin, but will also provide the passengers on the train with a gymnasium, Turkish baths, tennis courts, opera recitals and every other luxury of a first-class hotel. Even a crematory will be available for those who wish to use one while in transit. The broomstick train of Holmes has become a classic, and it remains for some successor of his to chronicle the achievements of the high-powered electric car.

### Riding in the Motorman's Vestibule

The Northern Ohio Traction & Light Company, by a new rule, has cancelled all permits to ride in the front vestibules of cars, and now restricts this privilege to a very few, comprising the general officials concerned with the operation of the road and, in addition, the division superintendents in the districts for which they are responsible. It is provided in the rule that no other than these shall be permitted to ride in the vestibule except by special authority from the general manager or general superintendent. All precautions that can be taken to prevent motormen from talking to a passenger on a car are in the interest of safe operation of the property, and there should be a clear appreciation of this fact by employees. More than one motorman has paid with his life for non-observance of regulations of this character, and the danger of relaxing from strict compliance ought to be understood by trainmen so well that discipline, for violation of this rule, at least, would not have to be administered. The proportion of accidents occurring where two men were in the motorman's vestibule is large. Success in the operation of interurban electric roads lies in the movement of cars at frequent intervals, with only a short period of space between, affording a service that meets the convenience of the public, in sharp contrast to the poor service offered by the steam lines for short hauls in most districts where electric properties have been able to develop a large traffic. The large number of trains required in electric service means increased responsibility, both of management and employees, and their co-op-



eration in all matters pertaining to safety of operation is needful in order that the necessities of the public for improved transportation facilities may be met.

### Improved Service in Cleveland

The statement issued by Mr. Bicknell, receiver of the Municipal Traction Company and the property of the Cleveland Railway Company, showing the increased number of car-miles run as compared with the record while Mayor Johnson and his associates were in control of the property, is evidence of an improvement which is appreciated in that city. Among the changes those in the routing of cars from the peculiar methods followed one year ago are of fully as much importance and value to regular riders, as well as to visitors in the city. Under the scheme of routing adopted during the temporary control of the railway system by Mayor Johnson last year, no car, for instance, was operated directly from the Union depot in Cleveland to the leading hotel. A line now is run directly between these two points, and it receives a paying short-haul traffic, some of which was probably lost under the other arrangement to bus and carriage companies. Other changes of equal or greater importance have been made. After the referendum of last fall the people of Cleveland made an emphatic demand for good service before low fare, and the receivers who were appointed used the equipment at their command, some of which had remained idle in car houses while the experiment was made with inefficient service and a juggled fare that purported to be 3 cents, but was increased for many riders in various ways to a figure above that which the old company had charged previously.

### Work of Association Committees

As readers of this paper know, a feature of the work of practically all of the street and interurban railway associations this year is that being done by different committees. Formerly it was the practice to assign to individuals the preparation of papers to be read at the annual conventions, but lately this plan has given place to committee work, and this year all of the committees have been very active, and have been meeting in different cities of the country. If the subject is one on which testimony of manufacturers is desired, they are invited to attend the meeting and offer suggestions, and in other ways every step is taken to secure all the information available. This plan involves a great deal of labor and considerable traveling on the part of the members of the committee, because to secure wide experience they are usually chosen from different sections of the country. Through the permission of the various chairmen, summaries of the work accomplished at these different committee meetings have been published in this paper, so that the member companies have been able to follow in a general way the work being done at the meetings and, if they desire, make suggestions or contribute additional information before the final reports of the committees are prepared. Too much credit cannot be given to the members of the committees for the painstaking work which they have given, often at great personal sacrifice, to the work of the association during the past year, and nothing is more indicative of the virility and value of the association to its members than this committee work.

### Proposed New British Coin

The relation between the system of coinage used in a country and the prosperity of its street railways is more intimate than many realize. We have already commented upon the fortunate circumstance, so far as the street railway companies in the United States are concerned, that there is no single coin of a value between 1 and 5 cents, and that the latter coin about corresponds to the fare which the experience of the past has shown is necessary to charge as a universal fare on a city system. The relation between coinage and street railway fares is now attracting considerable attention in Great Britain, owing to the proposal to adopt a new British coin with a value of 1.2 pence, or 2.4 cents. At present there is no coin in England between 3 pence and 1 penny, so that, as a rule, the street railway systems are divided into penny zones, although there are occasional subdivisions of  $\frac{1}{2}$  penny,  $1\frac{1}{2}$  pence and  $2\frac{1}{2}$  pence zones. As street railway enterprises have never prospered greatly in Great Britain, it is plain that if the average fare could be increased by 20 per cent by adding 0.2 pence to each penny fare it would be of considerable assistance. We are somewhat surprised, however, at the proposal to introduce the decimal system, on this very small scale, into the British system of coinage, which does not recognize it elsewhere. If any new coin should be adopted it would seem that one with a value of  $1\frac{1}{4}$  pence would be much more in harmony with those now in use, as it would be a penny plus a farthing, and while its use would still require the zone system of fares, it would increase the average fare 25 per cent above the present rate, or 5 per cent more than that proposed.

### The Decisive Defeat in Cleveland

Rejection of the Schmidt franchise by the voters of Cleveland on Aug. 3 is the second decisive defeat which Mayor Johnson has received at their hands. The reasons which influenced the vote against the franchise vary in individual instances, but it is plain that the events that have occurred since the leasing plan went into effect in 1908 have made a lasting change in public sentiment. It would be an astonishing fact if this reversal of opinion had not taken place; the extraordinary part of it is that it was not more overwhelming than the results of the referendum on Tuesday indicate.

Mayor Johnson's record with the street railway situation in Cleveland has been less in fulfillment than in promise, and when he offered to do with the Schmidt franchise something like what he had agreed to perform if given control of all the lines, the recollection of his signal failure of last year was too fresh in the minds of the people to be forgotten. In no one part of the program of attack upon the street railway interests which has been the foundation of Mr. Johnson's policy has the opposition been so united, or so nearly representative of all elements of the city as in the contest just closed. None of the leading daily newspapers has supported the franchise; of the two prominent newspapers that previously gave their support to the street railway policy of the executive of the city, one did not express itself editorially with respect to the measure and the other denounced it as not in the interest of the people of Cleveland. With leading civic bodies and



the labor element arrayed against the scheme to start a new independent line, and the facts made clear by the citizens' committee, the forces opposing the acceptance of the franchise could not be overcome, despite the political resourcefulness of Mayor Johnson.

Prediction concerning the future acts of a character like Mayor Johnson may appear dangerous, because it may not be borne out by subsequent developments, but the consensus of opinion is that the defeat of the Schmidt franchise marks the beginning of the end of any effective war of the city administration of Cleveland upon the street railway system. The most potent factor in the decision registered at the polls on Tuesday was the failure of Mr. Johnson to square his acts with his promises and his repudiation of agreements and refusal to accept peace when it was offered; in the rejection of this franchise he has received what he deserved.

What the effect of this referendum will be upon the contracts which will presumably be made now with the Cleveland Railway Company the future will show; but the people of the city should know, if they have not already learned, that no franchise will yield results in service that can be permanently successful if it does not provide protection for the property rights involved and a fair return on the investment.

### No Legal Obligation to Provide Seats

A common experience of railway companies in handling holiday crowds has been their inability to give all passengers a seat. These conditions have almost invariably been accepted without discussion, but not so with a woman named Weeks, in New York State, who recently brought suit against the Auburn & Syracuse Electric Railway Company for injuries alleged to have been sustained by a failure to give her a place on the car to sit down. On Memorial Day she held a ticket entitling her to ride between two cities on the road, and as she boarded a car the crowd entering at the same time was so great that she was unable to get a seat. She was prevented from leaving the car on account of the crowd, was swayed about without any supports for her hands or arms, and was compelled to ride in this manner to her journey's end. Owing to the crowded condition of the car and the jostling and fatigue incident thereto, her health was said to have been very seriously impaired. The defense was that the situation complained of was the ordinary case of a crowded street car, caused by the fact of increased holiday travel, and the large number of passengers who insisted on returning on the first car. The verdict was for the plaintiff, and the company prosecuted a successful appeal. The judgment was reversed on the merits, the court saying that if the failure of the defendant company to furnish more cars so that the plaintiff could have a seat was not negligence, it could not be charged. If the company had provided sufficient cars to furnish her with a seat, the basis upon which the action arose would have had no inception. The action was for negligence, which has been defined as "a violation of the duty to exercise care."

The Onondaga County Judge in his opinion states:

There was no obligation on the part of the company to transport all the passengers who sought conveyance upon the car in which the plaintiff rode. There can be no possible violation of a duty in the fact that a car built to ac-

commodate 50 passengers would not seat 100. Suppose there were a dozen cars awaiting passengers, and suppose all the people seeking transportation crowded into one car. I take it in such case no claim could be made for negligence in failing to furnish these people with a seat. Other questions might arise, if one received injuries; but I am confining myself strictly to the question of failure to furnish a seat. \* \* \* In the absence of proof of failure of the company to furnish other cars, and in view of the affirmative proof that they did furnish additional cars, upon this ground alone the claim of the plaintiff must be denied. The negligence of the defendant not being shown, no question of contributory negligence arises.

Another interesting feature of the case was the decision that the plaintiff waived any claim she might have had against the company by not declining to give up her ticket and upon the first opportunity to leave the car and hold the company liable for breach of its contract to convey. It has been held in at least four States (Missouri, Tennessee, Arkansas and Minnesota) that she could not refuse to surrender her ticket and ride free. The four cases above mentioned hold that a passenger cannot accept part performance and refuse to pay. By the doctrine of waiver, the plaintiff was held, by taking passage in the car in which it was a physical impossibility for the defendant to give her a seat without committing trespass upon other passengers with equal rights, and remaining upon such car, to be precluded from asserting that she had a right to a seat. As the court well said:

She paid her fare with a full knowledge of the situation, and accepted it as it was, with its attendant inconveniences, precisely as a first-class passenger might accept a seat in a second-class car. The duty the company then owed to the plaintiff was the duty it owed to a passenger who had contracted to ride standing in one of its cars. Had the plaintiff received injuries occasioned by such carriages interesting questions might be presented.

Negligence, it was remarked, could no more be predicated in such a case upon the fact that a passenger rode standing and became fatigued and faint than from the fact that a passenger who was seated became nauseated by the movement of the car. The maxim, "That to which a person assents is not esteemed in law an injury," applies. The opinion is so logical and convincing that we feel safe in saying that it not only terminated this particular case, but discouraged further litigation of the same sort. We find no record of a further appeal being taken to the higher court from this decision of the intermediate appellate tribunal.

### Concerning the Size of Cars

During the last few years the street car has been gradually increasing in dimensions, as our readers well know, until the time has come when it may be worth while to consider whether the limit of useful size has not been reached or even passed. Undoubtedly the cars of a decade ago were many of them too small for comfort and for economy. A long car and a short car alike require two men. The long car unquestionably takes a good deal more power than the short one, but seats more passengers, so that the total cost of operation with reference to capacity is large to a certain point in favor of the long car. Hence the long and heavy car has been introduced to an astonishingly wide extent even on comparatively small roads. Without attempting to pass finally upon the merits of the subject we would like to raise the question as to whether the long car business has not been overdone, especially when we consider that



they are undeniably hard upon the track. This item of increased cost must in a measure compensate for the increased economy with respect to the car crew; to what extent has not yet been sufficiently determined. If upkeep and replacements of track were duly charged in when costs of long and short cars are compared the results might be somewhat different from those now obtained.

Another phase of the matter relates to the character of the service. It is a fact familiar to street railway men that a large amount of riding, particularly in summer, is dependent on pleasure rather than on necessity. If the introduction of long cars with great carrying capacity is associated with even slightly less frequent service the amount of such pleasure riding is liable to be diminished. People who are using cars as a necessary convenience in going to their business use them in a great measure independent of the frequency of the service; at least they are dependent upon the street cars until the service gets thoroughly bad in point of frequency. Where, however, the riding is for pleasure or for convenience rather than from necessity a given hourly capacity obtained by the use of very long cars is certainly less efficacious in securing traffic than the same capacity obtained by a greater number of smaller cars run more frequently. It is very difficult to make quantitative estimates, but it is certainly true that a 10-minute service would get more passengers than a 15 or 20-minute service by an amount often sufficient to pay the extra cost of the more frequent service. Where passengers ride as a matter of choice rather than of necessity small inconveniences count against traffic. Another very practical point in a comparison between long and short cars is that, contrary to a common hypothesis, the former are not necessarily the easier riding cars, providing both are double-truck cars.

The severe requirements of the heavy and fast interurban cars in the matter of track are well known and the general situation is such that we are inclined to think that a good many electric roads might well ask themselves the question: Is this a street railway or a high-speed railroad line? With respect to the long interurban lines there can be little doubt. They are railways pure and simple for all practical purposes, and most of their troubles are owing to insufficient realization of this fact. Only recently we had occasion in these editorial columns to call attention to the necessity of keeping up railway methods and railway discipline as a preventive of accidents. On the other hand, a great many roads, while covering considerable distance and carrying many passengers, are still in their functions street railways. This condition is particularly common in the roads which have a very large and profitable summer business. It is in such cases as these that we are disposed to think the long car, particularly of the semi-enclosed type, has been somewhat overworked. No business save that of selling newspapers depends on so small independent dealings with patrons as the street railway business and none is so sensitive to temporary inconveniences. It therefore seems to us that it would be well to look a little more carefully than is usual into the limitations of the long and heavy car as applied to street railways in general. The interurbans can take care of themselves along an entirely different direction of progress.

### The First Two Years Out of School

This is the season of the year when the annual crop of technical graduates is being assimilated by the manufacturing and operating companies. The next two years will be spent in learning the nature of a working day and in building up the tissue which seems necessary to connect the school training with the after business life. The practice of devoting about two years to this process has become general, presumably because it is necessary. The manufacturing companies have developed regular apprentice courses and the public service corporations of all kinds are also rapidly following the same course. Even selling organizations find it necessary to have what may be termed "training departments," to teach the technical end of the business.

In view of these facts it is somewhat surprising that men like Fred W. Taylor, ex-president of the American Society of Mechanical Engineers, and C. B. Going, editor of the *Engineering Magazine*, should believe it possible to prepare a young man to become a profitable employee immediately after graduation. This opinion was expressed before a recent convention of the Society for the Promotion of Engineering Education. Mr. Taylor stated in substance that employers would have nothing to do with recent technical graduates if they could help it. He prefers to have others do the "breaking in." Mr. Going's observation leads him also to conclude that the "schools are headed in the wrong direction" in not preparing young men more directly for the environment in which they are to earn their livelihood. Mr. Taylor advocates a year of practical work immediately after the first year of the college course, while Mr. Going recommends a closer connection between the schools and practice—an endeavor to surround the schools with an industrial atmosphere.

It would appear to be a fair question for investigation by the Education Committee of the American Street & Interurban Railway Association, whether the apprentice courses now being developed by the progressive railway companies of the country are intended to overcome the defects of the school training or whether they form a natural and necessary supplement to it. There is no doubt that if the schools can turn out engineers, designers, shop superintendents, etc., it is desirable that they should do so. It is, however, very difficult to see how this can be accomplished. These men must be developed amid commercial surroundings, and each must seek and find the place in which he can grow best. Obviously the school cannot be transplanted into the shop or power house. If it could, the distractions would prove too great to permit the needed concentration upon the educational routine. Neither can the commercial atmosphere be carried to the schools to a very great extent for the same and other reasons. A school education should be general; practice is specialized. Only enough practical work should be present in the curriculum to serve as illustration for the fundamental principles. As a proof that this contention is correct, attention is called to the fact that among the technical schools which have a reputation for turning out "practical" graduates some of the best are located hundreds of miles from an important industrial center. These schools do not endeavor to prepare for vocations, except in a general way. They leave



that responsibility to the employers who should be and are willing to "shoulder it." The individuals and companies who are building up compact, loyal organizations are those who are carefully selecting their recruits from among the young men who show aptitude and promise of achievement. These young men are then given an opportunity to learn to use their native and acquired ability and by a process of natural selection to rise (or sink) to their proper places.

These remarks are not intended by way of disparagement of Messrs. Taylor and Goig. Constructive criticism such as theirs will do much for education and for business. They state the results which are desired from a school training and suggest means for achieving them. As far as the latter apply to the electric railway business it seems that they do not obviate the necessity for the apprentice courses now in such an encouraging state of development under the auspices of the association.

### Fire Drills at Large Car Houses

The protection of large car houses from fire is a problem of serious importance, for the value of rolling stock and its earning power under modern conditions of electric railway patronage justify the most thorough precautions against the destruction of this class of property. Operating companies are coming more and more to appreciate the value of the fire drill, and on many roads a good deal of attention has been paid to the organization of fire fighting apparatus and the force charged with its handling. In the case of one large company several of the car houses have been provided with complete equipments of automatic sprinklers, and at irregular times during the past year certain officials have made the rounds of the system and turned in alarms on the spur of the moment, timing the work of the force on duty in coupling up hose, throwing water, and noting the general capability of the men to meet the artificial fire conditions imposed. Often a prominent insurance expert has accompanied the railway officers on their tours of inspection, and many points worth while have been brought out, to be discussed before the men themselves later at the regular meetings of the company's car house foremen and division superintendents.

A year's experience with these drills shows that the most important matter to have in hand, once a car house is equipped with suitable apparatus for fire fighting, is the strict and permanent organization of the force, so that each man shall know the precise duties of his position in the fire line, regardless of whether the foreman, the subforeman or the starter is in command, and also regardless of the presence or absence of different men from the house. While this point is in a sense axiomatic, it is often neglected, but it is so vital in relation to successful fire fighting that too much care cannot be taken to insure it. Foremen should impress upon their subordinates just what each man is expected to do, and provide that when a man is away the duties of his position shall not be neglected if there are men enough on hand to fill all the posts. In this connection it is often worth while, in car houses where the number of men on duty varies considerably at different times of the day and night, to have the entire force report at a central point the moment the alarm bell sounds, so that the fore-

man can give the proper instructions, dependent upon the circumstances of the case. Such a course will take a few seconds more than where the men go to different stations in the house, but unless the house is large enough to have different call bell signals for different sections, it is the opinion of experts in fire fighting that the formation of a definite, rapid plan of attack by the foreman in charge is worth far more than it costs in time.

In the fighting of a fire the personal equation counts for so much that most of the defects which appeared in the drills referred to depended upon the failure of individuals to understand their duties, to the overlooking of conditions which inspection should have remedied, or to over-excitability when the alarm signal was rung. Such matters as bursting hose and bells out of order or failing to ring with sufficient power are troublesome, but not dependent upon the efficiency with which the men respond to the alarm. It seems clear from the tests that the best way to determine the condition of hose is to actually apply the water, since it is not easy to make sure of its integrity by mere visual inspection. The inspection is valuable, and should be made with special care at the joints and near the points where the fittings are attached, since the tendency is for rotting to occur here first. In some cases the plan of replacing one-eighth of the hose each year is a good one, based on a rough estimate of the average effective life to be expected. Sometimes the municipal authorities object to the use of water for tests, but this ought to be overcome, considering the value of the property at stake and the importance to the abutters of an efficiency on the part of the railway force which shall prevent any fire from spreading.

Among the defects due to insufficient training or to nervousness on the sound of the bell may be mentioned failure to get water when the hose is coupled, poor coupling work, valves left open or only opened part way in the haste of the men to turn on the water, nozzles left alone, hose laid with kinks or sharp bends, failure to close fire doors, and massing of men at the wrong places. Ignorance of the location of the apparatus is not uncommon, and shortage of material is also a frequent cause of trouble. In respect to the latter, it should be the duty of car house employees to put themselves definitely on record when requests for supplies are made, and to keep after the department responsible until the conditions are remedied. It is not enough for a man to file a written request for fire fighting supplies that belong with his installation; he may thus clear himself of responsibility, but only a live interest in the protection of the property will insure its continual protection. Poor team work is especially liable to occur at night, and as the majority of car house fires break out at this time, the greatest care is necessary to maintain the proper organization and intelligent appreciation of duties among car cleaners and other employees less skilled than the men who work on the equipment in the daytime. The plan of timing different car house crews after the alarm is given and stimulating a healthy rivalry in fire fighting efficiency has much to commend it. The time may come when on very large systems one man will be employed to devote most of his attention to the inspection and maintenance of the fire fighting personnel and equipment, keeping systematic records of the performance and conditions in the different houses.



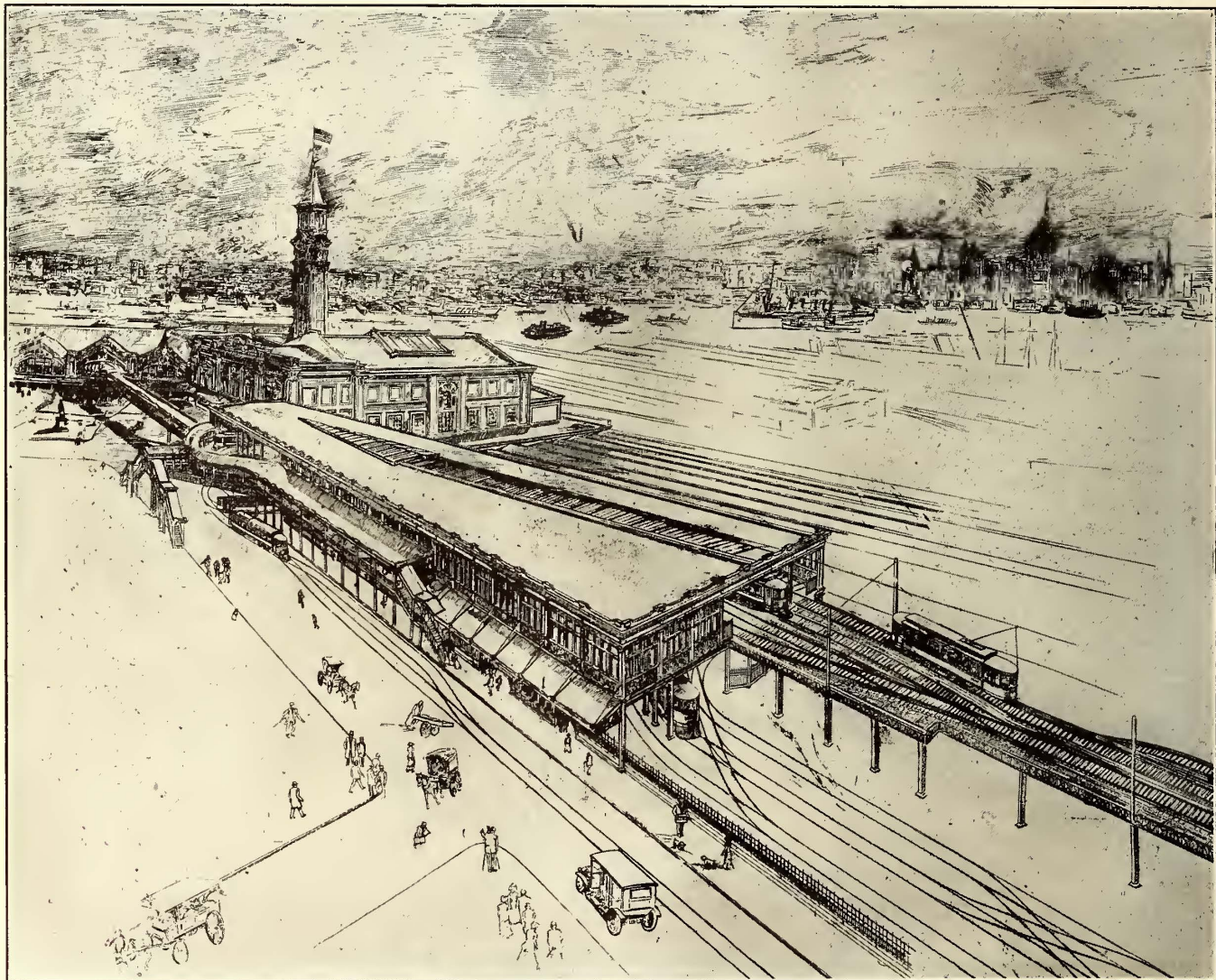
## NEW TERMINAL OF THE PUBLIC SERVICE RAILWAY AT HOBOKEN, N. J.

BY MARTIN SCHREIBER, ENGINEER MAINTENANCE OF WAY,  
PUBLIC SERVICE RAILWAY

The Public Service Railway Company, of New Jersey, has begun the erection of a large terminal in Hoboken adjacent to the new passenger terminal and ferry house of the Delaware, Lackawanna & Western Railroad and directly over the station of the Hudson & Manhattan Railroad which operates the Hudson Tunnels to New York City. This terminal will afford the facilities needed to handle the greatly increased traffic due to the construction of the tunnels and the rapid growth of population.

### OPERATION

The accompanying drawing, Fig. 1, is a map showing the present layout in the neighborhood of the station site. The elevated cars approach along Ferry Street and come to the surface at a point 300 ft. east of Hudson Street, while the surface cars go into the terminal along Ferry Street under the elevated structure and continue around the loop at Ferry Street on the south track. On leaving the terminal the surface cars operate over Hudson Place, while the elevated cars return via the elevated structure along Ferry Street. At present about 70,000 passengers are handled a day via the trolleys coming into the terminal over the following eight lines: Bergen, Union Hill, Summit Avenue, Jackson Avenue, Washington Street, Willow



Hoboken Terminal—Perspective View, Looking Toward River

This improvement is of more than passing interest not only on account of its arrangement and the engineering and architectural features, but also because it is unique in combining so many ways of transportation to the traveling public. Here it will be possible for the traveler to take a ferryboat or tunnel train to New York City or along the New Jersey shore; to board the Delaware, Lackawanna & Western suburban or through passenger trains; to take the elevated cars of the Public Service Railway to Jersey City Heights and West Hoboken, and to board the surface trolleys that form a section of the system of the Public Service Railway, making in all five distinct services which can be reached from under one roof.

Avenue, Grove Street and Oakland. Altogether 180 cars per hour are operated during the evening and morning rush, but it is proposed to take care of 400 cars per hour. The Delaware, Lackawanna & Western ferries are shown at the right in Fig. 1 and the stairways forming the exit and entrance to the Hudson & Manhattan Railroad tunnels may be seen also.

Fig. 2 shows the general layout of the new station in the immediate neighborhood where any changes in track layout were required. All of the proposed tracks are already installed west of River Street, as shown on the plan. From this plan it is understood that all the surface cars coming into the terminal will return through the terminal



and thence across Hudson Street to private right of way into Washington Street. The elevated structure instead of going to the surface at the station will continue to the second floor of the new terminal and all cars will loop over the street as shown in the track layout of the second floor in Fig. 4.

The general arrangement and operation of the terminal may be readily understood from Figs. 3, 4 and 5. These show the surface plan, the floor for the elevated cars and a section through the proposed terminal extending into the present tunnel station directly underneath. Fig. 3

shown in Fig. 4. After obtaining tickets, these passengers go by the choppers to the waiting-room, which contains the loading tracks bound for what is known as the "hill" section.

It is apparent that the entire layout is designed to keep the loading and unloading tracks separate and to provide a complete pay-as-you-enter system. The tracks shown in Hudson Street on the general plan will be practically abandoned during the regular operation of the new terminal. They are retained only as an emergency outlet from the station. An emergency connection will also be provided

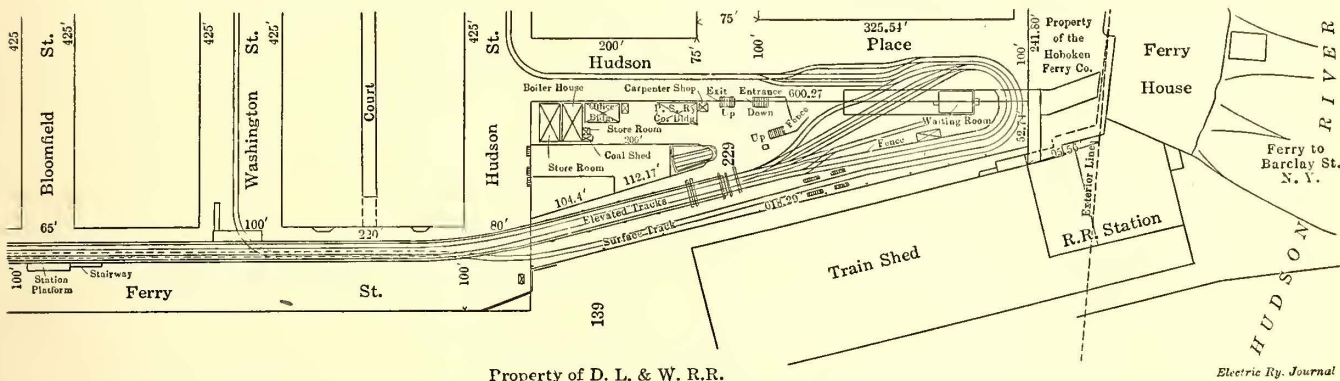


Fig. 1—Hoboken Terminal—Plan of Present Track Layout at Hudson Place, Hoboken, N. J.

shows an isolated 330-ft. loading track on the south side. From this track the passengers coming in during the morning rush on the surface cars may go down the stairways to the tunnel trains, continue on forward to the ferries or to the Delaware, Lackawanna & Western suburban or through trains. Otherwise, they may be transferred to other New Jersey trolley lines by first obtaining tickets and passing by the choppers to the loading tracks on the surface or elevated floors. As shown on the second-floor plan, Fig. 4, passengers coming in on the elevated trains have an isolated unloading track and platform 330 ft. long, from whence they may proceed directly to the upper decks of the Hudson River ferryboats or to the Delaware, Lackawanna & Western trains. They may also go downstairs to buy tickets and go by choppers before boarding the surface cars.

from the elevated structure to the surface to afford relief in case of a train blockade on the second floor of the structure.

In abandoning the present terminal to make way for the construction work a temporary loop for the elevated cars will be built in Ferry Street. These cars will load and unload alongside opposite platforms extending from Hudson to Washington Streets, as may be understood from Fig. 2. The operation of surface cars will be confined to stub tracks along Hudson Place and east of Hudson Street.

ENGINEERING FEATURES

The layout presented interesting engineering problems on account of the small space and irregular property available and because it was necessary to conform with the re-

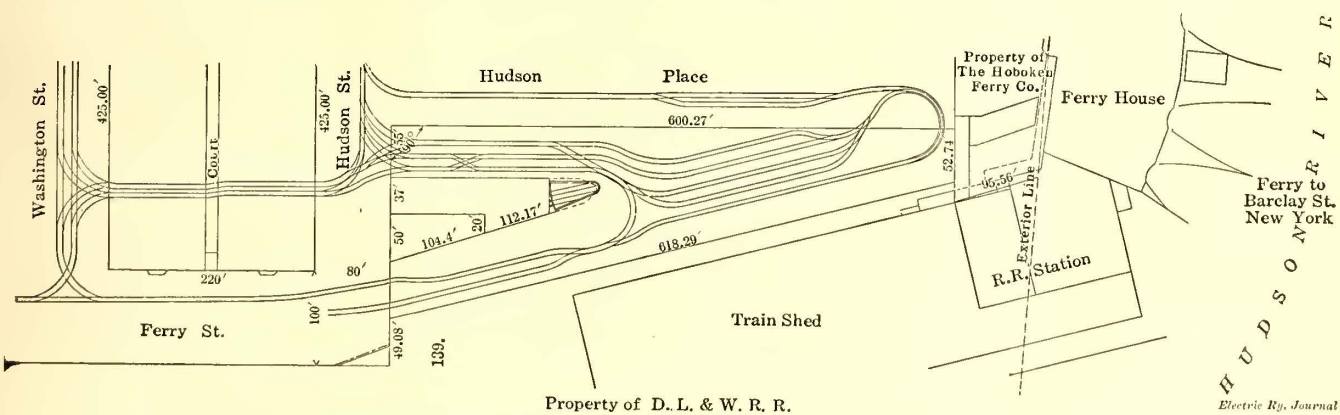


Fig. 2—Hoboken Terminal—New Track Layout at Hudson Place, Hoboken, N. J.

At a still lower level are the tunnel trains bound for New York or to the Pennsylvania Railroad and Erie Railroad station, on the New Jersey shore.

During the evening rush hours the trend of travel is in the opposite direction, originating principally with the Delaware, Lackawanna & Western ferryboats and the tunnel trains. The tunnel passengers come up the stairway to the surface car loading tracks shown in Fig. 3, while those wishing to ride on elevated trains take the escalator in the concourse of the tunnel station and land at the place

quirements of the engineers of the Hudson & Manhattan Railroad Company for protecting the tunnel station which forms the support of the proposed structure. In designing the tunnel station the engineers had figured and executed their construction work on the assumption that the Public Service Railway was to erect a surface layout only. This plan was revised, however, in accordance with the preceding description.

The engineers also designed the tunnel station as a kind of floating box. No dependence was placed on the per-



manent foundations to take care of the load, but the bearing power of the soft mud soil was figured at the small value of 1000 lb. to 1500 lb. per square foot and, in addition, the hydrostatic pressure at low tide. This quantity was approximately to balance the dead and live loads of the tunnel station plus superimposed dead and live loads of the station of the Public Service Railway. It was not only necessary to keep the bearing value within the allowable

The columns outside of the structure of the Hudson & Manhattan Railroad station are to be supported by reinforced concrete footings designed so that the soil bearing will be 1000 lb. per square foot. Moreover, it is necessary to provide for the overhang over Hudson Place for the elevated structure, and at the same time with the smallest obstruction possible on the sidewalk on the north side of Hudson Street in front of property not owned by the Pub-

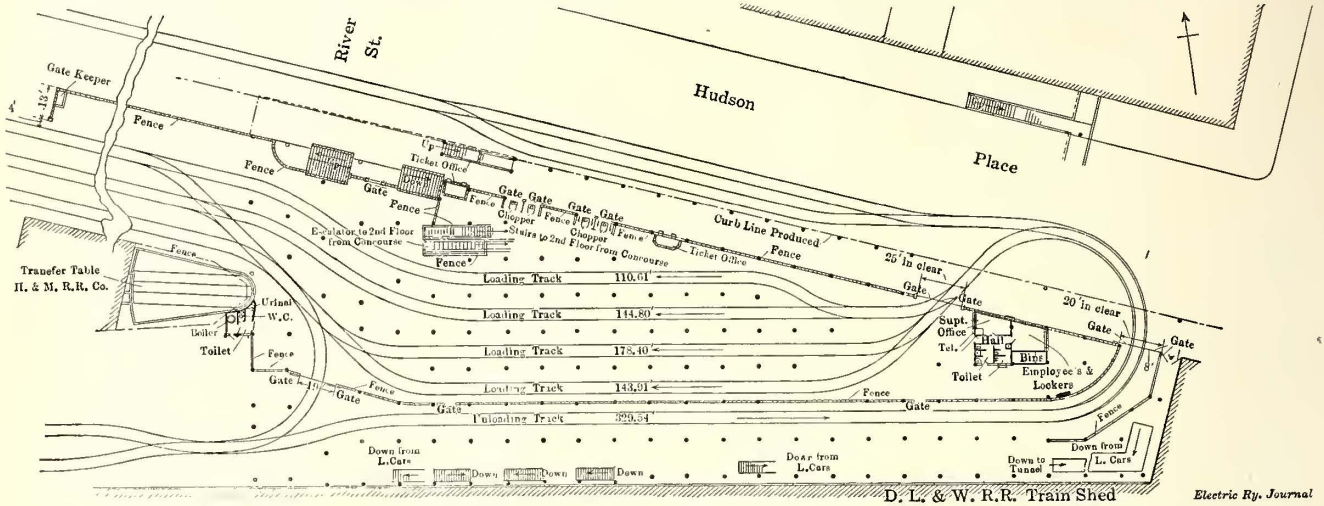


Fig. 3—Hoboken Terminal—Ground Floor Plan

limit, but also to provide proper distribution of loading over the columns of the tunnel station. This condition required an unusual number of columns and made it difficult to arrange the tracks satisfactorily in the limited space and still provide for the large overhang of the new pay-as-you-enter trolley cars with stationary fenders and operating on short radius curves.

It was necessary to place grillage beams under a number of the columns and over the roof of the Hudson & Manhattan tunnel station to give a proper distribution of the

lic Service Railway. This accounts for the arrangement of 26-ft. girders forming a V and extending over Hudson Place. These are supported by a single rolled Bethlehem column, which in turn is held up by steel grillage and piles driven to bed rock.

All columns on the first floor are of Bethlehem H-shape, and Bethlehem girders and beams were liberally utilized throughout the design. Outside of the dead load of the structure the steel was designed to support a moving load of trolley cars in trains on all tracks with 5000 lb. on each

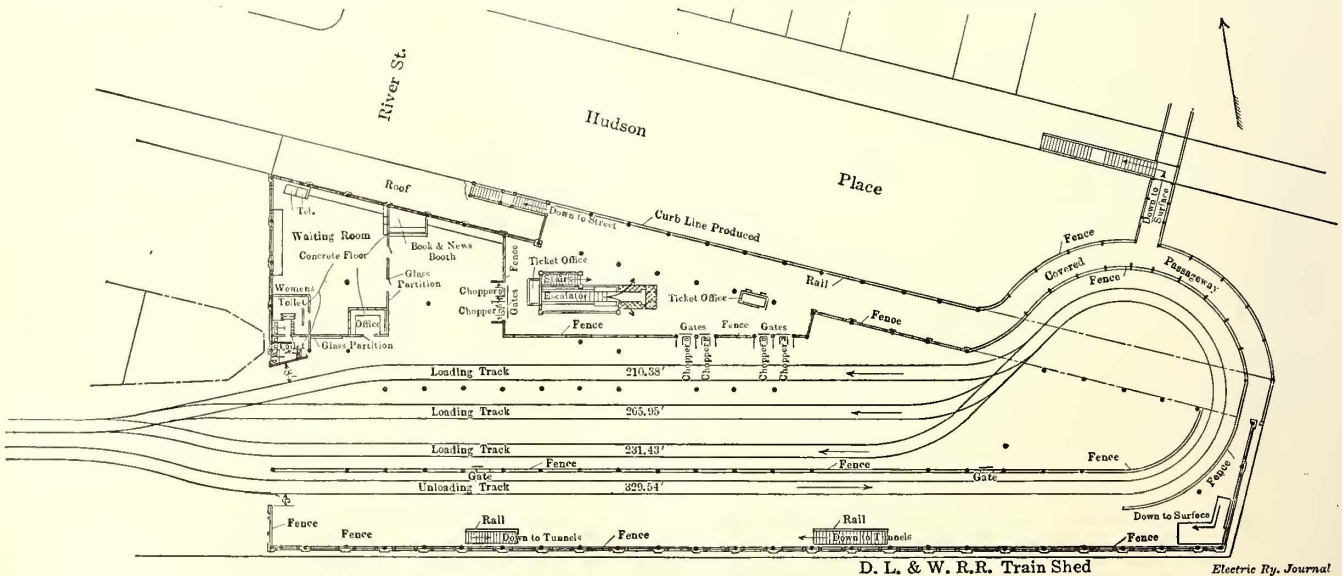


Fig. 4—Hoboken Terminal—Second Floor Plan

load. The underlying columns of the Hudson & Manhattan station at the track level are 12 in. in diameter and of ample strength to take care of the proposed loading, but the columns of the concourse level of the tunnel station are only 7 in. in diameter and are strained up to full loading, especially in the capitals. Five of the concourse columns will be cut out and replaced by new 10-in. cast-iron columns, so that the loads will be safely supported.

of eight wheels, axles spaced 4 ft. 6 in., 14 ft. 6 in., 4 ft. 6 in., 20 ft. 6 in., 4 ft. 6 in., etc.

DETAILS OF CONSTRUCTION

The station proper is to have a structural steel frame with irregular sides 397 ft. x 373 ft. x 145 ft. x 53 ft.; the area of the first floor will be 43,767 sq. ft. and second floor 46,053 sq. ft. The floors and roof are to be of concrete reinforced with metal fabric and the bottom of the iron work



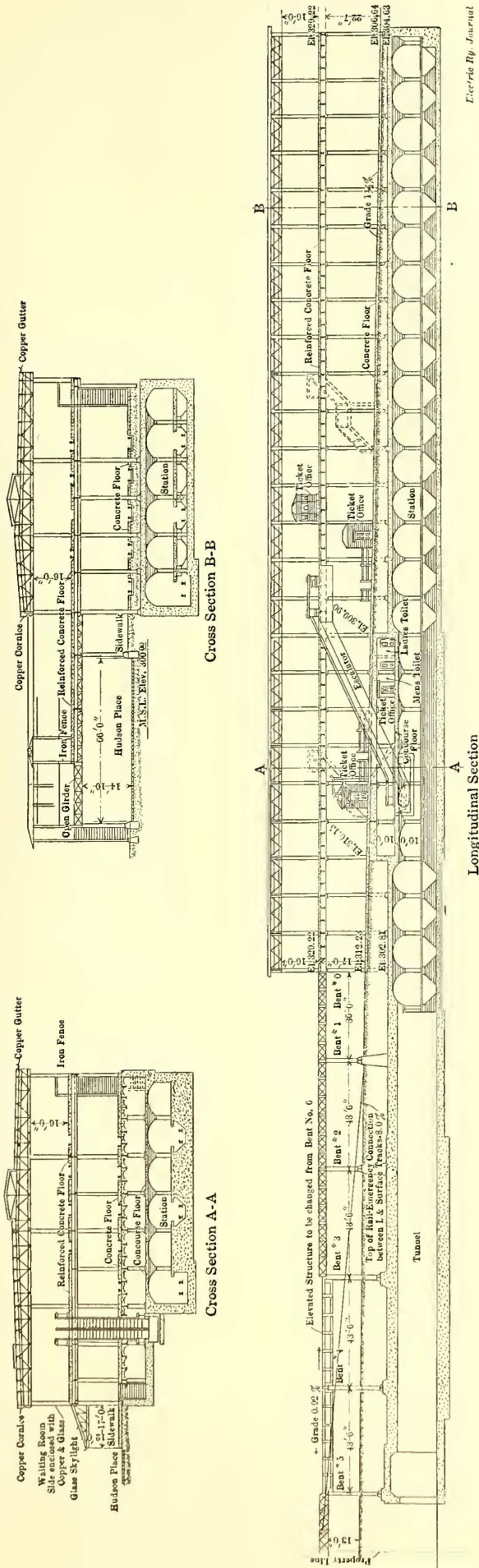


Fig. 5—Hoboken Terminal—Cross and Longitudinal Sections of Terminal Building

of the second floor is to be entirely encased in concrete. Heavy copper ornamental cornices are to extend around the building on the Hudson Street side and at the west and east ends. The lower floor will be open, but will have an ornamental steel fence with folding and sliding gates. There will be provided within the loop track a small employees' building with locker-room, stationmaster's office, toilets and bins. This building will be constructed of tile and plaster and with copper trimmings and metal sash. The heating plant for the second floor and the extra toilets for the trainmen are at the west end of the first floor. The Hudson Street side on the second floor and a portion of the west and east ends are to be inclosed with wire glass and copper. All sash are to be of hollow metal. The copper portion is to be composed of 18-oz. sheet copper except the ornamental work, which will be formed of 20-oz. sheets with a drop press or hammer.

A waiting-room of 2000 sq. ft. floor space is to be built on the second floor on the loading side, as shown in the drawings, and is to be equipped with toilets, retiring-room, news-stand and office. The news-stand is to have steel rolling shutters on the sides and front. The waiting-room is also to be of copper and glass. Each set of choppers provide for four entrances, as shown in Fig. 6.

The stairways are of ornamental cast iron fitted with safety treads and polished oak handrails over ornamental railings. All ticket offices are of a standard design, 10 ft. x 5 ft., inclosed with paneled-oak ground glass and copper bars. They are intended for two men and are fitted with a safe, change drawers and glass slabs.

The escalator operating from the concourse of the tunnel station to the elevated trains is to be a standard Otis type A with a rise of approximately 30 ft. and to be 4 ft. wide. It will be driven by a 500-volt, 35-hp motor geared so that the escalator will have a constant speed of 80 ft. per minute. There are to be provided emergency stops and safety devices to prevent the machine from running backward if current fails. The capacity of the escalator is guaranteed to be between 12,000 and 13,000 people per hour.

The skylights in the main roof and marquee will be constructed of copper. Anti-Pluvius puttless type, with Mississippi wired maze glass in sheets 18 in. x 72 in. The employees' rooms, offices, toilets, etc., on the ground floor will be heated by an open-tank, hot-water system, in which the hot-water boiler is to be heated by gas.

The waiting-room, toilets and offices and news-stand on the second floor are to be heated from a boiler placed in the trainmen's toilet in the west end of the building on the ground floor. This installation will be of the two-pipe, low-pressure steam gravity-return system.

TRACK AND LINE WORK

All the straight rail on the ground floor is to be of open-hearth Lorain section, 114 lb., No. 393. In preparing the private right of way from Hudson to Washington Street it was necessary to demolish two three-story brick buildings. The buildings had 8-in. party walls and it was found advisable to reinforce the foundations. The walls were cleared of the old plaster, covered with a 1-in. coating of cement and supported by steel framing across one building to the other.

The special work for the complete layout was furnished by the Lorain Steel Company, of Johnstown, Pa. It is of 9-in. standard hardened center construction, except that in the west end of the terminal, including the loops, solid-cast manganese steel will be used. Tongue switches are



employed and the facing-point switches are arranged with lock boxes. The switches will be mechanically operated by the regular gatemen by means of levers and rods. The rail on the second floor of the structure is open-hearth, A. S. C. E., 80-lb. This special work is also hardened center except the portions at the loop, which are solid cast manganese steel having the running and guard rail bolted together with separators. The rails on the second floor are fastened to the steel framing with clips over 1-in. oak shims and will be paved in with wood block. The wood block is supported by reinforced concrete which is finished up flush with the top of the steel beams. This makes a very desirable arrangement on account of it not being necessary to remove any concrete when repairs or renewals are made to the joints. It is only necessary to remove the wood block paving to expose the steel.

The No. 00 trolley wire in the terminal will be fastened with barn hangers to troughing suspended to the iron work and fed so that the current may be conveniently cut out by sectional feeders. All light wiring will be done in open conduit on a 500-volt circuit using clusters of incandescent lamps with neat fixtures, all according to the underwriters'

**OHIO ELECTRIC RAILWAY BENEFICIAL ASSOCIATION**

The Ohio Electric Railway Beneficial Association was organized in 1907 under the auspices of the railway company whose name appears in the title. The plan of organization of this association is somewhat similar to that of the corresponding association for the benefit of the employees of the Cincinnati Traction Company. Both organizations have been successful from their inception. The older organization, which was formed for the benefit of the Cincinnati Traction Company's employees, has a membership now of over 1800 men and a cash balance in the treasury of above \$60,000. The Ohio Electric Railway Beneficial Association started with the substantial sum of \$10,000 in its treasury, a donation from the company. It has now a membership of over 1000 and a cash balance in the treasury in excess of \$12,000.

Under the constitution of the Ohio Electric Railway Association no officer of the Ohio Electric Railway or subsidiary company is eligible to election to office in the various chapters. The officers of the chapters comprise the grand council, which directs the affairs of the association. The

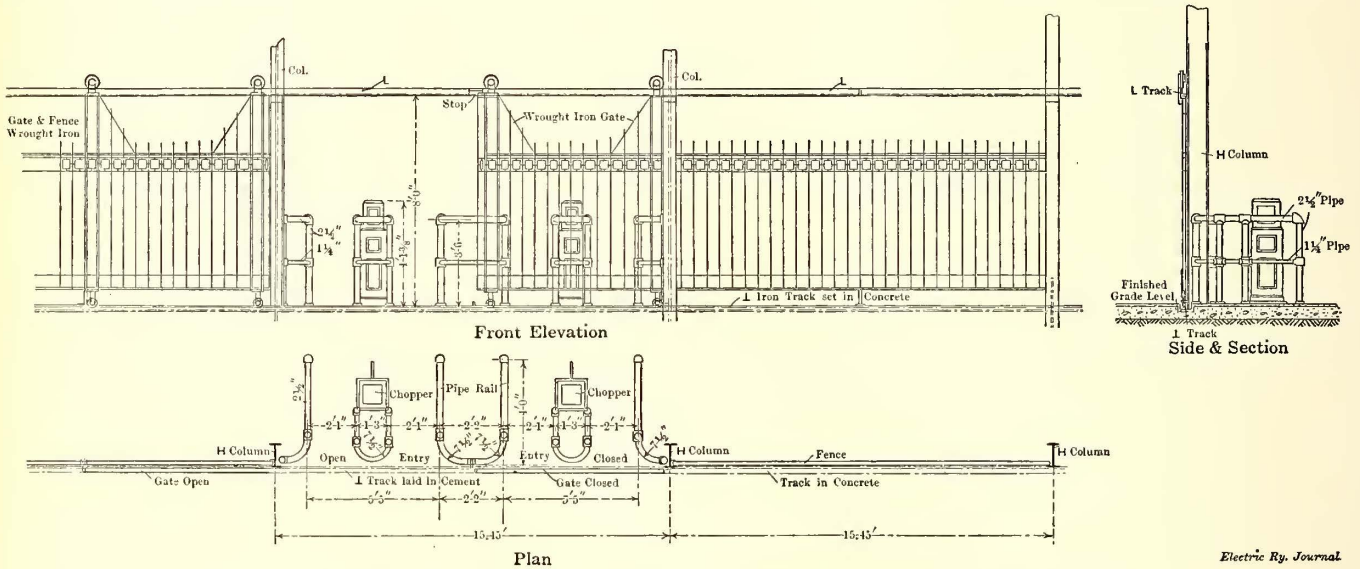


Fig. 6—Hoboken Terminal—Arrangement of Entrance Gates and Ticket Boxes

rules. Ample fire protection is also to be included. An auxiliary fire-alarm system will be installed with chemical extinguishers and water and sand pails.

**DESIGN**

All the work was designed and will be executed under the supervision of the Public Service Railway Company's own engineers and under the direction of R. E. Danforth, general manager, and Geo. J. Roberts, first vice-president. Kenneth Murchison, of New York City, was consulting architect and also laid out the cornices and ornamental work. J. V. Davies, deputy chief engineer, was representative for the Hudson & Manhattan Railroad Company.

All the steel and ornamental iron work was contracted for over six months ago with the Fagan Iron Works, Jersey City, N. J. The general contract, which calls for the remainder of the structure, excluding the track work, has been let to F. D. Hyde, New York.

A concession for an electric railway from Berne to Zollikofen, Switzerland, has been granted to a syndicate, which must complete the line within 18 months. It will be built to 1 meter gage and is estimated to cost \$1,300,000.

officers of the company, however, are members of the association, participating in its benefits. The present officers of the association are as follows: Grand president, Edward J. Kesler, motorman, Lima city lines; grand vice-president, Edward Hamilton, roadmaster, Newark, Ohio; grand vice-president, Olney Johnson, roadmaster at Medway, Ohio; grand vice-president, Charles Axline, cashier, of Zanesville, Ohio; grand secretary and treasurer, F. L. Boyer, ticket agent, Dayton, Ohio; sergeant-at-arms, G. Hachethorn, motorman, West Alexandria. The original chapters are six in number. They are named for the principal headquarters of the system, Hamilton, Dayton, Columbus, Newark, Zanesville and Lima.

An electric railway 10 miles long has been projected to connect Joinville, the principal trade center of the State of Santa Cathrina, Brazil, and Lake Sogaussu, an ocean harbor affording good anchorage for the largest vessels. All freight to and from Joinville is at present handled by barges from the port of San Francisco, but this is unsatisfactory, owing to the irregular depth of the river up which the barges are towed.



**ROLLING STOCK STANDARDIZATION IN BROOKLYN—  
MANUFACTURE OF SUPPLIES**

For the past three years the Brooklyn Rapid Transit Company has been manufacturing car supply parts through its mechanical department. Originally this work was un-

policy during the first fiscal year (June 30, 1907, to June 30, 1908) was a net profit of over \$15,000 for home manufacturing.

The methods used by the mechanical department to determine whether the manufacture of a given item would be profitable or not are explained in the following paragraphs. In this case, it will be assumed that the item considered for manufacture is a brake-shoe hanger.

In the first place, the superintendent of equipment sends the form Fig. 1 to the foreman of either the Fifty-second Street surface or East New York elevated shop, requesting him to give the estimated labor and material costs of 100 brake-shoe hangers in accordance with blueprint No. 5104. If the department has not purchased the same item recently, Fig. 2 is sent to the purchasing agent, embodying a request for the manufacturers' price on this design of brake hanger. Should the data supplied by the purchasing agent show a difference in favor of home manufacture, Fig. 3 is filled out for the general storekeeper, to advise him that the article can be made at home for less money, and the recommendation is added that future orders be placed with the mechanical department. Fig. 3 is made out in triplicate, as copies are kept by the general storekeeper, the purchasing agent and the mechanical department.

Whenever the general storekeeper is in need of any of these brake-shoe hangers, he forwards a requisition to the mechanical department on Fig. 4. This form shows the

MECHANICAL DEPARTMENT.					
NO. 205.		June 20, 1908.			
Foreman East. Div. L. Shop.					
Dear Sir:—					
Please fill in the blank spaces below and return, giving your estimated cost of making the material listed therein, regardless of the cost of making tools, etc.					
Yours truly,					
(Sgd.) _____,				Supt. of Equipment.	
Amount.	Description.	Est. Cost, Material.	Est. Cost of Labor.	Total.	Remarks.
100	Brake shoe hangers.....	\$18.80	\$28.70	\$47.50	BP No. 5104
(Signed) _____,					
Foreman East. Div. L. Shop.					

**Fig. 1—Brooklyn Manufacturing—Shop Foreman's Estimate of Cost**

dertaken to obtain the quicker delivery of material necessary to carry out the car standardization program, but it was soon discovered that certain items could be made at

MECHANICAL DEPARTMENT.									
To the General Storekeeper:—								July 1, 1909.	
We believe that the following Standard Material can be manufactured by this Department more cheaply than it can be purchased from Manufacturers, and recommend that you place future orders with this Department.									
Description.	Standard		Shop Estimate.			Manufacture Cost.	Purch. Agt's Bid No.	Average Monthly Consumption.	Remarks.
	Class.	Sheet.	Mat'l	Labor.	Total.				
Brake shoe hangers, BP No. 5104..	0	23	\$1.188	\$2.87	\$4.75	\$1.00	13/93	40	.....
Original. Duplicate and Triplicate to General Storekeeper who will send Duplicate to Purchasing Agent and Triplicate to Mechanical Department.									
(Sgd.) _____,							(Sgd.) _____,		
General Storekeeper.							Supt. of Equipment. NO. 205.		

**Fig. 3—Brooklyn Manufacturing—Notification to the General Storekeeper that Certain Items Can Be Made at a Profit**

home for much less than the company had been accustomed to pay. Previous to 1906 some manufacturing had been done in a desultory way by the different shops, but

stock on hand, the estimated quantity to be used in three months and the number of hangers wanted. The part thus called for on the storekeeper's requisition could not be supplied formerly until an authorization had been secured from the general manager in each case. This multiplica-

OFFICE OF SUPERINTENDENT OF EQUIPMENT.					
Purchasing Agent:—		Date, July 1, 1908.			
We intend manufacturing the following material in our own shops and desire manufacturers' prices.					
Will you please enter same below and return to writer?					
Duplicate copy herewith for your file.					
Quantity.	Description.	Cost, Each.	Bid, Number.	Bid, Date.	Remarks.
100	Brake shoe hangers....	\$1.00	13/93	8/06	BP No. 5104
(Sgd.) _____,					
Supt. of Equipment.					

**Fig. 2—Brooklyn Manufacturing—Requisition on Purchasing Agent for Comparative Prices**

there were no systematic records for ascertaining the actual costs. The growth of the manufacturing branch consequently involved the adoption of a record system to permit this work to be treated as a separate business, which had to be profitable or cease to exist. The result of this

TRANSIT DEVELOPMENT COMPANY.			
Requisition for Supplies to be Manufactured by the Mechanical Department and delivered to 52d Street Storeroom.			
NO. 94.		July 5, 1909.	
Description	Stock on Hand.	3 Months' Issues.	Quantity Required.
Brake Shoe Hangers, B.P., No. 5104.....	37	118	100
(Sgd.) _____,			
General Storekeeper.			
Original to Mechanical Department.			
Duplicate and Triplicate to General Storekeeper.			

**Fig. 4—Brooklyn Manufacturing—Storekeeper's Requisition for Material to Be Manufactured**

tion of labor is now avoided by the adoption of the blanket authorization form Fig. 5. This is accompanied by the raw material requisition, Fig. 6, which must be approved. Fig. 7 is the formal order on the storeroom for the raw material required on Fig. 6.



The superintendent's order on the shop foreman to proceed with a given job is shown in Fig. 8. This order is on the same sheet with Fig. 9, which is a labor and material form returned by the shop foreman on the completion of the work. It will be noted that in this case there was enough material to make 102 instead of 100 hangers, and

use of tools, etc. A further addition is made to the cost of all home manufactures by changing this account with the cost of tools bought especially for manufacturing purposes. Thus the account for June 30, 1907, to June 30, 1908, the first year of this department, reads as follows: Total manufacturers' price for articles on 212 authorizations,

Supplies Required at EASTERN DIVISION ELEVATED SHOP.		Do not write on this side. Space is for use of General Storeroom. Articles not standard stock must be entered on Special Form N. S. 169 A (buff color)											
Quality Required.	Unit.	Date July 2, 1909.	Description of Article.	Estimated Cost	52nd St.	Gillen	39th St.	Dock	Nostrand	Bldg.	REMARKS	Quantity	Number
REQUIRED ON MANUFACTURED MATERIAL REQUEST, NO. 2904-S.													
75	lin. ft.		¾ x 3 Burden's best iron.	\$18.80									
			Required to make 100 brake shoe hangers, B.P., No. 5104.										
Approved:				Total.....	\$18.80								
..... Ass't Gen'l Manager				.....									
..... General Manager				.....									
				Head of Department Request No. 2904 S. Authorization No. 07154									
				Items must be entered double typewriter spacing This Requisition must be submitted in <i>Triplicate</i> .									

Fig. 6—Brooklyn Manufacturing—Detail of Request Accompanying Fig. 5

that the cost was slightly below the original estimate. The figures for labor and material are added at the main office in accordance with data supplied every week by the comptroller. Fig. 10 shows the report sent to the comptroller and general manager as notification that the given requisition has been completed. The manufactured material is turned over to the storekeeper with Fig. 11. On this form the mechanical department takes credit for the entire cost of the articles, and the storekeeper is debited for the same amount.

\$34,630.90; actual cost plus 15 per cent, \$17,962.06; gross profits, \$16,668.84; deduction for one-half the cost of special tools bought during the fiscal year, \$1,503.03; net profits, \$15,165.68. The figures for the nine months from

STOREROOM ORDER.		GILLEN PLACE STOREROOM.		
		Date.	July 12, 1909.	
Supplies chargeable to one account only to appear on same order.		Book No.	3008 Order No. 50	
Quantity	Unit	Description.	Bin No.	Price Amount
75	Ft.	¾ in. x 3 ins. B. B. Iron 626 Lbs.		18.90
Will not be received if account is not shown. Spoiled orders must be turned in.				
..... Total.....				
Foreman.				
Account No. 270 M. S. O. No. Request No. Authorization No. 07154				

Fig. 7—Brooklyn Manufacturing—Order on Storeroom for Raw Material

July 1, 1908, to March 31, 1909, are as follows: Total manufacturers' cost for articles on 280 authorizations, \$29,484.21; actual cost plus 15 per cent, \$15,538.67; gross profits, \$14,145.54. When the end of the fiscal year is

**AUTHORIZATION TO PROCEED WITH WORK.**

This form to be made out to cover any work to be done of an extraordinary repair character or for additions or betterments, changes in Equipment, Track, Line, Buildings, etc., and for all new work of any description.

Mechanical  
Dept. No. 2904-S. Auth. No. O, 7154. Appropriation No. ....  
July 1, 1909.

"MISCELLANEOUS"

MANUFACTURE BRAKE SHOE HANGERS, BLUE PRINT  
NO. 5104.

Mr. J. F. Calderwood,  
Vice-Prcs. and Gen. Mgr.,  
Transit Development Company.

Dear Sir:—  
From time to time we will receive from the General Storekeeper Requisitions for brake shoe hangers, BP, No. 5104.  
In order that future requisitions for this material may be promptly filled it is proposed to charge against the authorization number assigned this request, the cost of manufacturing such parts from the present date to and including June 30, 1910, simply requisitioning for the necessary material each time an order is received from the general storekeeper for a quantity of these parts.  
We now have on hand Gen. Storekeeper's Req. No. 94, dated July 1, 1909, for 100 brake shoe hangers. It is estimated that this quantity, based on previous consumption, will cover his requirements for three months.  
These hangers, if purchased from outside manufacturers would cost \$1.00 each (P.A. Bid No. 13/93), while we estimate making our own at the Eastern Division Elevated Shop for 47½c. each.

Manfr's cost, \$1.00. Date, .....  
Pur. Dept. Bid. No. 13/93. Date, 8/06.

This request will be charged to  
Maintenance.

.....  
.....  
.....  
.....  
.....

Approved (Sgd.) Vice-Prcs't and Gen'l Mgr.  
(Sgd.) President.

Signed: .....  
.....  
.....  
.....  
.....

Comptroller. Supt. of Equipment.  
Recommended:

Fig. 5—Brooklyn Manufacturing—Original Authorization to Manufacture

A record of all items manufactured is kept in a loose-leaf book with the headings shown in Fig. 12. It will be noted that in giving the home and manufacturer's unit costs for a given quantity the home cost is the sum of the labor and material charges plus 15 per cent for superintendence,

Autho. No. 07154.  
Request No. 2904-S.

**REQUEST WORK COMPLETED**

TO THE COMPTROLLER:

DATE July 14, 1909.

Autho. No. 07154.  
All work covered by Request No. 2904-S has been completed. Final labor and material charges will appear on distribution for week ending March 11, 1909.  
Labor and materials other than that furnished by the Company were supplied by  
.....  
.....  
.....  
final bill for which was passed by me..... 190..

(Sgd.)—Foreman.  
East. Div. L. Shop.

APPROVED:  
(Sgd.) Supt. of Equipment.  
Labor started: Feb. 18, 1909.  
Labor completed: Mar. 10, 1909.

Report on this form must be made in connection with the completion of each Request.

Fig. 10—Brooklyn Manufacturing—Report to Controller on Completion of Manufacturing Authorization

reached there will be subtracted from the gross profits, the other half of the cost of the special tools for the first year plus 50 per cent of the cost of special tools bought during the second year. It is expected that the net profit for this year will exceed that of the preceding year. The charges



against the special tool account are naturally higher now than they will be in the future as it was necessary to buy quite a number of new machines.

The following are some of the items of stock which are

**MECHANICAL DEPARTMENT.**

Foreman East. Div. L. Shop. July 10, 1909

Dear Sir:

Please proceed to make up and deliver, as soon as possible, to the 52d St. Storeroom, acct. General Storekeeper's Requisition No. 94, dated July 1, 1909,

100 Brake shoe hangers, B. P. No. 5104,

charging all labor employed and material drawn against Autho. No. 07154 (crediting the authorization with any surplus or scrap material), and upon completion of work detach and send to this office the lower portion of this blank properly filled in with information desired.

Yours truly,

(Sgd.) \_\_\_\_\_  
Supt. of Equipment.

---

E. N. Y. Shop,  
July 12, 1909.

Supt. of Equipment.

Dear Sir:

For the information of the Inspector of Manufactured Material, I give below a list of material charged against and credited to Autho. No. 07154, covering the manufacture of

100 Brake shoe hangers, B. P. No. 5104,

completed at East. Div. L. Shop, on July 12, 1909, acct. General Storekeeper, Req. No. 94.

Date.	Book.	Order.	Material.		
2/18/09	3008	50	75 ft. 7/8 in. x 3 ins. Burden's best iron (626 lb.)	\$18.90	
			Labor	23.35	
				\$42.25	
			Made 102 hangers @ 41 2/5 cts.	\$42.22	

(Sgd.) \_\_\_\_\_  
Foreman East. Div. L. Shop.

Fig. 8 and 9—Brooklyn Manufacturing—Order to Shop Foreman and Detail of Labor and Material Cost

partsments which is not included in the manufacturing account:

Trolley parts: Axles, harps, shunts, washers, stands.

Controller Parts: Contact fingers, finger bases, finger sockets, cylinder segments, cylinder tips, contact strips, connectors.

Truck Parts: All special bolts, forged journal box covers, brake-shoe keys, brake-shoe hangers, brake pins.

Motor Parts: Armature bearings, armature commu-

**UNUSED MATERIAL REPORT**

Mechanical Dept. Date July 14, 1909.

Material described below drawn from stock, or purchased, for work covered by respective Authorizations given below has been turned into stock at 52d St. Storeroom.

DESCRIPTION	CREDIT	Quantity	Price	Quantity	Price	Amount
{ Brake shoe hangers, B. P. No. 5104 {	Autho.	270				
	Account		102	41.40		\$42.22
Total Value		102	41.40			\$42.22

ORIGINAL

By (Sgd.) \_\_\_\_\_  
Foreman Eastern Div. L. Shop

Received and Charged to Stock, Month of July 15, 1909

(Sgd.) \_\_\_\_\_  
General Storekeeper

Statement No. ....

**TO BE MADE IN QUADRUPPLICATE**  
Original and Duplicate sent to Storekeeper. Triplicate to be retained by Employee making report. Original, when priced, to be forwarded to Comptroller. Quadruplicate to be forwarded to Head of Department.

Fig. 11—Brooklyn Manufacturing—Manufactured Item Turned into Stock

**MECHANICAL DEPARTMENT  
RECORD OF MANUFACTURED MATERIAL**

Authorization Number	Date	Article	Requested		Man'fd		Total Actual cost	Total Cost With 15% Added	Manufacturer's Price for Same Quantity	Variation in Total Cost between Manufacturer's Price and Our Cost with 15 Per Cent. Added.		Mnfr's Unit Price	Our Unit Price	Date Work Started	Date Work Completed	Remarks
			Quantity	Unit	Quantity	Unit				Decrease	Increase					
07154	July 11, '09	Brake shoe hangers, B. P. No. 5104	100	Ea.	102	Ea.	\$42.25	\$48.58	\$102.00	\$53.42		\$1.00	47.6c	2/18 '09	3/10 '09	

Fig. 12—Brooklyn Manufacturing—History of a Manufactured Item Kept in Loose-Leaf Record Book

**MECHANICAL DEPARTMENT**

General Storekeeper. April 16, 1909

Dear Sir:

This department will discontinue the manufacture of the following standard material and future requirements should be requisitioned by you on the Purchasing Agent:

Description.	Standard		Last Made	
	Class.	Sheet.	G. S. Req.	Auto. No.
Bulkhead sash catch, BP, No. 5306-F.	W	2	107	07349
Bell cord pulleys, complete, No. 16, BP, No. 1480	W	12	71	06848

(Sgd.) \_\_\_\_\_  
Supt. of Equipment.

(Sgd.) \_\_\_\_\_  
General Storekeeper.

Original, Duplicate and Triplicate to General Storekeeper who will send Duplicate to Purchasing Agent; Triplicate to Mechanical Department.

NO. 68.

Fig. 13—Brooklyn Manufacturing—Notification to Storekeeper that Unprofitable Manufacture has been Discontinued

now being manufactured by the mechanical department and marked with the B. R. T. monogram, exclusive of work done on special machine-shop orders for other de-

tators, brush holders, brush-holder shunts, brush-holder levers, brush-holder links.

Air-brake Parts: Commutators for armatures, contacts, tips, armature bearings, insulating bushings, contact fingers.

Resistance Parts: Terminals and connectors.

Fig. 13 shows the form used by the mechanical department to notify the general storekeeper that certain items will no longer be manufactured as they can be purchased for less money in the open market than the home cost plus the usual 15 per cent. After the receipt of this form the storekeeper sends his orders through the purchasing agent until such time as it is found profitable to return to manufacturing.

The First National Conservation Congress of the United States will be held in the Auditorium of the Alaska-Yukon-Pacific Exposition, at Seattle, Wash., on Aug. 26, 27, 28, 1909. The Congress will be under the direction of the Washington Conservation Association, an organization comprising several hundred prominent men of the State. It is planned to invite President Taft and members of his cabinet to be present at the meeting.



## REPORT ON TRAFFIC CONDITIONS IN PITTSBURGH

Brief mention has been made in previous issues of the *ELECTRIC RAILWAY JOURNAL* regarding the report on traffic conditions of the Pittsburgh Railways Company, made by Stone & Webster, of Boston, at the request of the Pennsylvania State Railroad Commission.

The complete report upon this subject is an extensive study of the difficult traffic conditions which finally led the State Commission to make an investigation. A supplementary report is given on traffic conditions in Ingram Borough, Allegheny County, Pa. The report is illustrated with 250 curves, several of which are reproduced herewith. Stone & Webster were informed by the commission that Mayor Guthrie, acting under a resolution passed by the Common Council of Pittsburgh, complained about the bad sanitary condition of the electric cars, and requested the board to make an investigation of the subject. The commission instructed the engineers, however, to make a more comprehensive investigation, reporting "upon the crowding of cars and the congestion in the business district, particularly at the rush hours during the evening; to investigate also the operating conditions upon the more severe grades and to inform you of all these matters, having due regard for the various factors of economy, safety

The peninsula type of the city is recognized by students of transportation problems to be the most difficult to serve satisfactorily.

In some ways these natural conditions are exaggerated in Pittsburgh. The business district is very much congested; the various department stores, shops and offices close at more nearly the same period than they do in New York.

The streets in Pittsburgh are narrow and the curves sharp. The grades over which the cars operate are severe, running frequently from 6 to 12 per cent, and in one or two instances 14 per cent. The size and number of the bridges leading out of the city also limit to a degree the operation of the cars.

The tracks of the company are 5 ft. 2½ in. gage. In the city proper a girder rail with a heavy tram head is used. All the teamsters use the broad, smooth tram head to truck on in preference to the rough, cobble-paved streets.

Several of the lines leaving the terminal district run through mill districts before reaching the suburban territory, so that it is not uncommon to find crowded into the same car daintily dressed shoppers and mechanics coming direct from the mills, covered with the day's accumulation of grime and perspiration. Good ventilation under these conditions is difficult to maintain. Light dresses and other clothing are often ruined in the crowded cars. While, of course, one class has just as good a right to ride as the other, the problem of handling them simultaneously and satisfactorily requires of the company special care and necessarily entails the furnishing of more cars than on lines where people of only one class travel. For service in these districts we believe that wood or cane seats are more sanitary than push or upholstered, and the seats, if properly fashioned, would be fully as comfortable. There is opportunity for improvement in the present method of heating and ventilation.

Delays at steam crossings are frequent, and, in most cases, we believe unnecessary. This is apparently caused by the carelessness or wilfulness of the freight conductors or engineers.

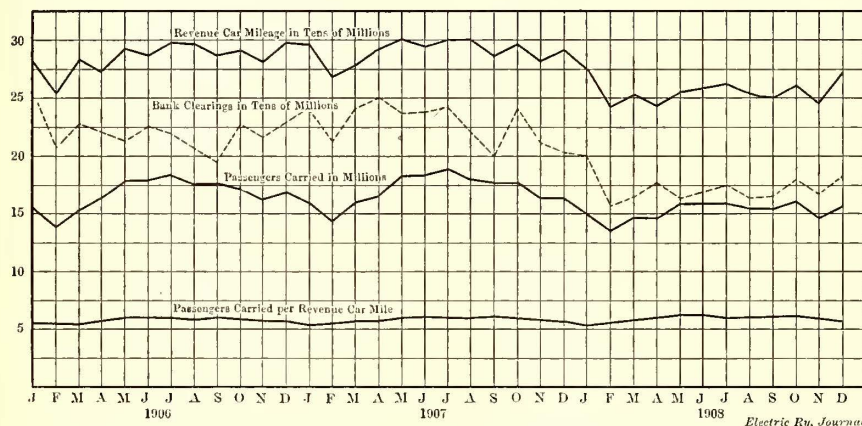
Observations were made to determine the passengers carried per car on each of the nine trunk lines leading from the terminal district of the city. Two observers were placed at certain points on each line and observations were made between the hours of 4 and 7 p. m. on Jan. 7, 8, 9 and 11, providing the following data for each

outbound car: Time car should pass according to schedule; time car actually passed; seating capacity of car; passengers seated and passengers standing. These results were plotted for each separate route.

In investigating the subject of operating schedules an examination was made of the company's files to show each change in the rush period between 4 and 7 p. m. since 1905. A detailed study of these tables revealed that on some routes cars had been taken off and on others cars had been added. The net result, however, was reduction of service.

During the two years preceding the observations there had been a decided falling off in the population of the city, estimated at from 10,000 to 75,000 people, so that it would appear that if the company was furnishing adequate service in 1907 some cut would be justified.

In taking up the subject of passengers carried and seats furnished, data as to the number of passengers per hour were obtained from the reports of the company. From these capacity of the cars and the number operated in each hour were obtained from the reports of the company. From this data the number of seats furnished in each hour was figured. Two dates, Dec. 7, 1908, and Jan. 7, 1909, between 4 p. m. and 7 p. m., were selected at random for this computation. In presenting the tables, Stone & Webster say:



Pittsburgh Report—Comparison of Total Car-Miles, Bank Clearances, Passengers Carried and Passengers Carried Per Revenue Car-Mile

and practicability." The attention of the engineers was therefore confined largely to the rush hours in the business district, although the entire situation was investigated superficially.

Indicating the difficulties in the way of rapid movement of traffic, resulting from the topographical situation of the business district, it is stated:

The business portion of the city of Pittsburgh is confined to a nearly level area at the top of a peninsula formed by the junction of the Allegheny and Monongahela Rivers. The retail, wholesale, banking, and, in fact, all of the business of the city except manufacturing, which is carried on by a population of nearly 750,000, is transacted in an area of about one-half of a square mile. The entire population of the city lies outside of this district. Extending to Allegheny, across the river from the terminal district, there are four bridges, two of which get most of the travel. To the South Side, across the Monongahela River, there are two bridges, but one takes by far the greater portion of the travel.

The residential parts of the city are on hills or bluffs, or, rather, on a series of terraces. To reach these districts streets have been laid out, which are, of necessity, steep, narrow and crooked, and might in some cases almost be termed corkscrews.

In regard to general operating conditions, the report says in part:

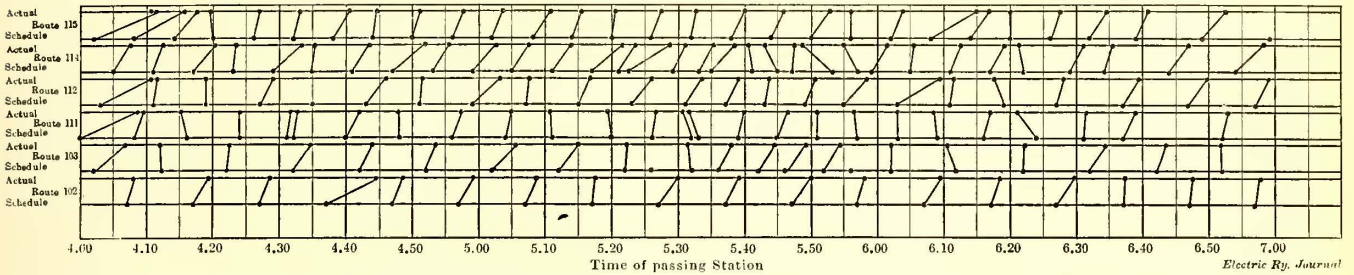


No final conclusion should be drawn from the tables because they show average operating conditions for the various hours in which it is entirely possible that violent fluctuations have occurred. The curves must be taken as showing tendencies only; they are not actual, and would only be correct on the assumption that every passenger rode for one hour. As a matter of fact, most of the passengers are carried only short distances, and two, or even three, passengers may have made use of the same seat during the specified hour. The curves give a general idea of the relation between the seats furnished and the passengers carried on the whole system during the 24 hours of the day. They indicate that for the system as a whole the seating capacity, except during a short period of the morning and evening known as the rush hours, is entirely

relieve the congestion during the peaks, but as they are slower to load and unload and more difficult to handle safely than trippers, we do not believe that they should be relied upon for further relief. On many lines service could be much better handled with long double-truck cars, in place of the motor cars and trailers now in use.

The company is, of course, buying no more 20-ft. cars, and the type of car it is purchasing is apparently a most satisfactory one. The old short cars should be relegated as fast as finances will permit.

The report states that analysis of car headway and loading shows on various routes another cause of excessive over-crowding of individual cars, in irregularity of operation.



**Pittsburgh Report—Method of Graphically Showing a Comparison of Actual Schedule Times. Readings Taken at Sixth Avenue Bridge, Allegheny Division Loop, on Jan. 7**

adequate for the present amount of travel. They also bring out very clearly that the outward peak in the evening is greater than the inward peak in the morning; that it is the period from 4 p. m. to 6 p. m. which taxes the company to its utmost capacity.

In commenting on the curves indicating the average density of traffic on each line, and the loading and handling of cars during the rush hours, the report says:

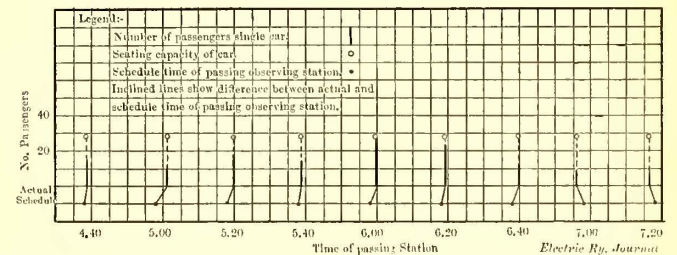
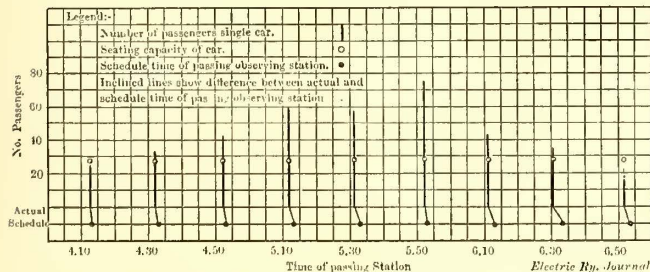
The company can hardly be expected to provide seating capacity for the erratic peaks coming at irregular intervals and of short duration. The long peaks, however, can be handled by additional cars or trippers, but as such short-hour mileage is more expensive to handle, and because of the physical impossibility to get cars in the proper position, it cannot be increased in direct proportion to momentary increases of travel. Again, the excessive use of trippers tends to delay operation of the regular scheduled cars and adds other difficulties. It is common practice in many cities to hold in reserve extra tripper cars at points where they may be fed into the system so as to pick up the excess traffic where it appears. But, owing to the congestion of the busi-

The report adds that the company is not entirely to blame for the delays. Vehicles, traffic and grade-crossings are sources of considerable annoyance. Delays at crossings with steam roads are stated to be serious and should be greatly reduced.

In discussing the subject of heating and ventilation, the report says:

The company uses a large number of electric track brakes. These are so arranged that the motors on the cars act, during the process of stopping, as dynamos, and the current generated by them is used to energize the track brakes. A certain amount of dead resistance is also necessary to prevent too sudden application of these brakes.

The company has arranged this resistance in two sets, one of which is inside the car and is used for heating. No current flows through this resistance except when the brakes are being applied. Ascending long heavy grades there is no heat going into the cars; going down the same grade the cars are overheated. There is apparently no means of regulating the heat. It is either all on the car or



**Pittsburgh Report—Analysis of Car Headway and Loading, Grafton and Ingram Route, West End Division—First Readings Taken at Noble Avenue and Steubenville Pike, Second at Point Bridge. These Diagrams Show that Overcrowding was Due to Use of Through Cars by Local Traffic in Downtown District**

ness district of Pittsburgh, it is practically impossible to provide such storage at the city end of the lines to handle the outward-bound evening rush.

As far as we can tell without a more detailed study than the scope of this investigation permits, the present operating schedules are sufficient for handling the traffic, provided the regular schedules are properly adhered to and sufficient trippers are run during the rush hours. While trippers are now used on a number of lines, we believe that the congestion during rush hours on certain lines warrants an increase in this form of service.

Trailers are used effectively on a number of the lines to

all off. A method of partial regulation has been suggested by the engineers of the company, but up to the present time it has not been installed.

In discussing the subject of grades, brakes and derailing switches, the report says in part:

For the safe operation of cars, a few salient points must be considered.

The braking equipment (1) must be adequate; (2) it must be thoroughly inspected; (3) it must be intelligently used; (4) derailing switches must be properly located, and (5) arranged to stop runaway cars without injury.



The 18 to 20-ft. body single-truck motor cars of the company, weighing about 12 to 13 tons, have ordinary hand-brakes and Westinghouse magnetic brakes. It is this type of car which has been operated over the routes having the severest grades.

One hundred cars have 30-ft. bodies and weigh about 18 tons. These are equipped with ordinary hand-brakes and Westinghouse magnetic brakes.

There are 99 cars having bodies 21 ft. 9 in. long, weighing, approximately, 20 tons, and equipped with hand-brakes and Westinghouse air-brake equipments. There are also about 100 cars of the latter class and 10 Ardmore cars having 30 ft. 8 in. bodies, which weigh, approximately, 21 tons.

More recently there have been installed, approximately, 50 cars with 31-ft. 8-in. bodies, and weighing, approximately, 25 tons.

These two latter classes of cars and the Ardmore cars are equipped with hand-brakes and Westinghouse air brakes.

It seems to be the present policy of the company, for rolling stock additions, to purchase only double-truck cars and to equip them with hand and air brakes, and to buy no more magnetic brakes. We understand also that the company intends to continue the use of the magnetic brake on its single-truck cars, although making no additional purchases except for repairs.

The magnetic brakes now used on the Pittsburgh Railways Company's lines, we are told, were installed some 15 years ago and have been in constant service, and are still in fair operating condition and giving satisfactory results.

Retardation of the car when the magnetic track brake is applied is accomplished by three separate factors:

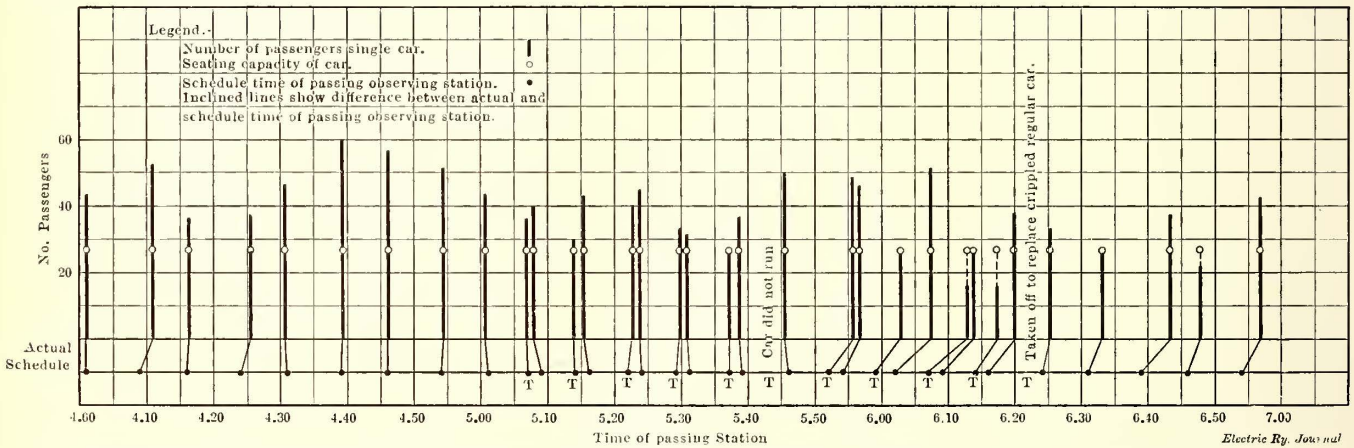
At certain times of the year fallen leaves and frost reduce the coefficient of friction between wheel and track probably as much as 50 per cent from normal conditions. It is necessary, under such conditions, that men should be sent out to clean and sand the tracks on the steep grades. We understand that motormen are directed to descend all grades using only the hand brake at the start. While we believe that this is a wise regulation, we would recommend that the motormen be carefully instructed in what to do when the wheels commence to slip. It is not safe to allow motormen to rely upon their own judgment as to what to do in an emergency.

The company seems to have given considerable attention to the installation of derailing switches, and for the most part we believe these are wisely placed and should be the means of promptly stopping runaway cars.

In its summary and conclusion, the report says in part:

The operating conditions in Pittsburgh and its suburbs are particularly severe, owing, primarily, to the topography of the country, the location of the business district of the city proper between two broad rivers on a comparatively narrow neck of land running to a point at their confluence, and the necessity for transporting to and from this comparatively small area morning and evening the great number of citizens whose business or employment is there situated; and this must be done in a short interval at each end of the day, commonly called the "rush hours."

The "Terminal District," so called, lies between the two rivers and extends from the "Point" to the Pennsylvania Railroad tunnel and Tenth Street at the Union Depot. Sixty street-car routes, with headways varying from one



Pittsburgh Report—Analysis of Car Headway and Loading, Elliott and Sheridan Route, West End Division, Readings Taken at Point Bridge Jan. 9. Shows Early Rush Traffic on Saturday Afternoon

1. The retarding effect of the motors, which are changed into generators during the braking periods.
2. The drag of the magnetic brakes used on the track.
3. The magnetic shoe drag acting through a system of levers on the brake shoes, pressing them against the wheels.

A series of tests made by the company seems to indicate that about 70 per cent of the total retarding effect when magnetic brakes are used is the action of the motors changed to generators, the remaining 30 per cent being divided about equally between the drag of the magnetic brake shoes on the track and the pressure of the wheel-brake shoes on the wheels. This fact being known by the operating men has brought about a tendency to keep in operation cars upon which the magnetic brake coils are short circuited, so that the last two factors enumerated above are not utilized, the entire braking being brought about by the changing of motors into generators.

It is our belief that double-truck cars, such as are now being operated on the lines of the Pittsburgh Railways Company, can be successfully operated on any of the routes having severe grades, over which single-truck cars are now run. These double-truck cars should be equipped with strong hand brakes, preferably of the geared type, together with either the latest form of magnetic brake or standard air-brake equipment. They should also be equipped with efficient sanding devices, the sand boxes holding a plentiful supply of loose, dry, sharp sand at all times.

hour to two minutes, are operated into and out of this district and either "dead-ended" or looped therein.

The bridge approaches to this district in some instances are inadequate for the great volume of vehicular and street car traffic which must use them, and vexatious delays, disturbing to schedules, are of constant occurrence.

The outlying sections served by the street railways are extremely hilly, necessitating the negotiation by the cars and vehicles of severe grades and curves, and the majority of the streets are narrow, thus causing constant interference between the two classes of traffic. In many places, on bridges and streets where double tracks are maintained, the space between the tracks is too narrow, and in other places clearance on right-hand side of cars in running direction is inadequate and dangerous.

The physical condition of tracks, overhead construction and rolling-stock equipment, as observed, is excellent and well maintained. The tracks are of 5-ft. 2½-in. gage, of mostly heavy tram girder rail, well laid and paved. The combination of the wide gage and the broad tram of the rail is particularly inviting to the drivers of heavy, slow-moving vehicles, as it offers the acme of condition for easy haulage. The overhead construction is substantial and well maintained.

The rolling-stock equipment is, in general, adequate, maintained in good condition and kept clean. It is mixed as to size and equipment, the severe grades and narrow



clearances on many routes requiring the use of a large number of single-truck cars. All cars are supplied with motors of ample capacity, and with suitable hand, air or magnetic brakes, depending on the service to be performed.

Some of the shorter cars are poorly lighted, and, in general, the practice seems to be to overheat, more noticeable at the rush hours, when less heat, or none at all, is needed in average winter weather.

The "pay-as-you-enter" principle has been applied to a number of double-truck cars of the ordinary pattern, and owing to the small size of the entering platform, considerable delay is occasioned during rush hours in loading passengers on the downtown loops.

At crossings of steam railroads at grade, daily operating reports show numerous, and in many instances excessive, delays due to the occupation of these crossings by steam-railroad freights, either in passing or switching operations. These delays disarrange street-car schedules, bunch cars and cause patrons delay and inconvenience, and the company expense and criticism.

We found that motormen on loop routes in the Terminal District were obliged in many cases to throw the switches themselves, where, if electric switches had been used or switchmen stationed during rush hours, the service would have been bettered.

We observe little attempt at police regulation of street traffic, and found no adequate or comprehensive city ordinances on this subject. We secured a copy of an old State law, passed in 1845, which purports to prevent the blocking of street crossings by steam railroads, but which, apparently, is never enforced.

were cut down to meet this condition. Only recently has there been an improvement in business conditions, and to meet this some additional cars and mileage have been restored.

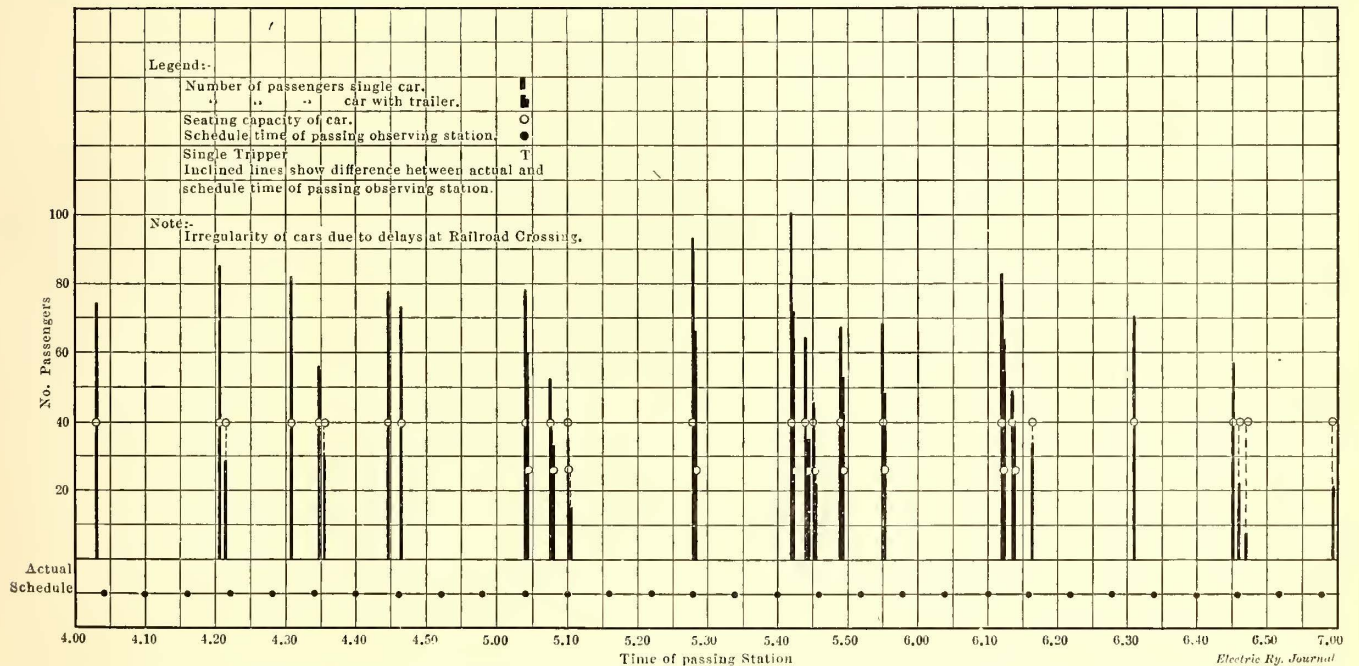
Some three years ago the company spent much time and money in an exhaustive study of traffic conditions, routing of lines, headway of cars, etc., and, as a result, many changes were made which worked a decided improvement in the service and the convenience of its patrons. The system of loops and terminals in the Terminal District then adopted is still in use, and appears to us to be the best obtainable under present conditions.

In general, we believe that co-operation between local municipal and borough officials and the company would result in the removal of some, at least, of the onerous conditions under which the service is now being performed.

The recommendations of Stone & Webster were published in the ELECTRIC RAILWAY JOURNAL for March 20, 1909, page 528.

ADVERTISING THE CLAIM DEPARTMENT

Ellis C. Carpenter, claim adjuster of the Indiana Union Traction Company, Anderson, Ind., is a firm believer in advertising. In the July issue of the *Indiana Union Traction System Magazine*, Mr. Carpenter uses some space in calling the attention of the public to the fact that people who meet with an accident on the company's lines will be



**Pittsburgh Report—Analysis of Car Headway and Loading on Liberty Avenue, Homewood Division, Readings Taken Jan. 11, at Corner of Liberty Avenue and Eleventh Street. Shows Bunching, Owing to Bad External Conditions and Railroad Crossing Delays**

Car operatives coming under our observation seemed well trained and careful in handling the cars under the severe conditions before noted. Rules and regulations governing the duties of operatives and other employees were examined and found to be adequate and explicit.

Safety or derailing switches were observed at appropriate points on long and severe grades, as were safety signals at junctions and on single-track routes operated in both directions. In some instances, however, no satisfactory provision has been made to receive cars which are derailed by the safety switches. Sanders are employed both day and night on excessive grades to keep tracks in safe condition.

From information obtained we find that Pittsburgh was very seriously affected by the business depression of 1907-8, and many operatives left the city and its suburbs. The travel on the street cars was, in consequence, very appreciably reduced and has remained so. As a logical sequence, the number of cars operated and the mileage furnished

shown the greatest courtesy if they will report such accidents at once to the claim adjuster. The advertisement reads as follows:

"If you should meet with an accident of any kind on or about the cars of the Indiana Union Traction Company, your case will receive prompt and courteous attention, if you will at once write to Ellis C. Carpenter, claim adjuster, Anderson, Ind., and tell him about it. It is the desire of the company to fully investigate all claims, and where the injured person is entitled to a settlement to make it promptly upon a reasonable basis in justice to everyone concerned. A friendly compromise is far better than an expensive and troublesome lawsuit. Should you be a witness to an accident to some one else, if you will write or phone the claim department or the local superintendent, giving your name and address, you will confer a favor upon the injured party as well as the company. Adjustment of claims is based largely upon statements of facts by disinterested parties."



## ANOTHER VOLUME OF PUBLIC SERVICE CORRESPONDENCE

Frederick W. Whitridge, receiver of the Third Avenue Railroad, has published Volume II of his correspondence with the Public Service Commission, beginning with an order issued Oct. 9, 1908, and concluding with a letter received from the commission July 9, 1908. The volume contains about 400 pages and is folioed consecutively with the first volume.

The following text is printed on the cover: "For so is the will of God, that with well-doing ye may put to silence the ignorance of foolish men." I Peter, ii:15. The preface follows:

This second volume of correspondence with the Public Service Commission is paged consecutively to the first, and is as dreary as the other. The commission have, to my great regret, forced an issue with me on the subject of the valuation of the properties under my care. It is perhaps not fair to judge the commission about this until they have disclosed the purpose, manner and scope of that valuation. At present they have refused to answer all questions in respect thereto. I am informed, however, that they have had for the last 10 months from 25 to 60 men continually employed on what they call "a valuation." I find nothing in the law to authorize it, or which would make a "valuation" of any legal efficacy if made. The origin of a State valuation of properties was, I believe, the notion that it has some relation through nominal capitalization to the fixing of rates, but that notion is now pretty well exploded. I suppose the commission have the right to educate themselves in any way they please, but a State valuation of these street railroads is legally unwarranted, economically unsound, and practically futile and mischievous, and I am bound to consider that the public money is squandered in making it.

I have added to this correspondence the complaints and answers in two suits brought against me by the commission for the recovery of penalties. The first is identical with six other complaints. The first of these cases came to trial and the complaint was dismissed by the court. Subsequently the commission moved to dismiss six other complaints of the same class, and in the case in respect to the Fort George loop, the commission brought an action to recover \$75,000 and recovered a verdict of \$1. I should be surprised if the commission had, before bringing these suits, consulted their own counsel, and I had intended to say something about them after they were tried.

On the record made by the commission, however, it appears to me that any just comment would be cruel, and I am only justified in pointing out that I have been subjected to much expense by the commission without warrant or result.

The pages of the volume proper are devoted to the many orders and requests issued by the commission, with the replies by the receiver. Among other points, Mr. Whitridge emphasizes his opposition to any plan to value the properties, and on Nov. 5 he wrote to the commission as follows:

I have yours of the 3d, referring to the resolution about the valuation of the properties of the street railways. I thought, so far as these railroads were concerned, that matter was disposed of last June. I respectfully refer you to my letter in reply to your resolution of June 12, and I beg that you will call your chairman's attention to my conversation with him thereafter. Why there should be any valuation of the Third Avenue properties at the present time I do not understand. We are paying no interest, no dividends, no rentals, and are trying to get the property in shape for reorganization, and I thought that the chairman perfectly agreed with me that any kind of a governmental price tag on the property before the reorganization was likely to be most embarrassing, and might result—in view of the enormous losses the bondholders have got to face—in preventing our getting capital, which is absolutely necessary for the company to have. You will understand that personally I care nothing about the matter, but it does

seem to me to be perfectly obvious that in the case of the Third Avenue properties any such valuation is now wholly unnecessary, and may be most detrimental.

Subsequently he discovered that part of the force conducting the valuation was occupying part of the building belonging to the company at One Hundred and Thirtieth Street, and requested them to move.

In some cases, when replying to orders of the commission, Mr. Whitridge does not hesitate to criticize the orders if he thinks they deserve such treatment, as in the following reply to certain suggestions made by the commission in regard to the establishment of flagmen at Forty-second Street and Eleventh Avenue:

In reply to these various complaints, investigations and suggestions, I have to say that I am inclined to think your inspector is descended from Captain Bunsby. Second—I think it may be of interest to you to know that Queen Anne is dead. Third—I have the honor to inform you that four flagmen have been stationed at the point your inspector has been inspecting for ten years, two by day and two during the night, and the profound suggestion of your inspector that the expense of a flagman should be divided with others interested, appears to have also dawned on the minds of those who have made the contracts for four flagmen in 1899.

Finally, I venture to suggest that if your honorable body really desires to inspect and ratiocinate about the obvious at the public expense, they should employ inspectors who can inspect.

## CIRCULAR OF MANUFACTURERS' ASSOCIATION ON FREIGHT RATES TO DENVER

The exhibit committee of the American Street & Inter-urban Railway Manufacturers' Association has issued a circular announcing the granting of reduced freight rates on exhibits between Chicago and Denver, the text of which follows:

Your committee is pleased to announce that the Trans-Missouri Traffic Association, which governs freight shipments between Chicago, St. Louis and similar points, and Denver, has acted favorably upon our request for special freight rates. They have granted us the return rate free on all material sent to Denver for exhibit purposes. We are now taking up the question with the Central Traffic Association, which has the matter under advisement.

If any of the roads over which you ship are members of this association, and you can make a request for special rates, through the local railway representative, similar to those granted us by the Trans-Missouri Association, it will materially aid the committee in its work.

The Central Traffic Association covers the lines east of Chicago. As soon as an agreement is reached with this association announcement will be made in a subsequent circular of the rates secured.

The exhibit committee has made arrangements with the Post-American Forwarding Company, Security Building, Chicago, Ill., to consolidate less than carload lot shipments of freight from members of the Manufacturers' Association and forward them as carload freight through to Denver. All small shipments of freight from points east of Chicago are transferred by the railroads at Chicago, and as these transfers will be made at a very busy time of the year, exhibitors who ship in the ordinary way are likely to experience loss, delay and breakage of freight packages. The Post-American Forwarding Company has its own large warehouse at Chicago Heights, on the Elgin, Joliet & Eastern Belt Line, some 30 miles outside of Chicago. Shipments from points east of Chicago forwarded to this company will be transferred at its warehouse without entering the congested freight houses of the railroads in Chicago, and can be consolidated into carloads without



teaming. It is the belief of the committee that this arrangement will prevent any trouble in getting shipments to Denver in time for the opening of the convention, and, in addition, the consolidation into carload lots will result in a saving of from 25 cents to \$1 per 100 lb. on the freight rates from Chicago to Denver.

The committee is especially anxious to know if the members of the association care to avail themselves of the plan for consolidation of shipments, and members are requested to advise the committee regarding the approximate weight of their shipments and the character of the freight, so that it will be possible to determine the freight classifications as early as possible.

The committee has also announced that it will hold a meeting at the offices of the Lorain Steel Company, Chicago, Ill., on Aug. 6 at 10 a. m., at which time assignments of exhibit spaces will be made to all members of the association whose applications have been received.

### STANDARD CLASSIFICATION OF ACCOUNTS

The American Street & Interurban Railway Accountants' Association has just issued in pamphlet form its standard classifications of operating expenses, operating revenues and expenditures for road and equipment. These are the classifications adopted by the association at its convention last October at Atlantic City and are practically similar to the specifications prescribed by the Interstate Commerce Commission and published by that commission in pamphlet form some months ago. The chief difference in the two classifications is pointed out in the letter of transmittal in the next column.

The pamphlet also contains the report of the committee on standard classification of accounts and form of report, as presented at the Atlantic City Convention; the report of the committee on construction and operating expenses for electric railways of the National Association of Railway Commissioners, presented at the 19th annual convention of that association in Washington, Oct. 7; a statement of the routine to be followed by railway companies in submitting questions on accounting matters for decision; a definition of the three classes into which electric railways are divided for the purpose of accounting, and the three classifications of operating expenses. The latter are for the three groups corresponding to the classes "A," "B" and "C" into which the electric railway companies are divided according to their annual operating revenues. Upon this point the pamphlet says:

Companies of Class A are to keep all the primary accounts provided in this classification, which accounts are numbered consecutively. Companies of Classes B and C are to use as primary accounts such groupings of the primary accounts provided for Class A as are indicated in the schedules below. By reference to these schedules these groupings are clearly shown. For example: In Maintenance of Roadway and Track, companies of Class B are to include all charges covered by the primary accounts numbered from 2 to 12, inclusive, and in Maintenance of Way, companies of Class C are to include all the primary accounts numbered from 2 to 19, inclusive. By this arrangement it is apparent that companies of all three classes can make use of the text descriptive of the accounts.

By use of the same plan, uniform reference numbers of the accounts will be obtained. The primary account numbers of Class A being the basis, those accounts provided for Classes B and C will bear the hyphenated first and last numbers of the combined accounts. For example, for the first 19 accounts under the general account Way and Structures of Class A, Class B will have three accounts; No. 1, Superintendence of Way and Structures; No. 2-12, Maintenance of Roadway and Track, and No. 13-19, Other Main-

tenance of Way. Class C will have two accounts: No. 1, Superintendence of Way and Structures, and No. 2-19, Maintenance of Way. By this method the numbers clearly indicate the primary accounts of Class A that have been combined for Classes B and C.

The arrangement of the text of the classifications of operating expenses which then follows is very clear, as the titles of the different accounts are set in heavy-faced type, the definitions in a lighter type and the notes in small type following the definitions. The paper used has been especially selected on account of its strength, because of the handling which the pamphlet will undoubtedly receive. A copy is being sent to the accounting officer of each railway member of the association with this letter:

AUG. 3, 1909.

*Gentlemen*—At the last convention of your association you adopted as standard new classifications of Operating Expenses, Operating Revenues and Expenditures for Road and Equipment. A pamphlet containing the full text of these classifications is being sent herewith.

These classifications are identical with those promulgated by the Interstate Commerce Commission, with the exception of the treatment of discounts and commissions on securities issued for construction purposes or to raise funds for construction. Such discounts and commissions the Interstate Commerce Commission ruled should not be considered as a proper charge against construction. Your association declined to accept this view, and according to the standard classification of your association such discounts and commissions are charged to Expenditures for Road and Equipment, Account 41—Interest.

Since the convention your standing committee on a standard classification of accounts has had a conference with the Interstate Commerce Commission and arrived at a working arrangement for securing uniform interpretations of the instructions contained in the classifications. Those members of this association who operate interstate roads should correspond directly with the Bureau of Statistics and Accounts, Interstate Commerce Commission, Washington, D. C., whenever questions arise as to the proper interpretation to be placed upon the instructions; members of this association who do not operate interstate roads desiring similar information should communicate with W. F. Ham, chairman, committee on a standard classification of accounts, Washington, D. C.

At the conference above referred to a system of numbering accounts was determined upon which is recommended as a desirable way of preventing confusion. The numbers of the accounts to be kept by companies of different classes are fully set forth on page 13 *et seq.* of the pamphlet.

Additional copies of the classifications may be secured at a price of 30 cents per copy by communicating with the office of the association, 29 West Thirty-ninth Street, New York.

ROBERT N. WALLIS, President.

### RULING OF INTERSTATE COMMERCE COMMISSION ON REPORTING FOR LAST SIX MONTHS OF 1908

It will be remembered that, by the order of the Interstate Commerce Commission, the classification adopted by the commission became effective Jan. 1, 1909, but with the suggestion that the accounts for the six months ending Dec. 31, 1908, kept under the previous classifications, should, if possible, be recast to harmonize with the new classification. The commission has recognized the difficulty the companies would have in doing this, and has prepared in the form of an annual report to the commission for the year ending June 30, 1909, extra pages similar to corresponding pages in the annual report form for the year ending June 30, 1908, on which returns for operating expenses, operating revenues and expenditures for road and equipment for the six months ending Dec. 31, 1908, may be made.



## REPORT ON INTERSTATE ACCOUNTING SYSTEM BY PROF. H. C. ADAMS

"Statistics of Railways in the United States" for the year ended June 30, 1907, prepared by the division of statistics and accounts of the Interstate Commerce Commission, has been issued. It contains a report regarding the new accounting system by Prof. Henry C. Adams, in charge of statistics and accounts.

Referring to the classification of accounts for electric railways which became effective on Jan. 1, 1909, Professor Adams states, in part:

The accounting rules prescribed for electric railways differ in some minor particulars from those prescribed for steam railways. The investigations undertaken by this office, as well as the statements submitted by representatives of this class of carriers, made it evident that the business of urban and interurban transportation covers not only a wide range of varying conditions, but that these conditions differ in many respects from those to which the accounts of steam railways are adjusted. Especially is this true of the organization for purposes of administration. The nature of the problem of a uniform system of accounting for urban and interurban carriers may be further suggested by the fact that the annual operating revenues of electric railways range from a few thousand dollars to over \$17,000,000.

The division of electric railways into three classes, according to the gross revenue, is then described. Continuing, Professor Adams says:

Another difficulty in the problem of uniform accounting for urban and interurban electric railways was found in the limited jurisdiction of the Interstate Commerce Commission, but in view of the spirit of co-operation shown by State Railway Commissions, there is good ground for the expectation that this difficulty will not seriously embarrass the realization of the plan.

Discussing the subject of the forms of annual reports which were prepared for electric railways to cover the year ended June 30, 1908, Professor Adams stated that these reports would be rendered "in substantial conformity with present methods of accounting. It was thought wise to obtain such reports in order to enable this office to test the influence of the new accounts prescribed for electric railways, which go into effect on Jan. 1, 1909."

### CLASSIFICATION OF ADDITIONS AND BETTERMENTS AND BALANCE SHEET

Taking up the important accounting questions which have not yet been determined, the report discusses the classification of additions and betterments and the proposed balance sheet. It is stated that the interests to be considered with reference to the form of balance sheet are still in course of orderly investigation. The point of difficulty with regard to the classification of additions and betterments pertains, the report says, to the treatment of abandoned property. This subject is discussed as follows:

Shall the value of abandoned property be kept in the capital accounts, or shall it be charged off? If charged off, shall it be charged to operating expenses or to profit and loss? If to operating expenses or to profit and loss, shall it be by a single entry or prorated through a series of months or term of years? If prorated, what principle should govern the determination of the period to be covered by such prorating?

This is the most serious of the technical questions yet raised in the development of a uniform system of accounts, and a point in which the public as well as the carriers have a vital interest. On the part of the public the argument is strong in support of the proposition that the balance sheet statement of "cost of property" should cover only that property actually used in rendering the service of transportation, and that abandoned property should therefore be taken out of the accounts; but the argument of the stock-

holder also has merit, which is that inasmuch as the property abandoned was abandoned to make way for providing the public with better facilities (for it must be held in mind that the question at issue arises in connection with additions and betterments), and further, inasmuch as the first investment was necessary in order that the second investment might be made, it is scarcely just to require the stockholders to sustain the entire loss. It seemed appropriate to state this question, not for the purpose of discussion, but to call attention to the fact that the work of this division in the development of a system of standard accounts for railways has reached a point where further progress requires a definite expression of policy on the part of the commission. A sense of equity and an appreciation of business conditions, rather than legal or accounting technicalities, would seem to be the element out of which such a policy should be constructed.

Criticisms of the prescribed depreciation fund and of the tentative rules for additions and betterments led Professor Adams to make a statement regarding the line of separation between management and accounting, of which an abstract follows:

### LINE OF SEPARATION BETWEEN MANAGEMENT AND ACCOUNTING

1. It must be recognized, first, that the capital assets of a corporation are subject to constant changes as a result of operation and management. Looked at from the point of view of depreciation, it must be recognized that a definite portion of the capital assets of any business concern that makes use of property will disappear as the result of operation. The capital assets may be dissipated by the appearance of a better type of structures or equipment, or by a change in the character of the business or the policy of management. This fact, namely, that capital assets are consumed in operation, must be acknowledged as an industrial law.

Neither the operating officer nor the accountant can arrest the dissipation of capital assets, and any policy of management which aims to undermeasure this fact because the cash box is empty, or to overmeasure it because the cash box is full, results in an incorrect statement of the industrial and financial situation, and for that reason is repugnant to correct accounting. It is true that the accounting orders of the commission do deprive the executives of railways of the right to misstate what in fact has occurred; they do not, however, deprive them of the right of doing whatever they see fit with the money at their disposal.

2. The second fact to be noted is (still holding in mind the depreciation accounts) that it lies within the sphere of accounting to prescribe rules which determine:

- (a) The amount of capital assets consumed.
- (b) The time when the expense accruing on account of such consumption should be acknowledged, and
- (c) The account to which the amount representing such consumed assets should be charged.

The commission has as yet issued no order touching (a), for the orders issued explicitly provide that the rate of depreciation is to be determined by the carrier; but the orders of the commission do aim to cover (b) and (c). They contain nothing relative to the time when a particular form of capital asset that has been retired shall be replaced as a piece of physical property, or as to the form it shall assume when replaced. These orders do say, however, that the expense which accrues on account of the wear of the property shall be acknowledged when the consumption of capital assets takes place, and that the amount of the expense shall be charged to operating expenses.

3. The third fact to be noted is suggested by what has been said above. The task of the operating officer is so to operate as to reduce to a minimum the consumption of capital assets. He must determine when it is wise to spend the money in the cash box, and decide what form the property replaced shall take. Not a sentence in the classifications or rules promulgated by orders of the commission warrants the implication that the commission has failed to recognize that its administrative authority in this matter is confined to supervision over the accounts of the carriers. The depreciation rules submitted are a part of the definition of



“cost of operation”; the proposed additions and betterments classification is a part of the definition of “cost of property”; the accounting rules prescribe the time when an expense is to be taken into the accounts and to what account it shall be charged.

It is true that these accounts do curtail the liberty of the financier to affect arbitrarily public opinion through published statements, a liberty which at times has been exercised to the detriment of the investor and the confusion of the legislator; but it is assumed that this was the intent of Congress when it conferred upon the commission authority to prescribe a uniform system of accounts and to employ special examiners for the investigation of those accounts.

PHYSICAL VALUATION OF RAILWAY PROPERTY

In his conclusion, Professor Adams refers to the subject of physical valuation of railway property, and states:

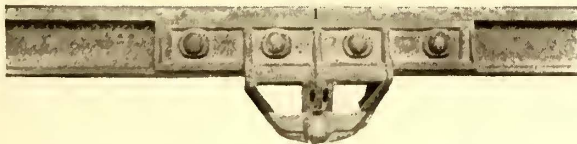
The chief purpose of depreciation accounts is to protect the investor against depletion of his property by understatement of the cost of maintenance, and to protect the public against the perpetuation of unduly high rates by charging improvements to cost of transportation. These accounts, which serve so important a purpose, require for their proper and safe administration complete and accurate information relative to the value of the property to which they apply, and this information can only be secured by a formal appraisal embracing all classes of railway property.

The purpose of a balance sheet is to disclose the financial standing of a corporation. But in the case of railway companies the commission is unable to test the accuracy of the assets reported, and there is no feasible means of providing such a test other than by a detailed inventory of the property which the assets represent. If Congress designed that the commission should do what lies in its power to guarantee the sound financing of railways, the necessity for making an inventory appraisal of railway property cannot longer be delayed.

From whatever point of view this question of valuation be regarded, whether of a reasonable capitalization or a reasonable schedule of rates, of effective administration of depreciation accounts, of the correct interpretation of the balance sheet, or of an intelligent statement of the amount and character of railway stocks and bonds which may be made available for national bank circulation, one is forced to conclude that an authoritative valuation of railway property is the next important step in the development of governmental supervision over railway administration.

HARDIN RAIL JOINT AT HOT SPRINGS

The accompanying engraving shows a base-supported rail joint used by the Hot Springs Street Railway Company. This joint was designed by E. T. Hardin, superintendent, and is said to be giving excellent service. The joint comprises two similar malleable castings weighing 19 lb. each. These castings are bolted through the fishing plates with four ordinary track bolts, and also are fastened together beneath the rail by a 1-in. truss bolt. The shape of the



Truss Rail Joint Used in Hot Springs, Ark.

joint plates is such that the ends of the rails rest for 4½ in. of their length on the trussed portion of the joint, and when the lower truss bolt is drawn up tight the rail ends are held securely against movement in a vertical direction. The stiffness of this joint is said to materially reduce failures of concealed rail bonds, and the square shoulder of the lower portion of the joint prevents creeping of the rail.

ESTIMATE OF COST OF ELECTRIFICATION OF ADIRONDACK RAILROADS

Consideration of the subject of fire prevention on the lines of railroads in the Adirondack forest preserve by the New York Public Service Commission, Second District, included an inquiry into the cost of electrification. This remedy was rejected on account of the cost of electrification, which was considered quite prohibitive by the commission.

In its opinion, written by Commissioner Sague, the commission states:

OPINION OF THE COMMISSION ON PROPOSED ELECTRIFICATION OF RAILROADS IN THE ADIRONDACKS

The electrification of the lines in the Adirondacks has been frequently proposed as a method of preventing fires, and it has therefore been considered in the treatment of this case. An estimate was submitted by E. B. Katte, chief engineer of electric traction for the New York Central lines, which covers the Mohawk & Malone, Carthage & Adirondack and New York & Ottawa. Mr. Katte's report is submitted below. This report was referred to the General Electric and the Westinghouse Electric companies, and approved by them.

The plan contemplated by Mr. Katte is electrification by the high-tension alternating-current system, with overhead trolley wire carrying 11,000 volts, the system in general being the same as that in use on the New York, New Haven & Hartford between Stamford and New York. It is proposed to locate a central power station at Tupper Lake, with 16 substations, to which the electric power is to be transmitted at 60,000 volts pressure.

The total length of main track for which electrification is proposed is 300 miles, and 38 electric locomotives are considered to be required for the three railroads. The total first cost is estimated at \$9,163,000. The total annual cost is summarized as follows:

Cost of electric power.....	\$203,100
Repairs to locomotives.....	30,910
Repairs to transmission line.....	141,200
Fixed charges .....	1,062,270
<b>Total .....</b>	<b>\$1,437,480</b>
Deducting the present annual expense for the operation of steam locomotives .....	281,010
<b>Net additional cost per year.....</b>	<b>\$1,156,470</b>

If electricity is obtained from water power, the cost of power, item No. 1, will be reduced one-half, or \$100,000 per year. The fixed charges due to the great expense of installation will, however, remain the same, and the net annual cost will be over \$1,000,000 more than the present cost of operation by steam locomotives. This expense would be entirely prohibitive. The cost of electrification of the Delaware & Hudson lines was not computed, as the estimate for the New York Central was convincing against this method.

It was stated by Mr. Katte that the conditions for electrical operation on the railroad lines in the Adirondacks are nearly as unfavorable as can be found anywhere. The traffic is small compared with the length of the lines, and the train service is limited for the most part to a few heavy trains, whereas successful electrical operation demands a fairly uniform traffic, composed of a large number of small units, such as the conditions which prevail in the suburban railroad lines entering large cities like New York and Chicago.

REPORT OF MR. KATTE

The report of Mr. Katte on the suggested electrification of the Adirondack lines of the New York Central road, as published by the commission, follows:

Approximate estimated cost of electric installation and operation of New York Central lines: Mohawk & Malone Railroad, Remsen to Malone Junction; New York & Ottawa Railway, Tupper Lake to Moira; Carthage & Adirondack Railroad, Carthage to Newton Falls. Estimate presented to the commission Jan 21, 1909, by E. B. Katte, chief engineer of electric traction, New York Central & Hudson River Railroad:



*a. General Conditions*

Items.	M. & M.	C. & A.	N. Y. & O.
1. Miles of main line.....	200	46	54
2. Miles sidings .....	53	15	6
3. Total mileage, single track.....	253	61	60
4. Passenger trains per day.....	60	3-7	4
5. Freight trains per day.....	20	4-6	3
6. Avg. weight, passenger (tons).....	166	108	75
7. Avg. weight, freight (tons).....	589	438	400
8. Total ton-miles per day (exclusive of locomotive) .....	767,030	73,010	49,500
9. Total locomotive-miles per year.....	900,000	91,200	144,000
10. No. of steam locomotives replaced....	34	4	4
11. Value of steam locomotives replaced..	\$436,000	\$32,000	\$26,000
12. Avg. cost per locomotive-mile, fuel, etc.	\$13.85	\$9.14	\$13.08
13. Avg. cost per locomotive-mile, repairs and maintenance .....	10.32	6.51	7.09

The above information has been obtained from the operating officials of the several divisions affected, and has been used as a basis for the electrical computations to follow:

*b. Electrical Plant Required*

Because of the long length of single track and the comparative small number of heavy trains, the 600-volt direct-current system is impracticable, and the following estimates are based upon a single-phase alternating-current system. A central power station is located at Tupper Lake, distributing power to 16 substations located as shown on the sketch map attached. The power station contains three 5000-kw turbo-generators, and each of the substations has a capacity of 3000 kw in static transformers. The transmission line is carried on steel poles, which also support the 11,000-volt trolley wire, with catenary construction.

The locomotives weigh 125 tons, and are designed to meet the present schedules with a trailing load of 600 tons. The plant required is as follows:

Items.	M. & M.	C. & A.	N. Y. & O.
1. Capacity of power stations in kw.....	12,930	1,230	840
2. No. of capacity in kw.....	3	5,000 kw	
3. No. of electric locomotives required....	30	4	4
4. Working conductors and transmission lines, 1 trolley circuit, 11,000 v. 2 transmission circuits, 60,000 v. (4 No. 0 wires).			

*c. Estimated Cost of Electric Equipment*

Items.	M. & M.	C. & A.	N. Y. & O.
1. Power station at \$95 per kw.....	\$1,232,000	\$117,100	\$80,000
2. Transmission lines and trolley....	2,860,000	690,000	678,000
3. Substations at \$17.50 per kw.....	630,000	105,000	105,000
4. Locomotives at \$50,000.....	1,500,000	200,000	200,000
5. Engineering and construction at 15 per cent.....	933,1000	160,900	159,000
Total cost .....	\$7,156,000	1,279,000	\$1,222,000
6. Credit for steam locomotives.....	436,000	32,000	26,000
Total net cost.....	\$6,720,000	\$1,247,000	\$1,196,000
The total estimated first cost of the electrical installation is...			\$9,163,000
The additional annual cost of electric operation is estimated at.			\$1,155,000

In the above table the cost of the power station has been prorated for each of the divisions.

*d. Estimated Annual Operating Cost*

Items.	M. & M.	C. & A.	N. Y. & O.
1. Cost of electric power.....	\$173,000	\$14,800	\$15,300
2. Repairs to electric locomotives....	23,850	2,740	4,320
3. Repairs to transmission lines.....	96,000	22,700	22,500
4. Fixed charges at 11 per cent.....	787,160	140,690	134,420
Total.....	\$1,081,010	\$180,930	\$176,540
5. Credit cost coal, water and supplies for steam locomotives.....	\$142,500	\$8,340	\$19,850
6. Credit repairs to steam locomotives.	93,000	5,940	11,380
Total credit.....	\$235,500	\$14,280	\$31,230
Net additional electrical costs.....	\$843,510	\$166,650	\$145,310

In the above estimate, coal for the power station has been assumed to cost \$4.10 per ton, and the cost of current computed at 0.0065 cent per kw-hour. The repairs to electric locomotives have been taken at 3 cents per locomotive-mile. The credit due to elimination of steam locomotive operation is based upon mileage and rates obtained from the several divisions, as given under "General Conditions."

The enormous cost of electric equipment and the heavy increase in annual operating cost are due to the fact that the service proposed is totally unsuited for economical electric operation, long hauls and infrequent heavy units being diametrically opposite to that required for successful electrification.

The order of the commission requires the installation of oil burning upon locomotives operated within the forest preserve between 8 a. m. and 8 p. m. from April 15 to Nov. 1, beginning not later than April 15, 1910. In years of minimum fire risk the oil burning period may be shortened.

**THE REFERENDUM IN CLEVELAND**

The franchise granting Herman J. Schmidt the right to construct a street railway system in Cleveland in opposition to the Cleveland Railway Company was defeated at the referendum vote on Aug. 3, 1909, by a majority of 3763. A total of 66,004 votes were cast, which was about 32,000 less than the registration. At the referendum vote on Oct. 22, 1908, Mayor Johnson's plan was defeated by a majority of only 605 votes. Only 197 votes were thrown out for improper marking at the election this week. Considering the registration, the vote was a very small one, and the adherents of Mayor Johnson attribute their defeat to this fact. The impression prevails that the citizens were not interested in any plan which did not give evidence of settling the traction situation successfully and permanently. The falling off in the vote was general all over the city, and would seem to indicate that the people have finally lost faith in the Mayor. The vote even fell off heavily in sections of the city which have always supported the Mayor and in what was considered 3-cent territory, but it did not diminish there quite so much as in other places. The Mayor retired early and refused to make a statement after the result was known. Horace Andrews, president of the Cleveland Railway Company, said the company was ready to make a settlement on the Tayler plan, as proposed before the Schmidt franchise was passed. The Tayler ordinance as proposed provided in brief for a fare of 3 cents on all lines, the fare to be raised if the returns were not sufficient to furnish good service and insure a return of 6 per cent on the stock of the company, and an extra charge of 1 cent for universal transfers. The committee of 100 has already begun a movement to force the Council to consider a grant to be based on the Tayler plan. It is expected that the defeat of the franchise will have a serious effect on Tom Johnson's aspirations to be elected Mayor again at the municipal election next November.

The last week of the referendum campaign in Cleveland was characterized by several lively tilts between speakers and visitors at the tent meetings and attacks by the speakers upon each other. Perhaps the most sensational charge was that made by ex-Mayor Robt. E. McKisson that Mayor Johnson should refund the money used in promoting the fare box. Mr. McKisson has been working independently, and entered the campaign because he felt that the administration plan should be defeated. Debates between Mayor Johnson and Attorney Homer H. McKeehan took place on the evenings of July 28 and 29. The first meeting was held in Rockefeller Park, on the east side, and was attended by 12,000 or 15,000 people. Mr. McKeehan stated before the meeting that he would answer no arguments or questions which did not pertain directly to the matter in hand. As a consequence he refused to answer some of the questions which the Mayor propounded. Asked by the Mayor to outline a better franchise for the people than the Schmidt grant, Mr. McKeehan stated that the Tayler plan contained all the provisions necessary to safeguard the public. Those in attendance at this meeting were very orderly, but at the meeting at Edgewater Park, on the west side, the following evening, order was preserved with difficulty.

At some of the meetings of the committee of 100 during the latter part of the week certain visitors became very unruly. This was particularly true of a meeting which Attorney Walter D. Meals addressed in the south end. A circular had been distributed previous to the meeting, in which Mr. Meals was accused of attacking the Jews in an address which he made before a jury some time ago. When



Mr. Meals attempted to deny this, several people in the tent caused a disturbance, probably intended to prevent his reply from being heard. The police succeeded in keeping very indifferent order, and it seemed for a time that the meeting would have to be adjourned. Mr. Meals, however, finally made himself heard, and evidently succeeded in refuting the charges made against him.

Chairman Homer McDaniel, of the committee of 100, issued a statement on July 31 showing instances in which passengers would have to pay 13 cents fare to reach certain points if the Schmidt grant prevails. Mr. Johnson said this is not true, because the law gives Mr. Schmidt the right to condemn the tracks of other lines for his use. The Mayor also stated that the city would be able to force the Municipal Traction Company to issue transfers from the lines now operated at a 3-cent fare and receive transfers from other companies.

On July 31 the committee of 100 offered rewards aggregating \$5,000 for the discovery of concessions in the Schmidt grant which are usually found in grants of that kind, and which were prominent in the draft of an ordinance prepared by Judge Tayler. The offer is \$1,000 each to the persons who find any or all of the following in the

modations which traffic demands. A comparison of the car-miles run from July 1 to 20, inclusive, as compared with a year ago follows:

	1908.	1909.	Increase.
July 1	63,979	71,093	7,114
July 2	63,413	70,294	6,881
July 3, Saturday	63,634	75,782	12,238
July 4	63,561	65,508	1,947
July 5	61,720	74,831	13,111
July 6	60,110	69,816	9,706
July 7	59,855	71,000	11,145
July 8	61,770	70,839	9,069
July 9	60,483	70,577	10,094
July 10, Saturday	60,150	77,379	17,229
July 11	61,663	61,606	*57
July 12	59,216	69,598	10,382
July 13	59,972	70,289	10,317
July 14	59,528	71,475	11,947
July 15	60,699	70,839	10,140
July 16	60,237	70,407	10,170
July 17, Saturday	59,286	77,740	18,454
July 18	61,464	64,264	2,800
July 19	59,199	70,468	11,269
July 20	59,239	70,705	11,466
Daily average	60,959	70,730	9,771

\*Decrease.

The *Cleveland News* suggested on July 31 that Warren Bicknell restore for one day, Monday, Aug. 2, the schedule operated on Aug. 1, 1908, by way of contrast. Mr. Bicknell said that he would not be justified in reducing the service for even one day, especially as the court had instructed him to give the best service the equipment would permit, without regard to cost.

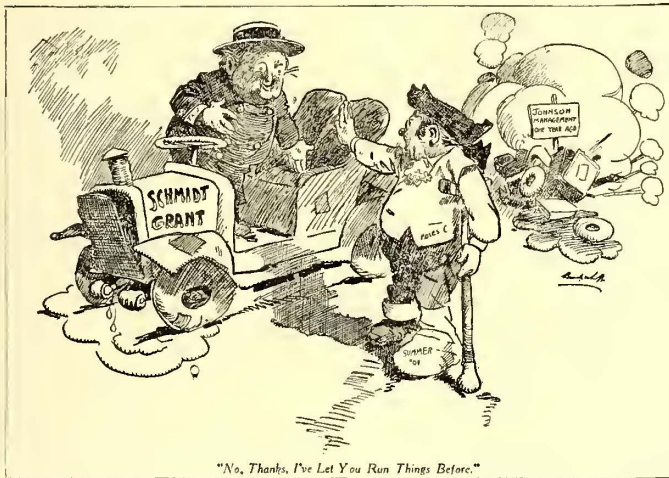
Several days during the week of July 26 were devoted to the registration of those who have moved from one precinct to another since the last election. The number registering indicated that the referendum vote would be large. Several charges of fraudulent registration were filed and two or three arrests were made. The city was thoroughly organized some time ago for work on election day and the few days previous. This work did not differ from that done during an important political campaign.

The greater part of Sunday, Aug. 1, was spent by both sides in giving final instructions to ward and precinct workers and completing the finishing touches in preparation for the election. Witnesses and challengers were enrolled and presented their credentials to the election officers on Aug. 2 and clerks in the office of the Board of Elections spent the day in inspecting the registration lists and collecting evidence in suspicious cases, so that warrants might be issued the following day for the arrest of those who enrolled illegally. The Board of Elections was also in session all day on Aug. 2, in order to give those who had been out of the city an opportunity to qualify. Almost 98,000 registered, a very large number. The large precincts were divided, so that the count might be completed early.

The closing tent meetings were held on the evening of Aug. 2. The citizens' committee held its meetings at Euclid Avenue and East Eighty-fourth Street and at Lincoln Park.

All the newspapers printed in English opposed the grant, because they did not believe that good service could be given under it and because they did not approve coercive measures. The *Leader* and the *News* have opposed the Mayor from the beginning of the traction controversy, but the *Plain Dealer* and the *Press* supported him up to the time he rejected the Tayler plan.

Mayor Johnson said several times during the campaign that if the Schmidt ordinance was defeated he would continue to oppose all grants that do not contain features which he claims make the franchise to Mr. Schmidt distinctive in the protection which it afforded the citizens.



Cartoon Printed in *Cleveland Leader* Previous to Election

Schmidt franchise: The word "transfer"; any provisions limiting the profits to Mr. Schmidt; any provision giving the Council power to reduce fares; any provision for municipal ownership.

Mayor Johnson said in several of his addresses last week that the Cleveland Railway would be the only corporation to which a franchise could be legally granted if the Schmidt proposition should be defeated, and admitted that the Schmidt grant might be used merely to coerce others if it should be sustained. The committee of 100 has replied that the administration will only be asked to permit the people to express themselves upon the Tayler plan. The committee reiterates that the people want to settle the railway matter; that they favor low fare, but good service; that they desire transfers to any part of the city, and that they prefer the operation of the system to be in the hands of one corporation.

Information secured from the office of the Municipal Traction Company by the committee of 100 and others interested in the matter shows that the system is operating on an average about 11,000 car-miles more under the receiver than a year ago, when the service was fixed by Mayor Johnson and A. B. DuPont. Warren Bicknell, the receiver, says that all available cars are in operation, but that the service is still materially short of affording the accom-



## COMMUNICATIONS

### ADVANTAGES OF OPEN CARS

GALVESTON ELECTRIC COMPANY,

GALVESTON, TEX., July 23, 1909.

To the Editors:

I notice in your issue of July 10, 1909, an editorial entitled "Open Cars for Pleasure Riding," in which you say that it takes longer to load an open car than it does a closed car or semi-convertible car. This is not the experience in Galveston. In this city we run more open cars than we do closed cars and we run them almost every month in the year. Through the summer, which with us is from April to October, we run open cars entirely, using the closed cars only as extras. We handle very large and very sudden crowds, and our experience is that an open car can be loaded and unloaded much more quickly and more safely than any closed or semi-convertible, or even a full convertible car with center aisle.

Our open cars are 8, 9 and 12-bench cars, the 12-bench being the Narragansett type, and as the curves on our streets necessitate that the wheels shall turn under the sills, our running-boards are very high from the ground.

With open cars running on double track on a two-minute headway in each direction we have recently brought to our electric parks and carried away from them over 5000 people within an hour. The cars used were eight-bench cars seating 40 people and averaging, with those on the back platform and some squeezed in between, about 50 people to the car. We have timed the unloading of a full car and its reloading from the minute of stopping to the minute of starting, and it is seldom 2 minutes and generally averages  $1\frac{3}{4}$  minutes.

To unload 50 people from any closed or semi-convertible car and reload 50 more would take at the very least 3 minutes, even saying that they were allowed to unload and load through each end of the car, something that cannot always be done with a closed car.

On account of the double track at the point referred to and the frequent intervals at which cars pass one another it was necessary for us to unload and load on one side of the car and allow no one to get in or out on the side of the car next the other track. Of course it takes care and precaution to unload and load so large a number of people, especially as a very large proportion of the riders are excursionists who put off leaving the parks for their trains until the very last minute and consequently it is difficult to prevent them from riding in exposed places, such as the wrong side of the car, on the bumpers, etc.

We positively do not allow anybody to ride on the front platform of any of our cars under any circumstances whatever, nor to ride clinging to the wrong side of a car nor on the bumpers, nor do we allow standing in between the seats in front of sitting passengers. A great many of our excursions come from sections in Texas and adjoining States where the rules in regard to the location of riding are not as strict as with us. Consequently a portion of the time required to unload and load is spent in preventing such riding by these people. With our home people and those from neighboring cities who are familiar with our rules we can unload and load such cars as those described in  $1\frac{1}{2}$  minutes from the time they stop until the time the signal is given to start. On such occasions (which occur nearly every week) as we have traffic such as is indicated above, we use four men at this loading point, two of whom watch

the "blind" side of the cars and the bumpers to see that no one gets in or rides there. The other two direct the passengers to vacant seats and see that the seats are properly filled. We also have an inspector who gives the signal for the starting of each car.

We have, we think, in Galveston also proved that when proper precautions are taken, an open car with full cross seats is much quicker and easier to unload and load for intermediate service, as well as at terminals. Of course, I am not comparing the ordinary open car with a car of the character of the "pay-as-you-enter" or any closed car that has platforms wide enough to permit people to leave and enter at the same time without obstructing one another. Our closed cars are the usual kind with, say, a 4 or 5-ft. platform, and with such a platform it is always necessary that the out-going passengers be allowed to alight before the in-going ones are allowed to enter.

Perhaps one reason for our success in this matter is that our men are very careful to direct or aid passengers to empty seats on the open cars, and as an additional point to aid both the passengers and the conductors, every seat on our open cars is numbered on the post with a distinct figure in aluminum leaf, plainly visible to the passenger from the ground by night or day. Our men are instructed to note as well as possible the numbers of the benches that are not filled to capacity and to call out these numbers to the passengers when there is quite a number to get on, and we find that the passengers are getting somewhat accustomed to this use of the numbers and take note of the announcements made by the conductor. This numbering also serves another purpose, in that, if a conductor, while collecting fares, is compelled to get down to assist ladies or children off or on, he will always be able to tell just where he ceased collecting by noting the number on the post to which he has fully collected his fares.

There is no question that open cars are promoters of traffic, both for pleasure and ordinary use, during the season in which they can be comfortably used. In sections where this season is very short and where a double equipment of bodies or of complete cars has to be kept, there is, of course, the question as to whether or not it pays to run open cars. There is also the question as to their use in any locality where there are many sudden or violent rains during the season of their use, as it is difficult to obtain any character of curtain that will fully protect the passengers from a driving rain.

The writer believes that the prejudice in many sections against the use of the open car on account of its supposedly greater danger than the closed or semi-convertible car is occasioned by the fact that proper precautions have not been taken to minimize or do away with the points of danger in which it differs from the closed or semi-convertible car. If the management allows the front platform to be crowded so that the motorman cannot move around freely; in fact, if any one is allowed on the front platform at all to disturb or distract the motorman, or if people are permitted to ride on the "blind side" of the car, on the bumpers or dashers, or to overcrowd the running-boards, then it may be expected that accidents will happen just as they would if such proceeding were allowed on a closed car or a semi-convertible. If patrons are not warned—and the warning enforced—in regard to jumping on and off open cars while in motion the ease with which this can be done will tempt them to try it with resulting accidents. But the same applies, although not in equal measure, to closed and semi-convertible and convertible cars.



It must be recognized in transportation that there are inherent dangers in the operation of every possible type of car that can be built. There is no question that certain types of car and the method in which they are operated makes them safer than other types, but there are exigencies of traffic which render it impossible in a great many cases to employ the very safest types of car or the very safest methods of operating them. If this were not the case and transportation companies were to run no cars but those that were absolutely without danger to anybody, then no cars would be run anywhere.

Traffic, especially where the public demands very rapid transit, is not a question of absolute safety, but of the minimum amount of danger consistent with the fast handling of the traffic forced on the transportation company. The American public demands a certain character of service very often, in fact, in nearly every case, determined by the local conditions. It insists upon obtaining this in one way or another, and the only thing left to the transportation company is to give it as nearly as possible what it desires in the matter of transportation and to take every possible precaution to make that character of transportation as safe as it can be made without regard to the cost to the transportation company.

That is the rule adopted by this company and under it in a city of less than 40,000 people we have again and again handled over 50,000 people in one day in our cars without any serious accident and in many cases without the loss of a trip by a single car. Of course, it takes constant watchfulness and the best of discipline to do this. It means that your public must be constantly trained by precept and by practice. It means that the dangers of your cars and every characteristic of your transportation must be learned and means taken to avert those dangers, and, such being done, there is no type of car that we find as safe and as convenient for our rush traffic as the ordinary open car with full cross seats.

H. S. COOPER, Manager.

### ALTERNATING VS. DIRECT CURRENT

BERLIN, July 22, 1909.

To the Editors:

In one of your recent issues\* you published a letter contributed by H. F. Parshall, as part of the discussion on Mr. Murray's paper upon New Haven electrification. The statements made there by Mr. Parshall require an answer.

Mr. Parshall, originally, in the case of the Central London Railway, recommended the use of polyphase generation and continuous current distribution, the then standard American practice, with which he, as an American engineer, was naturally intimately connected. The proposals he then made were undoubtedly correct for that time, with the exception of a few mistakes, such as the adoption of gearless locomotives and the bad mechanical arrangement of the motors thereon. In 1901 Mr. Parshall was appointed by Mr. Yerkes to represent him as his arbitrator in connection with the arbitration held by the Board of Trade and presided over by the Hon. Alfred Littleton, who was nominated by it as umpire, when there was a dispute between the District and the Metropolitan railways as to whether the three-phase system with two overhead conductors or the continuous third-rail system of traction was to be adopted. Although at the arbitration referred to by Mr. Parshall the question of single-phase traction did not

arise, as this system of traction was not in existence at that time, Mr. Parshall now states that he sees no reason to change the opinion he then formed as regards the relative advantages of the alternating and continuous current systems.

The disadvantages which he claims against single-phase traction may be summed up as follows:

1. The a.c. motor is essentially heavier and more complicated than the d.c. motor, and its first cost, as well as the cost of maintaining it, is essentially greater than that of the corresponding d.c. motor.

2. The high-tension overhead line is not cheaper and not more advantageous from the railway point of view than the third-rail.

3. The transformers on the motor cars are subjected to exceptional shocks and specially liable to derangement.

These statements of Mr. Parshall are essentially wrong. The a. c. motor of 200-hp one hour rating, at 500 r.p.m., would be able to give out continuously 115 hp, and would weigh 3000 kg; the most modern continuous-current motor for the same output would certainly weigh 2600 kg. In both cases water-proof enclosed motors have been compared.

The stator of the single-phase motor built on the Winter-Eichberg principle is simpler than the stator of the interpole continuous-current motor. The air-gap of all the modern a.c. motors built by the Allgemeine Electricitäts-Gesellschaft is 3 mm on each side, whereas the corresponding interpole continuous-current motors have an air-gap of 3 to 4 mm.

The first cost of a single-phase equipment is higher than that of a corresponding continuous-current equipment, but this is generally due to the high-tension transformer and other high-tension apparatus; but these higher costs are certainly not prohibitive.

As regards the cost of maintenance, experience extending over many years with single-phase systems has demonstrated that single-phase motors and single-phase control, with the exception of the large number of motor brushes required, do not call for any greater attention or maintenance than the continuous-current equipment.

It is true that the commutators are larger and require more brushes, but it is also true that these commutators and the brushes maintain themselves exceptionally well, even under the most severe conditions required by metropolitan railway service (Stadtbahn-betrieb). These must be added that there is no tendency to spark off from brush to brush, and that the tension in the motor is lower and therefore the insulation easier, so that as the results of the comparison, the advantages of single-phase construction outweigh the disadvantages of a larger commutator and a larger number of brushes.

The transformers on the cars have in all cases given excellent results: they require practically no attention or maintenance. All the remaining high-tension apparatus, especially insulators, oil circuit breakers and similar equipment, require no special attention.

Summing up, I am glad to be able to state that the cost of maintenance, and the certainty and safety of operation, are at least equal with the a.c. system to anything that has so far been obtained with an equivalent d.c. equipment.

It is quite impossible to compare the results of American railways where combined alternating and continuous current equipments are generally adopted with the results obtained on European lines. The combined system must be incomplete and unsatisfactory, because the number of parts and the complications are more than double those of a

\* See ELECTRIC RAILWAY JOURNAL, May 1, 1909.



simple single-phase system, and the consequent cost of maintenance and upkeep must be much greater. European engineers have never recommended the use of the combined system. Lines which are purely urban, such as the underground railways in London and New York, may work best with continuous current or with single-phase currents. Every such case must be considered by itself. Suburban railways (Stadt-und Vorortbahnen) and long-distance lines can only be equipped economically and with certainty of safe operation with alternating currents.

The overhead conductor system is the only one permissible in connection with main-line railway electrification. Complicated switch yards and freight yards cannot be equipped with the third-rail. The third-rail increases the cost of maintenance of the permanent way and renders it much more difficult. Independent engineers of the great railway systems of Europe have taken the position that if railway electrification is to take place and be satisfactory from the railway point of view, only the overhead-conductor system can be contemplated.

Mr. Parshall suggests that the pioneers of the single-phase system have considered too much the electrical, and too little the mechanical side of the question. This statement is quite incorrect. The overhead-conductor system is far better from a mechanical point of view, and much safer than the third-rail.

The total cost, including the power station and distribution, as well as the motor equipment, is much cheaper for single-phase than for d.c. and the general over-all efficiency is greater with a.c. than with d.c.

The statements made by Mr. Parshall seem to show that in the last few years he has not paid attention to the development of the modern a.c. system. For example, the Hamburg car is better in its mechanical details than any existing d.c. car, and the catenary overhead construction is ten times better, from a purely mechanical standpoint, than the third-rail.

DR. FRIEDRICH EICHBERG.

### PLATE FRAME M. C. B. TYPE ELECTRIC TRUCKS

A description of a short wheel-base motor truck with side frames of steel plate, built by the American Locomotive Company for the United Traction Company, of Albany, was published in the *ELECTRIC RAILWAY JOURNAL* for June 26, 1909. This same company has recently brought out another design of truck, in which the plate frame construction has a number of other new and interesting features are combined. One motor truck and one trailer truck of this design were applied to the gasoline-electric car built by the General Electric Company which was described in the issue of May 29, 1909.

The motor truck is designed to carry a load at the center plate of 30,560 lb. It is equipped with two GE 205-B motors, each having a rated capacity of 100 hp, inside hung, with nose type suspension.

The side frames are machined out of a solid, high tensile strength,  $\frac{3}{4}$ -in. steel boiler plate. Cast-iron shoes or guides are bolted to the pedestals on which the journal boxes slide. A novel feature of the frame construction is that no end frames are used. Lateral stiffness to the frames is provided by the light but stiff cast-steel transom gussets, which extend well out on the side frames, and by longitudinal angles bolted to the frames, both inside and outside. The inside angles extend from each transom to the end of the side frames and the outside angle extends in one continuous piece between the pedestals.

The transoms are of 10-in. 30-lb. channels, and are carried on shoulders provided on the cast-steel transom end brackets, thus taking the shear off the bolts securing them to the brackets. This same practice is followed throughout in the design, and wherever steel castings are used they are made to lip over the parts to which they are connected. The bolster is of light but strong construction, being of pressed steel, with the upper member made of a steel channel.

Cantering or tripping of the bolster is prevented by vertical thrust bearings cast integral with the transom end brackets

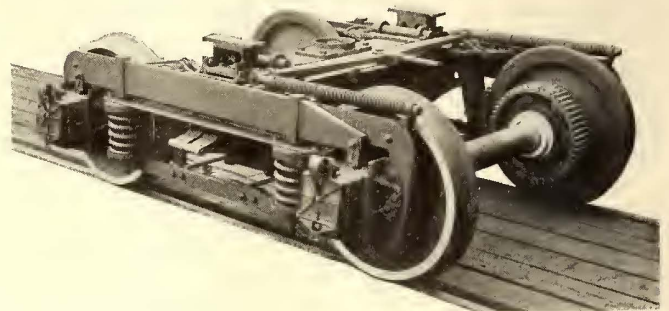


Plate Frame Motor Truck

and raised to the level of the center plate. These thrust bearings also serve to transmit the driving thrust of the motors from the truck side frames directly to the ends of the bolster and through the bolster to the center plate. This relieves the transoms of the driving stresses.

Another interesting feature is the design of the spring rigging. The swinging bolster is carried on double elliptic springs, while the weight of the truck is carried by coil springs on the equalizers in accordance with standard M.C.B. practice. In this design, however, a single straight equalizer, machined from a solid bar, is used on each side instead of two forged equalizers, as in the ordinary construction of M.C.B. type truck. The coil springs are carried on spring seats suspended from the equalizer bar by stirrups and bear against spring caps secured to the leg of the angle bolted to the outside of the frame. The use of a single straight equalizer simplifies the construction, and

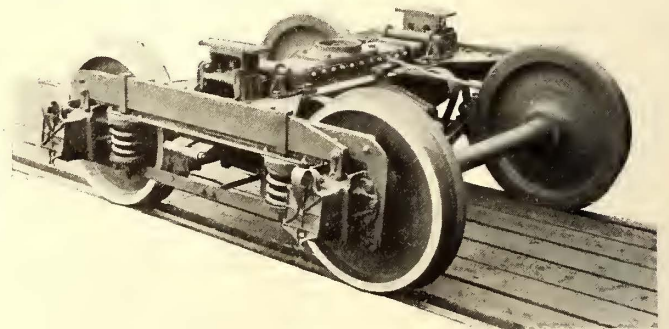


Plate Frame Trailer Truck

also provides greater strength than two forged bars of the same weight, as any injury to the bar due to internal stresses set up in the metal in forging is eliminated.

The same device is employed in this design for adjusting the angularity of the swing links as was used in the trucks built by the same company for the United Traction Company, of Albany, mentioned above. It consists of a special design of seat for the elliptic springs, in which three pockets are provided for the swing link rocker, so that, if necessary, the swing link rocker may be shifted from one pocket to the other.

In the design of the brake rigging the arrangement of the



compression brake release spring is worthy of note. The spring is guided by a small steel tube, which is riveted to the extension of the wrought-iron piece forming the connection to the brake-lever equalizer. The end of this piece is threaded and provided with two nuts, by means of which the proper compression may be put upon the spring. This makes a very simple arrangement and provides a positive compression spring easily adjusted.

In general, the trailing truck is of the same design as the motor truck, though it has a wheel base 1 ft. shorter and is of much lighter construction, being built for a load at center plate of 18,200 lb.

Both of these designs are characterized by light weight, and in view of the increase in weight of cars and motors to meet the more severe requirements of modern street and interurban railway service are of interest as showing the possibilities for a reduction in weight of equipment offered by the use of plate frames. The motor truck, with a carrying capacity at the center plate of 30,560 lb., weighs, without motors, wheels or axles, 4850 lb., which is about 2000 lb. less than an M.C.B. truck of the ordinary construction of the same capacity.

Some of the principal dimensions of the two trucks illustrated are as follows:

	Motor truck.	Trailer truck.
Gage of track .....	4 ft. 8½ in.	4 ft. 8½ in.
Wheel base .....	6 ft. 6 in.	5 ft. 6 in.
Length over all .....	8 ft. 3 in.	6 ft. 11 in.
Load carried at center plate.....	30,560 lb.	18,200 lb.
Weight without motors, wheels or axles .....	4,850 lb.	3,362 lb.*
Weight complete, without motors.....	9,000 lb.	6,850 lb.†
Weight of each motor complete.....	3,500 lb.	.....
Wheels, type .....	Solid rolled steel.	Solid rolled steel.
Wheels, diameter .....	33 in.	33 in.
Journals, diameter and length.....	5 in. x 9 in.	3¾ in. x 7 in.
Maximum operating speed.....	60 m.p.h.	60 m.p.h.
Radius of shortest curve.....	35 ft.	35 ft.

\*Weight without wheels or axles.  
†Weight complete.

### BRITISH EXHAUST STEAM TURBINES

Foreign engineers have recently been giving a great deal of attention to the subject of exhaust and mixed pressure turbines, and most of the manufacturers of turbines have put machines of this type on the market. Some power-users do not always realize that theoretically about as much work is available when saturated steam is expanded from 1 lb. above the atmosphere to a vacuum of 28 in. as when expanded from 150 lb. to the pressure of 1 lb.; yet in the latter case the b.t.u. per lb. are about 175 and in the former 170. When an exhaust steam turbine is used with non-condensing engines of course the economy is the maximum, but a considerable increase in output can be secured by installing a turbine between the engine and the condenser.

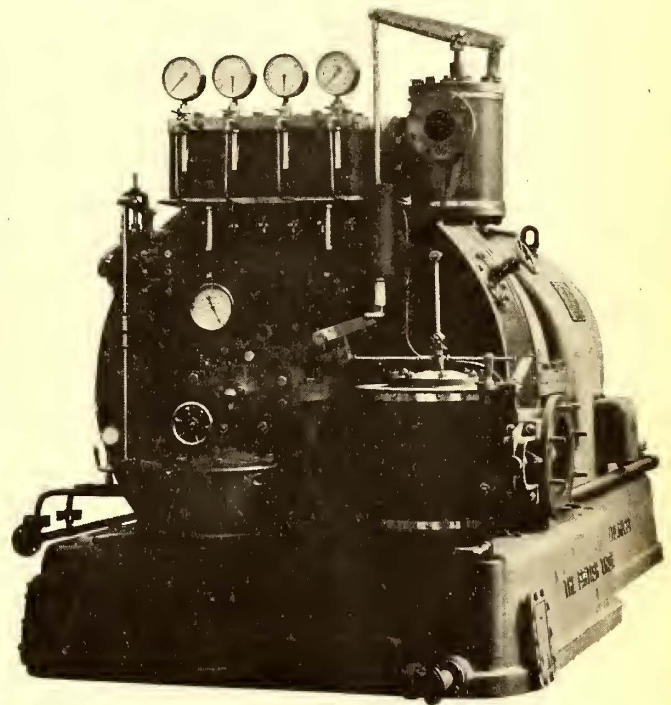
The British Thomson-Houston Company manufactures both low-pressure and mixed-pressure turbines of the Curtis type, as well as standard turbines.

The "exhaust" turbine is provided with a low-pressure stage only, and is used when the turbine is required to operate principally or entirely with steam at about atmospheric pressure, but it is also fitted with an auxiliary valve under the control of the governor for admitting high pressure steam, either for starting up or when the low-pressure steam supply is insufficient.

The "mixed-pressure" turbine has both high and low pressure stages, similar to an ordinary high-pressure turbine, but an additional inlet is provided to the low-

pressure stages, so that the turbine can make use of all the exhaust steam available at about atmospheric pressure, and the turbine is also arranged to utilize high-pressure steam with any degree of superheat in case the supply of exhaust steam fails, or is not sufficient to drive the alternator at its rated load. The turbine is fitted with an automatic governor gear so arranged that, when the exhaust steam supply fails or is reduced in quantity, the high-pressure side of the turbine is automatically opened, and the efficiency made up by live steam from the boilers. An important feature of this mixed-flow turbine is that the high-pressure steam is admitted when required to a high-pressure stage, without the intervention of a reducing valve, and thus the maximum efficiency possible is obtained from such high-pressure steam as may be used to practically the same degree as in an ordinary high-pressure turbine.

The accompanying illustrations show a side view of a 500-



500-Kw Mixed Pressure Turbine

kw mixed-pressure turbine and a view of the rotating element of an exhaust-pressure turbine.

Some particulars of a recent trial test taken on a site in Scotland on a 750-kw Curtis mixed-pressure turbine plant may prove of interest.

The plant consisted of a mixed-pressure turbine, 3000 r.p.m., three-phase generator, Korting jet condenser and a Rateau heat accumulator.

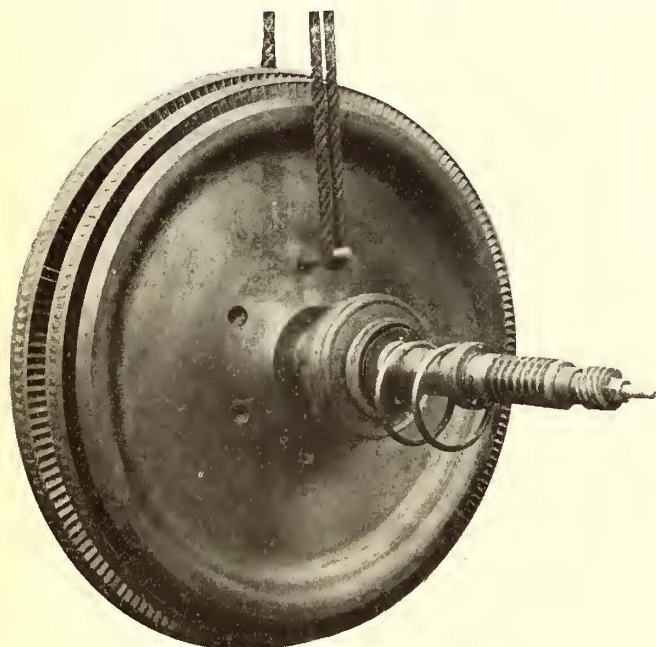
The tests were principally carried out for the purpose of ascertaining the power available from the exhaust steam. It was found with a few adjustments of the various valves that the steam accumulator would take care of all the exhaust steam and deliver it to the low-pressure stage of the turbine with a pressure difference of 1 lb. in the accumulator. As a vacuum on the intermittently working engines is not permissible, an automatic valve is placed in the pipe between the engines and the turbine, arranged to close if the pressure in the accumulator falls below the atmospheric pressure. From the reading of the instruments it was found that the load varied from 430 to 470 kw on low-pressure steam alone, exclusive of about 50 kw which was generated and delivered to the condenser pump motors.

During the low-pressure test the supply of exhaust steam



was at times insufficient for the load being carried by the generator, and high-pressure steam was taken in by the turbine automatically and without any hunting tendencies, the governing of the set being very steady. A load of 450 kw was repeatedly thrown off and on the set by opening and closing the main oil switch, the governing under these conditions being satisfactory in every respect. The vacuum registered on mercury column 28.3 in. at no load, and 27.3 in. with a load of 450 kw, the turbine using exhaust steam only.

A high-pressure steam test was carried out later; the approximate full load being carried with a steam pressure of 90 lb. and a vacuum of 27.4 in. As in the previous tests an artificial tank load was made use of, so that the load could be readily adjusted to the desired conditions. The wattmeter registered an hourly output of 728 kw, exclusive of the motor load, for the condenser pumps, which was equal to about 50 kw. The set was kept running at this



Rotary Part of Exhaust Pressure Turbine

load till a constant temperature was reached on the generator, the room temperature being 70 deg. Fahr. and the temperature in punchings and windings being 105 deg. Fahr., showing a temperature rise of only 35 deg. Fahr. Full load was thrown off and on the machine by opening and closing the main oil switch, the momentary change in speed being 100 r.p.m., or about  $3\frac{1}{2}$  per cent.

### TOOL STEEL PATENTS DECLARED INVALID

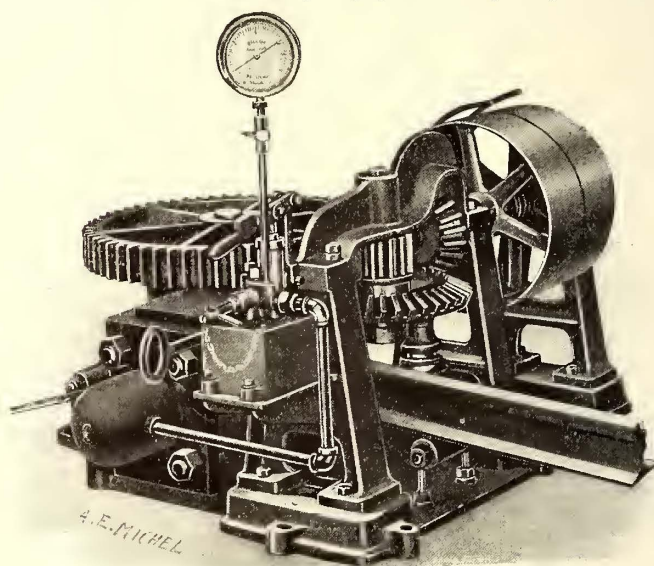
The United States Circuit Court of Appeals has rendered a final decision, declaring invalid all the principal claims of United States patents Nos. 668,269 and 668,270, relating to the composition and heat treatment of high-speed tool steels. The claims in these two patents, which were issued Feb. 19, 1901, were extremely broad, covering substantially all steels used for cutting tools in the composition of which chromium and tungsten or molybdenum appear, and to all steels heated to a temperature of 1725 deg. Fahr. or higher in the process of tempering.

The Liverpool tramways committee is disinfecting all cars at the end of each trip with a solution of chloride of mercury, applied by means of a force pump and spray.

### A POWERFUL RAIL BENDER

The use of power may effect a considerable saving of time in bending large numbers of rails. With an ordinary hydraulic bender two men will bend, say, 40 30-ft., 90-lb. rails in a day, and six men, with the best of screw benders, cannot do the same work on more than 20 rails per day. The Watson-Stillman power bender shown in the illustration, when once adjusted, bends such rails at the rate of about one per minute, and is suitable for rails of any section. It has been used a great deal on construction work, as, in addition to having great capacity, the machine can be loaded onto a car and taken out into the field. A 15-hp motor is employed for driving. Where electric power is not available, the machine is furnished with belt drive. In either instance there is little manual labor required, and the solidity of the heavy cast-steel base insures a regularity of curvature not so easily obtained with a hand-operated bender.

The power-driven bender roll is mounted in a frame which is forced forward by any pressure up to 50 tons as



A Powerful Rail Bender

required to give the desired curvature. This pressure is obtained from a hydraulic cylinder, receiving its power, in turn, from a small hand pump mounted on the frame. The two fixed roll centers are 34 in. apart. A set of bending rolls, three for A.S.C.E. standards and six for other sections, is required for each shape of rail to be bent. The outer bending rolls are changed by loosening set screws and pulling out the pins. The ram holding the middle bending roll can be worked in and out by a lever without the aid of the pump, if the release valve is open. The pump is therefore necessary only when the ram is under load.

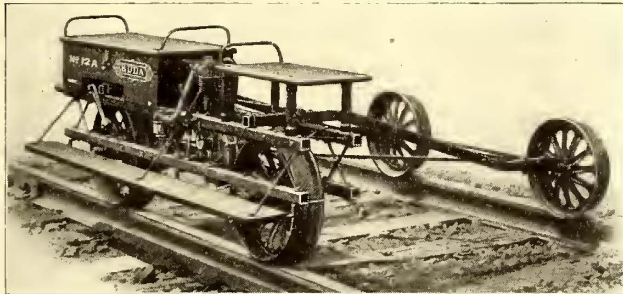
The bending is facilitated by providing roller runways to support the ends of the rail as it passes through the machine. For this purpose the Watson-Stillman screw jack rolls will be found convenient, as they permit adjustment to the correct height when set on uneven ground.

The report of the Glasgow Corporation Tramways for the year ending Dec. 31, 1908, shows gross earnings of \$4,329,842, and operating expenses of \$2,452,246. A total of 221,744,569 passengers was carried, and 20,802,797 car miles run. The average fare charged per passenger mile was 0.9 cent; average fare per passenger, 1.926 cents.



### NEW TYPE OF MOTOR VELOCIPEDE

A three-man velocipede motor built for heavy service, such as construction and line repair work, has been placed on the market by the Buda Foundry & Manufacturing Company, Chicago, Ill. It is known as the No. 12 A. The other types of motor velocipedes made by the company have a 2¼-hp engine, but the No. 12 A has a 4-hp engine, and is not equipped with the hand propelling lever used on the other types of car. All the sills are of square steel

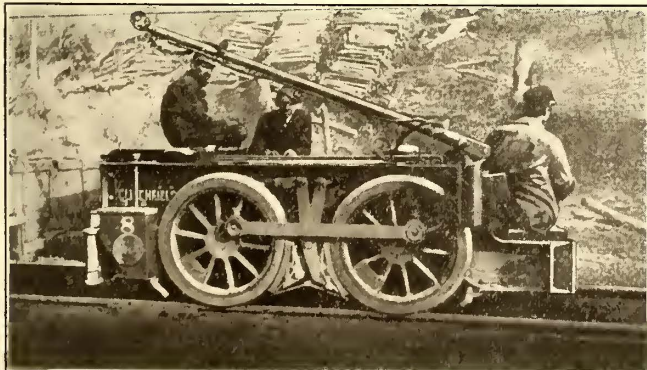


Three-Passenger Motor Velocipede

tubing held in position by iron X-bracing bolted. The guide arms are likewise of steel tubing. The car is what might be termed all-steel construction, only the seats, tool box and footboard being of wood. The steel construction adds only slightly to the weight of the car, but increases its strength considerably. In the one and two-man motor velocipedes made by the company, the two lower sills only, which carry the engine, are of steel tubing, this being considered sufficient for the service the cars are intended to perform.

### AN ELECTRIC MINE LOCOMOTIVE

The Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., and the Baldwin Locomotive Works, Philadelphia, Pa., have built jointly a new type of electric locomotive, shown in the accompanying engraving. It is of the "gathering type," and a single powerful motor performs the functions of both propulsion and operation of the gathering reel. The design has been patented by J. M.



Gathering Type Electric Mine Locomotive

Roan, general manager of the Clinchfield Coal Corporation, who is a practical mine operator. The traction wheels or the gathering reel may be operated either independently or simultaneously, winding up the rope while the locomotive is moving. This arrangement secures flexibility, compactness and reduced amount and cost of electrical apparatus. When loaded cars are to be hauled from the working face to the butt heading, on which the locomotive stands, the rope is paid out and attached to the cars. The clutch on

the main driving motor is then disconnected from the axle and connected to the reel which winds up the rope, drawing the car toward the locomotive which stands, with its brakes set, on the heading track. Many applications have suggested themselves for the combined tractive and hauling-in actions secured from the motor. Derailed cars may be easily placed on the track, timbers and rails recovered from under falls of rock, rails loaded on cars, or the reel can be used for any kind of general hoisting work. The motor transmits its power, through a single spur gear, directly to one axle. The two axles are connected together by side rods spaced 90 deg. apart.

### IMPULSE TYPE STEAM TURBINE

The E. W. Bliss Company, Brooklyn, N. Y., has placed on the market a steam turbine on which it has been experimenting for several years past. The turbine is being manufactured in all sizes from 10 kw to 1000 kw, and the designs include machines for both condensing and non-condensing service, and also for utilizing the exhaust steam from reciprocating engines. The exhaust steam turbine is especially adapted to manufacturing plants running at present through direct drive from a steam engine where plant extensions are contemplated. The exhaust steam machines are built in sizes from 75 kw to 1000 kw.

The general construction of the turbine is shown in the engraving. The casing is of cast iron, having the steam chest radially inward to each of the nozzles. An even temperature is maintained around the circumference, which does away with the necessity of having to bring any of the steam outside of the casing and then back into it again. This is a very important point in the successful operation of the machine, as it is sometimes desired to look inside of the machine, and if it is necessary to break several steam joints much trouble and annoyance are caused.

The rotor, or turbine, wheel is made of one solid piece of open-hearth steel, which has the bucket seats milled into the periphery. The buckets are separated from each other by sheets of a special anti-corrosive metal, which are held in place by three steel bands shrunk on over the periphery. This method of construction makes a solid unbroken surface on the periphery of the wheel with no projecting parts, yet the wheel is as indestructible as if no separating pieces were used, and has not the disadvantage of requiring a new wheel in case of any trivial accident like the damaging of a single bucket in transportation or handling. The running clearance is 1/16 in., so that the machine cannot be considered delicate in this particular, and the construction is such that if by any combination of circumstances the turbine wheel should touch the casing, it would be a case of two smooth surfaces rubbing, like a brake shoe on a car wheel, and would cause no damage.

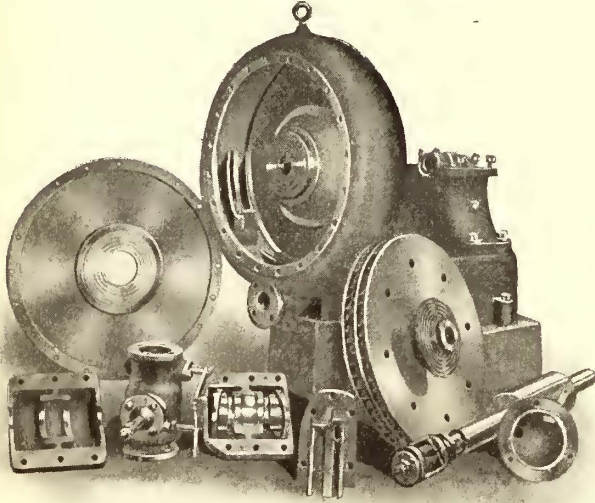
The steam is expanded completely in the nozzles, so that there is no difference in pressure between the buckets in the wheel and the reversing chamber, and consequently no loss from leakage. The reversing chamber is common for all reversals, so that the steam runs on a film of steam instead of on metal, which greatly reduces the frictional losses, as the relative difference of velocity in each layer of steam with respect to the next is very small, whereas with separate reversing chambers the steam velocity relative to the metal is exceedingly high, and therefore causes large frictional losses, as the friction is very nearly proportional to the square of the relative velocities. The number of times which the steam is used on the wheel depends upon the steam pressure and the speed of the buckets, and in this



form of nozzle the steam continues to strike the wheel as long as there is any energy in it.

In most designs the rotor is overhung, primarily in order to make a two-bearing unit for fan, pump and generating sets; but four bearing units are built when desired by the customer and on all large machines. The center of gravity of the rotor is inside of the edge of the main bearing. This bearing is of the spherical type, and is designed with generous proportions.

As the only parts of the turbine requiring lubrication are the shaft bearings, it is absolutely impossible for any oil to become mixed with the exhaust steam. The method of oiling the bearings is by a ring oiler, which gives a positive feed lubrication without the use of an external pump. The oil is held in a rapidly revolving channel-shaped ring by centrifugal force, and is diverted to the bottom of the bearings by means of a scoop. This produces a positive oil pressure in the bearing at all times, whereas in the ordinary ring oiler most of the oil flies off from the ring, and very little is actually forced to the bottom of the bearings, where the greatest pressure and need of lubrication exist. Around the shaft is a steel labyrinth packing in which there is no contact between the stationary and rotating rings of the



Parts of Impulse Type Steam Turbine

labyrinth. The packing prevents excessive frictional losses and does away with the trouble attendant with carbon packings or stuffing-box packings placed around a high-speed shaft.

The governor is of the centrifugal type, and consists of two revolving weights supported on hardened steel knife edges, and controlling a balanced governor valve through knife-edge connections. In addition to the main governor there is an emergency governor entirely independent and operating a separate valve. This emergency governor is set at a predetermined speed above normal, and in case of any possible overspeed of the turbine for any reason whatever, the emergency valve will be closed and the machine stopped.

Under the same conditions of steam pressure, back pressure and speed, the primary losses in efficiency in any turbine are caused by steam friction and leakage. In the Bliss turbine as the steam is expanded down to the back pressure in the nozzle, there is no difference in pressure between any part of the wheel and the reversing chambers, which makes it possible to run the machine with a very large clearance between the rotating and stationary elements, and still have no loss.

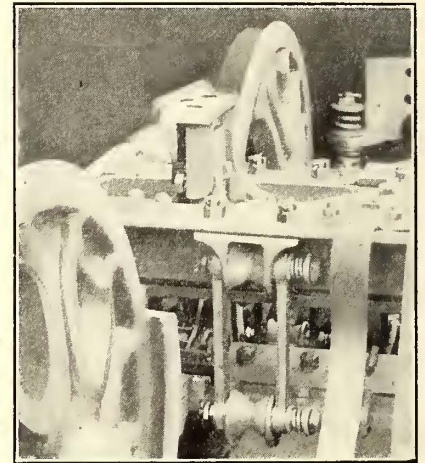
## SELF-ADJUSTING, NON-CHATTERING TRUCK BRAKE HANGER

The accompanying engravings illustrate the construction and application of a new form of self-adjusting, noiseless brake hanger made by the J. G. Brill Company and known as the "Half-Ball" hanger. It does not require the use of adjusting nuts, which have defeated the purpose of most noiseless brake hangers, and is not only self-adjusting for wear of the hanger parts, but also for changes in the relative position of brake shoe and wheel, due to wear or strain on curves and uneven track. The wearing surfaces of the hanger are self-cleaning, so that there is no tendency for dirt to lodge and cut the metal.

The hanger consists of a pair of hanger forgings with half-ball ends. The ends are held firmly in hemispherical sockets, a spiral spring on a bolt, which is in tension against the spring, being utilized for each pair of hanger ends. These comprise all of the parts of the hanger. The half-ball ends of the hanger forgings are milled and the hemispherical sockets of the malleable castings into which they fit are reamed, providing a perfect fit. The load and all movement, and consequently all wear, are brought upon the two finished surfaces, for the bolt which passes through the



Half-Ball Brake Hanger



Half-Ball Brake Hanger Applied to Brill 27-G Truck

malleable socket casting and the hanger ends, and on which the compression spring is placed, serves entirely as a compression member for the spring and carries no other load, and is never in shear. In fact, the hole in the socket casting through which the bolt passes is  $\frac{1}{8}$  in. larger than the diameter of the bolt. It is this feature which allows a slight torsional movement and makes the hanger self-adjustable for brake shoes and wheel wear and for any lateral motion of the wheels on curves. The compression spring which holds the two hanger forgings in their sockets serves also to take up the wear between the parts.

This hanger is adaptable to any type of truck with either inside or outside hung brakes. One of the illustrations shows its application to a Brill 27-G truck. The hanger has been patented in the United States, as well as in foreign countries.

Traffic on the tube lines of the Underground Electric Railways of London has shown a satisfactory increase for 1908 over 1907, accompanied by a marked reduction in operating expenses. In 1907 the ratio of operating expenses to gross earnings was 67.9 per cent, while in 1908 this was reduced to 54.5 per cent.



## ELECTRIC RAILWAY LEGAL DECISIONS

## LIABILITY FOR NEGLIGENCE

**Alabama.**—Carriers—Injuries to Passenger—Pleading—Negligence—Instructions—Damages—Nominal Damages for Loss of Earning Capacity.

Where, in an action for injuries to a passenger, the relation of passenger and carrier is averred, it was not essential that the negligence imputed to defendant's servants should be alleged to have been the result of acts within the scope of their duties.

It is not negligence in all cases, as a matter of law, for a passenger to step off a moving car at right angles therewith, since the speed of the car must materially influence the determination of the question.

In the absence of special circumstances, it is not negligence as a matter of law for a passenger to attempt to alight from a moving car.

Where the complaint, in an action for injuries to a passenger in alighting from a car, predicated a recovery on a jerk, resulting in the throwing of plaintiff to the ground, charges premitting consideration of this issue, and assuming that as a matter of law it is negligence to attempt to alight from a moving car, were properly refused.

In an action for injuries to a passenger while alighting from a car through an alleged negligent jerk thereof, an instruction that, if plaintiff got off the car at a place where it was not usual to discharge passengers, it was not negligence for defendant's servants to cause the car to suddenly jerk, was properly refused, since, if not otherwise bad, it hypothesized the departure of plaintiff from the car, whereas, if so, the jerk of the car could not be negligent under such circumstances.

Where, in an action for personal injuries, there was no evidence on which to base a conclusion as to loss of earning capacity from the injury, the court should have charged that plaintiff could recover only nominal damages for loss of earning capacity.—(Birmingham Ry., Light & Power Co. v. Harden, 47 S. Rep., 327.)

**Georgia.**—Railroads—Injury to Person Near Track—Contributory Negligence.

One who knowingly and voluntarily takes a risk of injury to his person or property, the danger of which is so obvious that the act of taking such risk, in and of itself, amounts to a failure to exercise ordinary care and diligence for his own safety and that of his property, cannot hold another liable for damages from injuries thus occasioned.

Applying this rule to the testimony of the plaintiff and that of the other witnesses introduced in his behalf, and considering all the testimony in the light most favorable to him, a verdict in his favor was without evidence to support it.—(Southern Ry. Co. v. Hogan, 62 S. E. Rep., 64.)

**Illinois.**—Trial—Remarks of Trial Judge—Misleading Remarks—Appeal and Error—Harmless Error—Exclusion of Evidence—Facts Otherwise Established—Prejudicial Error—Street Railroads—Actions for Injuries—Evidence—Admissibility—Descriptive Evidence—Contributory Negligence—Attempting to Board Car—Effect—Misleading Instructions.

In an action for personal injuries by being run over by a street car in the night time, where a witness testified that there was a light at the intersection of the streets where plaintiff was injured and he saw something near the cars, there being a lead car and a trailer, but could not tell whether it was a boy, and shortly thereafter saw a shadow falling very close to the cars, and was then asked what, if anything, he saw come from between the cars, which was objected to and sustained by the court, the trial judge stated that though the witness testified to seeing a shadow, it was not in the manner stated by the question, and the form of the question was thereafter changed, the court's remarks on sustaining the objection were not improper as tending to mislead the jury.

A witness testified that on the evening plaintiff was struck by a street car he saw something near the passing cars at a street corner, but could not tell whether it was a boy, and shortly thereafter noticed a shadow falling near the cars, there being a motor car and a trailer, and that he recognized the conductor on the trailer, and a question asked by defendant as to what, if anything, did he see come from between the cars, was excluded; and defendant insists that it was injured by the exclusion of this question because, as it was impossible to determine which car or set of cars caused the accident, if the question could have been asked to find out how long it was after the witness saw the shadow before he saw the conductor on the trailer, the car causing the accident, could have been determined. Held, that the objection was untenable, where,

after the exclusion of the question by the court, the witness testified fully on the subject, and said the car had gone on 10 ft. or 15 ft. after the accident before he saw the conductor.

In an action to recover for injuries resulting from plaintiff being struck by a street car at night, where a witness testified that he saw a shadow falling near the cars, and all he thought the shadow was, was the boy as the car went up, what the witness "thought" was properly stricken out, and its exclusion was not prejudicial to defendant; wide latitude in the examination of the witness having been allowed, and the subject having been covered in detail several times.

In an action to recover for injuries to plaintiff by being struck by a street car, a witness testified that at the time he saw a flash of electricity and thought he saw something roll, but was not sure, which answer was objected to because it was "not descriptive," and the objection overruled. Held, that the question was not objectionable on the ground stated at trial.

In an action to recover for injuries received by being struck by a street car, if plaintiff was injured while attempting to jump on the car, he could not recover, and it would be immaterial whether he went out in the street with the intention to board the car, or whether the intention came to him after he was in the street.

In an action for injuries by being struck by a street car, plaintiff having been struck either by the first car or the trailer, an instruction that, if the front of the first car did not strike plaintiff, he could not recover, was erroneous, even after the trial court eliminated the word "first," where none of the counts alleged that plaintiff was struck by the front of the car, and there was no positive allegation that there was only one car in the train or that he was struck by the first car, as plaintiff would have been guilty of negligence if he had walked into the side of the car and was injured thereby.

While the instruction was improper either with the word "first" inserted or omitted, it would not mislead the jury any more after it was modified than as originally drawn, and defendant was not injured thereby.—(Leighton v. Chicago Consol. Traction Co., 85 N. E. Rep., 309.)

**Louisiana.**—Street Railroads—Injuries to Persons on Track—Negligence—Acts Constituting—Competent Employees—Motorman.

A motorman of an electric street car who sees a child playing upon one of the sidewalks, and in the discharge of his duty to others, who, for aught he knows, may be in danger, turns his eyes in another direction, is guilty of no negligence in failing to see the child leave the sidewalk and run in the direction of the approaching car, and where it appears that he saw the child a moment afterward running toward the track, but too late to enable him to stop the car, though he did all that could then be done to stop it, the blame for the resulting tragedy cannot be laid at his door.

Where, in the case presented for decision, the evidence leaves no room for doubt that the motorman did all that the most competent motorman could have been expected to do to avert the accident, the question whether, under other circumstances, he would have done as much, or by reason of his youth and alleged inexperience, would have been unequal to an emergency with which he might have been confronted, becomes irrelevant.

There appears to be nothing in the handling of an electric street car which demands that a person, otherwise competent, should have more instruction and experience than may be acquired during four months' service as conductor and one month's service as motorman.

A motorman should be cautious, alert, and physically capable. Alertness and physical capacity are as likely to be possessed by a youth of 17 as by an older person. Caution is, ordinarily, the attribute of age, and where, as in the position of motorman, caution is required, and human life depends upon its exercise, the employment of one who has not attained the age at which, by consensus of opinion, the judgment is sufficiently matured to enable him to assume the administration of his own affairs, is hazardous, and, if disaster follows, throws upon the employer an additional burden of proof.—(Cloud et ux. v. Alexandria Electric Rys. Co., 46 L. Rep., 1017.)

**Massachusetts.**—Witnesses—Cross-examination—Purpose—Carriers—Injuries to Passengers—Right to Board Car—Wanton Attack.

In an action for injuries to a passenger the court did not err in allowing plaintiff to cross-examine defendant's conductor as to his understanding of the rules of the road, to show that the conductor's failure to make a report as required by the rules was because a truthful report would have shown his own misconduct, and that his testimony at the trial was not, therefore, entitled to credit.



In the absence of an offer to accept plaintiff as a passenger after a car had started, the conductor was entitled to refuse to permit plaintiff to board the car, and after such refusal to use a reasonable degree of force to prevent plaintiff from boarding and entering the car, and for that purpose to lay hands on him and interfere with his person, using no more force than was necessary.

A conductor, though entitled to use reasonable force to prevent a passenger from boarding a car after it had started, had no right to use excessive or unreasonable force, or to wantonly attack such intending passenger.—(Sullivan v. Boston Elevated Ry. Co., 84 N. E. Rep., 844.)

**Missouri.—Carriers—Injury to Passenger—Contributory Negligence—Instructions.**

Where, in an action against a street railway company for injuries to a passenger received by his being knocked from the inner footboard by collision with a passenger on the inner footboard on a car going in the opposite direction, the issue as to plaintiff's contributory negligence was sharply presented by the pleadings, and there was substantial evidence introduced tending to establish plaintiff's negligence, it was proper to instruct that it was the plaintiff's duty in going upon the inner footboard to exercise such care as the position rendered reasonably necessary to prevent his being struck by passengers on the car, or by the car passing on the other track, and, if he could by standing upright thereon have avoided being struck by a passenger on or by the passing car and failed to do so, in consequence of which he was injured, he is not entitled to recover.—(Simonton v. St. Louis Transit Co., 106 S. W. Rep., 46.)

**Missouri.—Master and Servant—Injuries to Servant—Negligence—Assumed Risk—Negligence of Master—Contributory Negligence.**

Where plaintiff, a street railway motorman, was injured in a collision, caused by the motorman of the colliding car being unable to stop it, owing to defective brakes, of which defendant had notice some three days prior to the injury, defendant was negligent in failing to perform its duty to exercise reasonable care to provide efficient brakes.

A street railway motorman injured in a head-on collision on a single track did not assume the risk incident to the inability of the motorman of the colliding car to stop the same, because of the negligently defective condition of the brakes with which it was equipped.

Owing to a washout, the two tracks of a street railway were temporarily placed on the same ties for a distance of 425 ft., so that cars could not pass on such section. West-bound cars had the right of way. Owing to an obstruction to the vision, a motorman approaching the single track from either end could not see a car at the other end, so that another order was promulgated that a motorman in charge of an east-bound car should proceed over the track, if no car coming from the opposite direction was in sight. Plaintiff, in charge of an east-bound car, stopped at the west approach of the single track, saw no car ahead, and proceeded slowly until within 150 ft. from a point where the tracks diverged at the east end, when he saw a west-bound car approaching. He believed that the west-bound car would stop to enable him to pass, but the motorman was unable to do so, and a collision resulted after plaintiff had stopped his car, owing to defective brakes on the colliding car. Held, that plaintiff was not negligent.—(Garner v. Metropolitan St. Ry. Co., 107 S. W. Rep., 427.)

**New York.—Carriers—Injury to Passenger—Collision of Car and Runaway Team—Negligence—Municipal Corporations—Streets—Collision of Runaway Horse—Evidence—Trial—Dismissal.**

A street railway is not liable for injury to a passenger from collision of a car and a runaway team, though the motorman was signaled to stop, there being nothing to show that stopping would have prevented the accident, at least nothing to show that the motorman had reason to believe it was safer to stop than to attempt to run the car forward out of the way of the team.

Evidence in an action for injury to plaintiff while on a street car from collision of defendant's runaway horse held sufficient to go to the jury on the question of defendant's negligence in intrusting a green horse to an inefficient driver, and in not having a proper harness for it.

There being in an action for injury to plaintiff while on a street car from collision of defendant's runaway horse some evidence tending to show negligence of defendant in intrusting a green horse to an inefficient driver, and in not having a proper harness for it, it was error for the court on setting aside the verdict, as in its discretion it might, to dismiss the complaint.—(Ellis v. New York City Ry. Co. et al., 111 N. Y. Sup., 544.)

**New York.—Carriers—Carriage of Passengers—Duty to Avoid Collision—Verdict—Correction by Jury.**

A street car company owes to its passengers the duty to exercise ordinary care to avoid collisions with vehicles, and the fact that the driver of a truck which collides with a car is himself negligent does not relieve the company of the charge of negligence.

In an action against a street railroad company and the owner of a truck for injuries where a verdict of \$500 against each defendant was returned, the court properly had the jury correct it by returning it against the defendants jointly for the full amount of the plaintiff's damage.—(Hanley v. Brooklyn Heights Ry. Co. et al., 111 N. Y. Sup., 575.)

**New York.—Carriers—Injury to Passenger—Street Cars—Contributory Negligence.**

As a street car approached the corner of a street, plaintiff signaled the conductor that he desired to alight. The conductor nodded his head, and plaintiff went onto the platform and then stood on the step, waiting for the car to reach the corner. He had one foot on the step and the other in the air, his hand on the rail, while the car was still between blocks, and as it suddenly accelerated its speed plaintiff was thrown off. There was no evidence that the conductor had signaled the motorman to stop at the corner, nor that the car prior to the accident had slowed down to enable plaintiff to alight. Held, that plaintiff voluntarily placed himself in a position of danger and was chargeable with contributory negligence.—(Bachman v. Union Ry. Co. of New York City, 111 N. Y. Sup., 586.)

**New York.—Street Railroads—Collision—Negligence—Contributory Negligence.**

In an action against a street railway company for the death of a horse in a collision with a car, evidence held to warrant a finding that the company was negligent, and that the driver of the horse was free from contributory negligence, authorizing a recovery.—(H. Koehler & Co. v. Brooklyn Heights Ry. Co., 111 N. Y. Sup., 600.)

**Washington.—Street Railroads—Collision with Vehicle—Action for Injuries—Instructions—Negligence—Pleading.**

In an action against a street railway company for injuries caused by a car striking a wagon, an instruction that running the car at a higher speed than allowed by ordinance would be negligent was not erroneous as declaring that failure of the driver of the wagon to avoid the collision, if he could have done so by exercising ordinary care after seeing the car, would not relieve the company of liability, where the court instructed that the driver was bound to exercise ordinary and reasonable care, and that, in the absence of such care, recovery could not be had.

It is negligent for a street railway company to run its cars at a speed exceeding that allowed by law.

If a street railway company, sued for injury caused by its cars striking a wagon while being run at a speed exceeding the lawful speed limit, desired to rely on facts justifying the excessive speed, it should have pleaded such facts.

An instruction that, if the car was running at an ordinary rate of speed—that is, not exceeding 12 miles per hour—and that plaintiff suddenly and without warning imprudently drove upon the track in close proximity to the car, plaintiff did not exercise ordinary care, was not erroneous, as instructing that, if the 12-mile speed limit was exceeded, the car was not running at an ordinary rate, and as making immaterial other instructions as to plaintiff's duty to observe care, especially in view of instructions that he could not recover unless he exercised ordinary care.—(Engelker v. Seattle Electric Co. Schmidt et al. v. Same, 96 Pac. Rep., 1039.)

**CHARTERS, FRANCHISES AND ORDINANCES**

**Arkansas.—Municipal Corporations—Ordinances—Effect—Electricity—Injuries—Wires in Street—Negligence—Violation of City Ordinance—Actions—Evidence—Trial—Remarks of Judge.**

An ordinance authorized by statute has the force of a statute within the city.

The failure of a street railway company and a telephone company to comply with an ordinance prescribing the minimum height and distance from each other that their wires shall be maintained, prima facie shows their negligence, in an action for injury caused by a live wire, resulting from a trolley pole leaving the trolley wire and breaking an overhead telephone wire.

In an action against a street railway company and a telephone company for injury caused by a live wire, resulting from a trolley pole leaving the trolley wire and breaking a telephone wire, due to a violation of an ordinance



prescribing the height and the distance from each other that their wires should be maintained, the telephone company having asked a witness whether a trolley pole would go straight up on being released from the trolley wire, it was not prejudicial to the telephone company for the judge to state that the testimony was immaterial, that the street railway company could operate the trolley in the most practical way, and that, if the telephone company was required to place its wires a certain distance above the trolley wire, and the length of the car and the height of the pole would not reach that requirement, it would not be negligent for the street railway company to allow the pole to "fly up there," since, even if each company's negligence was distinct, and they were not joint tort-feasors, as the negligence of each was an efficient cause of the entire injury, each is liable to the full extent of the injury.

But the remarks were prejudicial to plaintiff, as practically telling the jury that the street railway company owed no duty to the public, except that provided by ordinance, whereas it was a jury question whether the company was negligent in not protecting its wire, since it knew that its trolley pole would, at times, leave the trolley wire, and knew, or ought to have known, that the telephone wire was not high enough to prevent the pole striking it on leaving the trolley wire.

In an action against a street railway company and a telephone company for injury caused by a live wire, resulting from a trolley pole leaving the trolley wire and breaking a telephone wire, due to a violation of an ordinance prescribing the height and the distance from each other that their wires should be maintained, it was not error, prejudicial to the telephone company, for the trial judge to state that the company's witness, who had testified as to the height of the telephone wire at the place, did not know anything about it, where the witness had not measured the distance, and merely testified from his judgment after a view, the street railway company's witnesses having testified without contradiction, as to the distance from actual knowledge, and it not being the telephone company's purpose in offering the testimony to contradict such witnesses.—(Southwestern Telegraph & Telephone Co. v. Myane, 111 S. W. Rep., 987.)

**Minnesota.—Municipal Corporations—Streets—Obstructions—Rights of Abutting Owners—Special Damages.**

The occupation of a street by the construction of a permanent improvement at a point 88 ft. from premises fronting thereon, with the result that pedestrian travel on that side of the street was diverted in other directions, constitutes an interference with the natural property rights enjoyed by the owner.

Held, the construction of a tunnel and its approaches in the street upon which respondent's lot abutted constitutes special damages not suffered in common with the general public.—(Fitzer v. St. Paul City Ry. Co., 117 N. W. Rep., 434.)

**New Jersey.—Street Railroads—Rights of Abutting Owner—Removal of Switch—Bill—Equity—Obstruction in Street—Abutting Owners—Remedy at Law—Municipal Corporations—Action by Abutting Owner—Rights in Street—Consent of Abutters—Use of Streets—Grant to Street Railroad—Review—Certiorari—Subject of Relief—Property Rights.**

Where the complainant filed a bill against a street railway company to compel the removal of a switch from the street in front of complainant's property, the bill should have alleged whether complainant owned the title to the middle of the street, so as to indicate whether the suit was based on complainant's property rights in the street or on its rights as an abutting owner.

An abutting owner owning title to the center of the street could not maintain a suit in equity to compel the removal of a street railway switch from the street, on the theory that the switch was laid in the street without authority, since, if such were the fact, complainant had an adequate remedy at law by ejectment.

Unless an abutting owner owns the fee to the middle of the street, he cannot maintain a suit to enjoin a nuisance in the street which injures him only in rights enjoyed by him as one of the public. The Attorney General in such case representing the public must file an information; and this, though the abutting owner would be much more inconvenienced by the nuisance than others.

Act April 21, 1896 (P. L. p. 329), gives the governing body of municipalities the right to grant a franchise for the construction and operation of street railways on highways, and declares that the permission to construct and operate such a railway shall not be granted unless the consent of the owner or owners of at least one-half of the amount in linear feet of property fronting on the streets through which permission to construct, etc., is asked shall

be obtained and filed. Held, that the consent required was a limitation on the power of the governing body of the city, and belonged to every owner of property fronting on the streets selected, regardless of ownership to the center of such streets.

Act April 21, 1896 (P. L. p. 329), authorizes the governing body of a municipality to grant a street railway franchise provided that permission to construct a line on any street shall not be granted until the written consent of the owners of at least one-half in amount in linear feet of the property fronting on the street shall be filed. Held, that where complainant's consent to the construction of a street railroad in front of its property, which was necessary to make up the majority in linear feet of property owners to authorize construction on such street, was limited by a provision that no switch should be constructed in the street in front of complainant's property, but, notwithstanding this, the Common Council approved a plan provided for such a switch on the theory that the condition attached to complainant's consent was void, complainant's remedy was by certiorari to review the ordinance; the City Council being authorized to determine such question in the first instance.

Act April 21, 1896 (P. L. p. 329), gives the governing body of municipalities the right to grant street railroad franchises subject to certain consents of abutting property owners. Held, that the right of an abutting property owner to attach a condition to a consent necessary to authorize the construction of a road was a statutory privilege, and not a property right which a court of equity would protect.—(St. Columba's Church v. North Jersey St. Ry. Co., 70 Atl. Rep., 692.)

**New York.—Street Railroads—Right of Way in Streets—Appeal and Error—Review—Harmless Error—Instructions.**

A street railroad company has not a paramount right of way on every portion of the streets, except at adjoining streets, but has only a paramount right upon its tracks and for a sufficient space for the cars to pass, and beyond that has no greater rights than any other person using the highway.

In an action for injuries caused to a passenger by reason of a collision between a street car and a truck, defendant could not complain of a charge that it was the motorman's duty to stop the car only at the time he saw the truck driver going to go on the street car track, since the motorman's duty was not necessarily measured by the time he saw the truck moving onto his track; but his duty was to see it moving as soon as he could do so, in the exercise of that degree of care which the law exacts for the carrying of passengers.—(Newman v. New York & Q. C. Ry. Co., 111 N. Y. Sup., 289.)

**Washington.—Street Railroads—Ordinance—Street Railway Franchise—Enactment—"Legislative Authority of City"—Statutory Provisions—Ratification by Voters—Necessity—Municipal Corporations—Charter Amendment.**

The term "legislative authority of a city," as used in Laws 1903, p. 364, c. 175, as amended by Laws 1907, p. 192, c. 99, providing that the legislative authority of a city having control of any public street shall have power to grant authority for the construction of street railways thereon, of which the motive power is other than steam, and to prescribe the terms and conditions, and in Const. art. 11, § 10, providing that city charters may be amended by proposals therefor, submitted by legislative authority of the city to the electors thereof, etc., and in numerous statutes, means the mayor and council, and hence the mayor and council had the sole power to prescribe the terms on granting a street railway franchise; and an ordinance passed by the city council, and approved by the mayor, granting such a franchise; and an ordinance passed by the city council, and approved by the mayor, granting such a franchise is valid, notwithstanding an amendment to the city charter requiring the council to submit street railway franchises to the voters for their approval.

Laws 1903, p. 364, c. 175, as amended by Laws 1907, p. 192, c. 99, giving the legislative authority of a city having control of any public street the power to grant authority for the construction of street railways thereon, and to prescribe the terms and conditions, limit the power granted by the direct amendment statute (Laws 1903, p. 393, c. 186), for, while the latter authorizes the city to amend its charter, it cannot do so in such a manner as to override a statute of the Legislature, intended to deal specifically with the subject-matter in question; and hence amendments adopted under the direct amendment act, requiring submission of street railway franchise ordinances to the voters, are invalid.—(96 Pac. Rep. 1033.)



## LONDON LETTER

*(From Our Regular Correspondent)*

From a report that it has just issued it would appear that the Great Eastern Railway, with its immense terminus at Liverpool Street and its large London suburban traffic in the north and northeastern districts, has lost about 25,000,000 passengers per annum since the advent of the London County Council tramways. The company has been frequently urged to electrify portions of its suburban routes, but, like all the other railways, it is awaiting the result of the electrification of the Brighton line. It cannot be said, however, that the company has made no effort to recover the lost traffic, for it has reduced fares from 10 per cent to 30 per cent and even 40 per cent. It is practically impossible for the company to increase the size of its railway station, but it has within the last few years lengthened its trains, widened its carriages and narrowed the space between the carriages.

The annual report of the tramways committee of the Manchester Corporation shows a total revenue for the year of £784,000 and a profit of more than £279,000. The committee has appropriated £70,000 for the relief of rates and has placed £76,000 to reserves, renewals and depreciation account. The average receipts per car mile are 10.87d., and the average working expenses slightly more than 7d. The parcels department handled nearly 700,000 bundles during 1908-9. The revenue from this source was £7,000 and profits more than £11,700.

The report of the tramway committee of the Glasgow Corporation has also been issued. It shows a total income of £892,000 with a balance of £387,000. After providing for interest, sinking fund and depreciation and after paying £50,000 to the Common Good Fund of the city, there is a net balance of £16,000, which has been carried to reserve. This shows a reduction of about £18,000 in the receipts, attributed to the depression in the city. The revenue per car mile is 10.26d. and the operating expense 4.83d.

The Newcastle Tramway has not been as profitable as was anticipated, and the corporation has placed five cars at the disposal of five different advertising contractors, who have had them fitted up with advertisements according to their own ideas, and put in service. It is estimated that should the committee decide in favor of accepting advertisements, it would mean an additional revenue of between £3,000 and £4,000 per annum.

The Board of Trade arbitrator has decided that £72,000 and costs, which amount to £5,000, is the price to be paid by the Urban District Council of Handsworth to the City of Birmingham Tramway Company for the portion of the cable route from Hockley to New Inns. The lease of the cable route, which extends from the center of Birmingham to New Inns, expires in 1911, after which the portion in the city will be electrified, leaving the Handsworth District Council to deal with that part of the road within its jurisdiction.

The Edinburgh Tramway Company is now exacting a charge for parcels and personal luggage carried by passengers and for dogs. The conductors' estimate of the weight and bulk of the parcel is taken as decisive, and luggage and parcels are paid for whether left on the platform or not. A golfer has been charged for the clubs which he carried, and another passenger has been charged for carrying a traveling rug. It is not the intention of the company to charge for such small articles, however, and the charges were exacted only because the employees misunderstood the instruction. The company will charge postmen who collect the mail and ride to the General Post-office with their heavy pouches, dairymen who use the cars instead of milk wagons, and fruit and flower merchants who in the morning use the cars to transport their merchandise. Parcels weighing less than 28 lb. are to be exempt, as are also workmen's tools. A clergyman sought recently to construe the last exception to mean that he should not be required to pay for a parcel of theological books, claiming that they were his working tools.

The tramways committee of the Edinburgh Town Council has replied favorably to a letter asking whether it would support a tramway from Edinburgh to South Queensferry. Rosyth will shortly be made a naval base and the prospect is that there will be considerable traffic between Edinburgh and South Queensferry. A line is proposed on the north side of the Firth from Kirkcaldy to North Queensferry, and the tramways committee is desirous of working in harmony with this proposal.

Amicable arrangements have been made by the Rochdale, Heywood and Bury corporations for the inter-running of cars, and these busy centers will soon enjoy the benefits of such a service. Each borough will take the earnings in its own district on the basis of the stage system. The

agreement will be in perpetuity, Heywood to have the opportunity of terminating it at the end of every 10 years, though should the agreement be terminated Rochdale and Bury are to have running powers through Heywood into the other's district.

The Liverpool Corporation's plan to construct a tramway to Huyton was opposed by the London & North Western Railway. At the hearing before the Parliamentary committee the evidence showed that four members of the Parliamentary committee which was considering the matter were shareholders of the opposing railway. The corporation, however, did not view this circumstance as prejudicial to a fair investigation, and its view of the case was amply justified, as the committee found in favor of the bill and reported it to the House for third reading.

The Leeds Corporation has completed an extension of its tramways to Guiseley at a cost of between £50,000 and £60,000. The line is more than 9 miles long and the fare is 5d. A tramway was needed in the district, but the corporation was criticized for building the road as the prospects are that it will not pay for some time. To guard against any possible loss, the local district Councils of Rawden, Yeadon and Guiseley have jointly agreed to contribute £400 per annum to the company for a period of 11 years.

The London County Council was recently threatened with a strike of its tramway employees, and asked the Board of Trade to assist in the formation of conciliation boards, a plan suggested by Winston Churchill. The employees have decided in favor of the plan, and steps will be taken by the Board of Trade to conduct the election of the employees' representatives to such boards. The board will be composed of six representatives of the Council and six representatives of the employees. The Board of Trade will also have supervision over the interests from both points of view.

The London County Council has recently placed a contract for 200 tramcars, which are required for the routes being electrified and now rapidly approaching completion. The contract for the cars and the trucks was placed with Hurst, Nelson & Company, Motherwell. The British Westinghouse Company received the contract for the equipments.

The Corporation of London has decided to spend nearly £2,000,000 in the construction of a new bridge across the Thames and in improving Southwark Bridge. It is estimated that the new bridge will cost £1,647,000, while the improvements to Southwark Bridge will cost £231,000. The new bridge will be known as St. Paul's. It will be located between Southwark Bridge and Blackfriars Bridge, and it is intended that it shall accommodate tramways, so as to make another link between the north and the south. The tramways will be able to cross Newgate Street to Aldersgate Street, there joining the existing system of tramways in north London.

The construction has just been completed of the new tramway from Southgate to Enfield for the Middlesex County Council. The tramway connects Enfield Town with Southgate, Wood Green and Finsbury Park station, and forms a valuable addition to the portion of the extremely large system of tramways and light railways the Middlesex County Council has been constructing for six or seven years. At the meeting of the Council on June 25 a tender of £45,500 was accepted for the line from the Great Eastern Railway station at Enfield to the main Hertford road which will bring Enfield in touch with Waltham Cross, Edmonton, Tottenham, Stamford Hill and Finsbury Park stations. At the same meeting it was also resolved to extend the Edgware-road tramway from Cricklewood to Bridge-terrace, at an estimated cost of £150,000.

The report of the directors of the British Electric Traction Company, Ltd., and a statement of accounts for the year ended March 31, 1909, state: "The net profit after reserving £12,500 against depreciation of undertakings worked by the company, buildings and freehold land, stock, doubtful debts, and expenditure on undertakings not proceeded with, is £130,725 15s. 6d., to which must be added the sum of £35,393 12s. 8d. brought forward from last account, making a total of £166,119 8s. 2d. After deducting the interest on the 5 per cent debenture stock and the 4½ per cent debenture stock for the year, amounting to £97,484 15s. 4d., there remains a balance of £68,634 12s. 10d., out of which a dividend has been paid on the preference shares at the rate of 3 per cent for the year, amounting to £48,431 2s., leaving a net balance of £20,203 10s. 10d., which the directors propose should be carried forward. The full dividend on the 6 per cent cumulative preference shares of the company has been paid to March 31, 1908. The directors regret that the dividends and interest received from the associated companies during the past year show a diminution of £33,331 15s. 4d."

A. C. S.



# News of Electric Railways

## Meeting of the Central Electric Railway Association

The following program has been announced for a regular meeting of the Central Electric Railway Association, which is to be held in the assembly room of the Hotel Cadillac, Detroit, Mich., on Aug. 26, 1909:

### Morning Session

10 a. m.—Business session and reports of special committees.

10:30 a. m.—“The Growth and Development of Express on Interurban Lines,” paper by J. H. Crall, general passenger and freight agent of the Terre Haute, Indianapolis & Eastern Traction Company.

11:15 a. m.—“Application of Recording Watt Meters on Electric Cars,” paper by T. H. Henkle, Electric Service Supplies Company.

12:15 p. m.—Adjournment for lunch.

### Afternoon Session

1:30 p. m.—“The Development of Long Distance Passenger and Freight Business,” paper by F. D. Norviel, general passenger and freight agent of the Indiana Union Traction Company.

2:15 p. m.—New things for the benefit of our members.

## Program of New England Street Railway Club Outing

The program of the special day for ladies arranged by the New England Street Railway Club to be held on Aug. 12, 1909, at Canobie Lake Park, Salem, N. H., has been announced. Through the courtesy of the Boston Elevated Railway, the Boston & Northern Street Railway and the New Hampshire Electric Railways, the party will be taken in special cars from Boston to Canobie Lake Park, and on the return from the park will be taken to Haverhill, to connect with a train over the Boston & Maine Railroad for Boston. The Boston & Northern Street Railway will run special cars from Boston to the park without change, and the New Hampshire Electric Railways will run special cars from the park to Haverhill. Through the courtesy of D. A. Belden, president, and Franklin Woodman, general manager of the Canobie Lake Company, those who attend the outing will be admitted free to the theater and various attractions in the park, and will also be given a motor-boat ride on the lake. The tickets are \$1.75 for each person for the day's entertainment, and include the trolley ride, dinner, theater, park attractions, return ticket over the Boston & Maine Railroad from Haverhill to Boston, etc. Special tickets, for which a rate of \$1 has been fixed, will be sold to those who join the party at Canobie Lake Park, and who do not use the transportation ticket from Boston to the park and return. The itinerary of the outing follows:

9:30 a. m.—Board special cars on Brattle Street, near Adams Square, Boston, and proceed to Canobie Lake Park via Sullivan Square, Wakefield and Lawrence.

12:27 p. m.—Arrive at Canobie Lake Park.

1:00 p. m.—Dinner. Graves & Ramsdell will serve one of their celebrated dinners in the large restaurant.

Following dinner there will be an opportunity to enjoy a motor-boat ride around the lake and visit the numerous attractions in the park.

3:10 p. m.—Attend theater in the grove on the shore of the lake.

5:45 p. m.—Board special cars for Haverhill.

6:30 p. m.—Arrive at Haverhill.

6:41 p. m.—Leave Haverhill in special cars over the Western Division of the Boston & Maine Railroad for Boston.

8:00 p. m.—Arrive in Boston.

## Kansas City Company Distributes New Franchise

Bernard Corrigan, president of the Metropolitan Street Railway, Kansas City, Mo., has had reprinted in pamphlet form on news paper the complete text of the ordinance approved by the West Twelfth Street traffic way commission, but subject to the approval of the voters of the city, granting the company an extension of its franchise. The negotiations which resulted in the drawing of this ordinance have been reviewed in the *ELECTRIC RAILWAY JOURNAL* and a digest of the modified ordinance was printed on page 120 of the issue of July 17, 1909. In presenting the ordinance to the people Mr. Corrigan has prefaced it with a letter over his signature telling in a general way what the public will gain by the new franchise and how the company will benefit. The pamphlets containing the ordinance

and Mr. Corrigan's letter are being distributed on the cars of the company. Mr. Corrigan's letter follows:

“The Metropolitan Street Railway herewith presents to the public of Kansas City the full text of the proposed franchise ordinance, with the request and hope that every citizen will read it and thoroughly familiarize himself with its actual terms and conditions, so that when it is submitted to the people for their approval or disapproval, he will be in a position to cast his vote intelligently, and with a full knowledge of what advantages both the city and the company hope to derive from the agreement.

“While the negotiations during the past two or three months have been quite extensively reported in the daily papers, the impartial reader cannot have failed to observe that many fundamental and vital features of the proposed ordinance have been grossly misrepresented in both the news and editorial columns of the *Kansas City Star*. It would be a useless waste of time to enter into a discussion of these misrepresentations, and the company believes that the ordinance itself is the most conclusive answer to them.

“The company is now operating under the so-called ‘peace agreement,’ which went into effect in 1902, the salient feature of which, in addition to the ordinary and usual requirements of street railway franchises, obligates the company to pay 8 per cent of its gross receipts to the city in lieu of all taxes. Out of this 8 per cent of the gross receipts all State, county and city taxes are paid, and the balance, approximately \$120,000 per annum, has been paid to the city.

“This company will have to pay off or renew in the next four years about \$20,000,000 of its bonds. The largest portion of that amount will become due in 1913, when the present franchise will have but 12 years of life. It is unnecessary to tell any intelligent man that bonds issued on a property resting on a franchise of that short period would not sell on the market except at a great sacrifice, due to the reluctance of capital to invest in public utility properties.

“In addition to the above, large expenditures in extensions of its system will have to be made in the next 16 years, if we meet the demands of the city, which provide in the accompanying ordinance for building 2½ miles of double, or 5 miles of single track per year, which amounts to 80 miles of single track during the present life of the franchise, with power and equipment to operate this additional mileage, in addition to the demand for more cars, and consequently more power within the old limits.

“To meet the cost of these developments and provide funds for the rapid growth of the property as a whole will require large sums of money. It has also seemed highly desirable to take advantage of the experience of other American cities, where it has been fully demonstrated that franchises nearing the date of their expiration have brought about conditions which were highly detrimental both to the interests of the company and to the interests of the community. Chicago might be cited as a striking example of such a condition, where negotiations were carried on for a period of 10 years, during which time no improvements, extensions or additions could be made to the equipment of the company. Why should not the people of this city profit by the experience of Chicago, when they are offered a contract far more liberal than Chicago secured even after their long period of negotiations?”

Mr. Corrigan has summarized the benefits to the city as follows, under the heading “What the City Gets Under This Ordinance”:

“First. On the adoption of this ordinance the company shall give half fare to children under 12 years of age; children under seven, accompanied by person paying fare, ride free. After the expiration of the present franchise the city has the right to regulate and reduce fares from time to time.

“The city reserves all its present rights to regulate fares during the life of the present franchise. (Section 1-E of Ordinance.)

“Second. The city reserves the right to apply its share of the net earnings, which is 50 per cent, and a guarantee that it will never be less than 5 per cent of the gross earnings, which is about 70 per cent more than the city will get under existing ordinances, to the reduction of fares morning and evening. This would furnish a sufficient amount to reduce fares morning and evening to six tickets for a quarter. (See Section 1-C.)

“Third. The city reserves the right to keep an auditor in the company's office at all times, at the company's expense. (See Section 40.)

“(a) The city reserves the right through its board of



public works to regulate Metropolitan salaries. (See Section 24.)

"(b) No addition to capital can be made by the company without the approval of the city. (See Section 31.)

"The city reserves the right to purchase the property at the expiration of the present franchise, and at any time during the 16 years of extension given under the ordinance, by giving six months' notice, at the present valuation of \$33,500,000, and any additions to capital made with the approval of the city, or the city can sell the property to a third party. (See Section 36.)

"After 1913 a sinking fund of 4 per cent of gross earnings shall be set aside yearly for renewals. (See Section 55.)

"After 1925 a fund of 4 per cent of net earnings shall be set aside to reduce capitalization. (See Section 39.)

"The city binds the company to build 2½ miles of double or 5 miles of single track annually, and to purchase 50 cars.

"If the city elects, the company to furnish the money to build the Twelfth Street highway and provide an immediate solution of that problem, by the payment of the damages caused to property, and the termination of the pending litigation.

"The option was given the city's representatives by this company to have an appraisal made of the tangible property of the company and its unexpired franchise, or to take the actual money put into the property as found by city experts, Arthur Young & Company, as a basis of negotiations. This offer was made after the city had the report of Young & Company before them."

Mr. Corrigan has summarized the benefits to the company as follows, under the heading "Benefits to the Company Under This Ordinance":

"First. A reinforcement of its credit by an extension of 16 years to its franchise.

"Second. An agreement that should the city buy the property or sell it to a third party the money expended under the terms of this ordinance by the direction of the city will be in addition to the present valuation. (See Section 36.)"

### Transit Talks in Philadelphia

Transit talk No. 5 of the Philadelphia (Pa.) Rapid Transit Company was dated July 27, 1909. It occupied approximately 84 square inches of space in the daily papers. The subject considered was "The Pay-Within Car." The company said in part:

Before we began this "Talk" we asked the claim department of the company to tell us what effect the introduction of the pay-within car had had in reducing accidents, both to passengers and cars. We also asked for a comparison between the number of accidents on pay-within cars and on cars of ordinary types.

The answer was that the pay-within car had reduced all classes of accidents to the vanishing point. Not one pay-within car passenger has had a bone broken since these cars were placed in operation nine months ago.

This fact alone, in our opinion, not merely justifies the introduction of the car, but makes it the duty of the company to increase as rapidly as possible the number in operation, which is now about 275.

The cars cannot be made any larger, for the reason that longer and wider cars cannot be operated on the narrow streets of Philadelphia. The larger cars used on some lines in New York at a corner like Seventeenth and Chestnut Streets would sweep over the curb.

It has been asserted that the pay-within car is objectionable because it does not leave people free to jump off at will when danger is apparent. This claim, however, is at variance with experience. In case of accident the real danger is usually over before the panic begins.

Always-in-a-hurry people may chafe at the momentary restriction of closed doors and platforms, but it has been amply demonstrated that they are safeguards—not dangers.

During the year 1907, before the pay-within car was introduced, damage claims cost this company over \$1,200,000. That was about 7 per cent of the entire gross earnings. Every fourteenth fare collected went to pay damages, and to that extent the earnings of the company were depleted by an absolutely unproductive expense.

To sum up, the pay-within car very greatly reduces the chances of accidents of all sorts; the cars insure the collection of fares; they make better operation, as well as safer operation, possible; they are as comfortable in summer as any convertible car. The fact that the side doors are closed has no effect on the ventilation, which is mainly, of course, in the reverse direction from that in which the car is moving.

Transit talk No. 6 was dated July 29, 1909. The title of it was "100,000 Passengers Carried to Work in 90 Minutes Every Morning." The company said:

This is another chapter in the story of the part played by the trolley car in municipal development.

Think this over:

*Within 90 minutes every weekday morning fully 100,000 men and women are brought from every section of this city to that central portion bounded by Vine, Fifteenth, Walnut Streets and the river front. Every evening this immense multitude is transported to their homes in the same number of minutes.*

With inefficient or inadequate facilities such a feat would be impossible of accomplishment.

The entire business and manufacturing interests of Philadelphia depend upon street-car service. Without this means of transportation it is safe to say that 80 per cent of the working men and women of this city would be practically without employment or without decent places in which to live. It would be impossible for them to dwell within walking distance of their work.

That they can now enjoy comfortable homes at low rates in the healthful suburbs is due alone to rapid transit.

Many other facts can be produced to prove that traction facilities are the measure of a city's prosperity, but the above is enough to induce

thinking minds to reflect upon the relation a traction company bears to a city's welfare and wealth.

We are looking up facts that will show the immense development that has followed the extension of our lines in sections where we were "there first" and had to wait a long time for enough fares to pay operating expenses.

### Association Meetings

New England Street Railway Club, Canobie Lake Park, Salem, N. H., Aug. 12.

Central Electric Railway Association, Detroit, Mich., Aug. 26.

Association of Edison Illuminating Companies, Briarcliff Manor, N. Y., Aug. 31 to Sept. 2, 1909.

Central Electric Accounting Conference, Indianapolis, Ind., Sept. 11.

American Street & Interurban Railway Association and affiliated associations, Denver, Col., week commencing Oct. 4.

Colorado Light, Power & Railway Association, Denver, Col., Oct. 7, 8 and 9.

Empire State Gas & Electric Association, New York City, October, 1909.

**Meeting to Consider Public Utilities Matters in Maryland.**—A meeting of the State Cabinet of Maryland to consider the question of a public utilities commission law to be submitted to the Legislature has been called by Governor Crothers for Aug. 6, 1909.

**Pamphlet of American Street & Interurban Railway Association on Engineering Standards.**—The secretary of the American Street & Interurban Railway Engineering Association has just published in pamphlet form a set of standards and recommended practice of the association as adopted at the 1907 and 1908 conventions.

**Hudson & Manhattan Railroad Opened to Erie Railroad Station.**—The Hudson & Manhattan Railroad, operating under the Hudson River between New York and New Jersey, opened its line between Montgomery Street, Jersey City, and Erie Railroad Station, Jersey City, on Aug. 2, 1909. This makes it possible for commuters and others traveling over the Erie Railroad to avail themselves of the facilities of the Hudson & Manhattan Railroad for reaching down-town New York.

**Public Service Commissioners Inspect Pennsylvania Terminal.**—John E. Eustis and William McCarroll, members of the Public Service Commission of the First District of New York, and Henry B. Seaman, chief engineer of the commission, as the guests of Samuel Rae, vice-president of the Pennsylvania Railroad, inspected the new terminal of that company at Thirty-third Street and Seventh Avenue, New York, on July 30, 1909. Mr. Rae is said to have told the commissioners that he hopes to operate trains through the tunnels to Long Island by January, 1910.

**Exhaust Steam Turbines for Interborough Rapid Transit Company.**—The Interborough Rapid Transit Company, New York, is planning to install two General Electric 5000-kw low-pressure turbines, to be operated in connection with reciprocating engines of the same rating in the subway division power house on Fifty-ninth Street and Eleventh Avenue. The order hinges on the satisfactory performance of the 5000-kw unit now installed in the same power house, and which is now undergoing test. The turbines will be vertical machines driving 3-phase, 25-cycle, 11,000-volt induction generators, the leads from which will be connected without switching apparatus to the generators driven by the respective reciprocating engines. The turbines have no governors save for emergency use, and will be equipped with surface condensers.

**Resubmission of Municipal Ownership Question to Be Recommended in San Francisco.**—The public utilities committee, which has been considering the matter of resubmitting to the voters of San Francisco the question of equipping the Geary Street, Park & Ocean Railroad with electricity and operating it as a municipal enterprise, has decided to submit to the Board of Supervisors a report recommending that the question be again put before the people for approval. The committee will say that it will be impossible to hold the election until December, when all the work incident to the regular municipal contest will be over. In its report to the Board of Supervisors the committee will say: "Inasmuch as the public ownership proposition received very nearly the two-thirds vote required to issue bonds, we think it but reasonable and it will be easier for those who favor the project to win 400 votes from the opposition than it will be for the minority to gain 4,000 votes from their opponents, which would be necessary to insure the granting of a franchise. With these views, and with a determination to effect as speedy a change as is possible in the present operation of the road, your committee recommends the early submission of the matter."



# Financial and Corporate

## New York Stock and Money Market

August 3, 1909.

During every day of the past week stocks have been strong in the Wall Street market and in almost every one of the active issues daily advances have been recorded. Every condition has been favorable to a bull movement, and the trading has been considerably more active than during the early summer. Traction shares continue to be fairly active—especially Interborough-Metropolitan and Brooklyn Rapid Transit—and prices have made some advances. Less alarm is felt in financial circles over the outcome of the reorganizations that are contemplated and more hope that the stockholders will be protected.

The money market continues to be phenomenally easy. Rates are low and the banks are bountifully supplied with funds. Bonds are still in good demand, showing that investment money is still plentiful. Rates to-day were: Call, 1½ to 2 per cent; 90 days, 2¾ to 3 per cent.

### Other Markets

The common stock of the Philadelphia Company has been the active traction feature of the Philadelphia market during the past few days. The price has advanced slightly and transactions have been liberal. Rapid Transit has sold above 32 during the week and has been fairly active.

In the Boston market, Massachusetts Electric common and Boston Elevated have been sold in small quantities with only slight changes in price.

In Chicago there has been practically no trading in tractions. A few shares of Chicago Railways, Series 2, and some small lots of Subway have covered the dealings.

United Railways securities continue to be active in the Baltimore market. The stock has been traded in at 12¾ to 13¼ and the bonds, especially the "incomes," have been sold in large quantities. Some City Passenger bonds have also been in the market, selling at 101¾.

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

	July 27.	Aug. 3.
American Railways Company.....	445¾	446
Aurora, Elgin and Chicago Railroad (common).....	441½	*41½
Aurora, Elgin & Chicago Railroad (preferred).....	86½	*86½
Boston Elevated Railway.....	130½	127½
Boston & Suburban Electric Companies.....	17½	*17½
Boston & Suburban Electric Companies (preferred).....	*72	*71
Boston & Worcester Electric Companies (common).....	a13	a13
Boston & Worcester Electric Companies (preferred).....	a56	55½
Brooklyn Rapid Transit Company.....	78	81¾
Brooklyn Rapid Transit Company, 1st ref. conv. 4s.....	85¾	87½
Capital Traction Company, Washington.....	a139	a140¾
Chicago City Railway.....	a190	a195
Chicago & Oak Park Elevated Railroad (common).....	*2	*2¾
Chicago & Oak Park Elevated Railroad (preferred).....	*10	*10
Chicago Railways, ptcpt, ctf. 1.....	a119½	a119
Chicago Railways, ptcpt, ctf. 2.....	a39	38
Chicago Railways, ptcpt, ctf. 3.....	a26½	25
Chicago Railways, ptcpt, ctf. 4s.....	a10	a10½
Cleveland Electric Railway.....	*78	*78
Consolidated Traction Company of New Jersey.....	a77	76½
Consolidated Traction of N. J., 5 per cent bonds.....	a106	a106½
Detroit United Railway.....	a67¾	a70
General Electric Company.....	167½	172
Georgia Railway & Electric Company (common).....	a92	92½
Georgia Railway & Electric Company (preferred).....	85	a88
Interborough-Metropolitan Company (common).....	14½	15¾
Interborough-Metropolitan Company (preferred).....	45½	49½
Interborough-Metropolitan Company (4½s).....	79¾	83½
Kansas City Railway & Light Company (common).....	a49	a48
Kansas City Railway & Light Company (preferred).....	a84½	84
Manhattan Railway.....	a146	144¾
Massachusetts Electric Companies (common).....	a13	a12¾
Massachusetts Electric Companies (preferred).....	73½	a75
Metropolitan West Side, Chicago (common).....	a15¾	a18
Metropolitan West Side, Chicago (preferred).....	47	a48½
Metropolitan Street Railway.....	a20	24
Milwaukee Electric Railway & Light (preferred).....	*110	*110
North American Company.....	a83¾	85
Northwestern Elevated Railroad (common).....	20½	a22
Northwestern Elevated Railroad (preferred).....	a71	a71
Philadelphia Company, Pittsburg (common).....	41¾	42½
Philadelphia Company, Pittsburg (preferred).....	42½	44½
Philadelphia Rapid Transit Company.....	29¾	32
Philadelphia Traction Company.....	a99¾	a91
Public Service Corporation, 5 per cent col. notes.....	a100	a100¾
Public Service Corporation, cfs.....	a89	a91
Seattle Electric Company (common).....	*105	*105
Seattle Electric Company (preferred).....	104	105
South Side Elevated Railroad, Chicago.....	a56	a58
Toledo Railways & Light Company.....	a10	a9½
Third Avenue Railroad, New York.....	20	20¾
Twin City Rapid Transit, Minneapolis (common).....	103¾	a103¾
Union Traction Company, Philadelphia.....	53½	55¾
United Railways & Electric Company, Baltimore.....	a12½	a13¾
United Railways Inv. Co., San Francisco (common).....	a38	a38½
United Railways Inv. Co., San Francisco (preferred).....	53¾	56
Washington Railway & Electric Company (common).....	a48	a47
Washington Railway & Electric Company (preferred).....	a93¾	a93
West End Street Railway, Boston (common).....	94	a95
West End Street Railway, Boston (preferred).....	*106	106
Westinghouse Electric & Manufacturing Company.....	85	86½
Westinghouse Elec. & Mfg. Company (1st pref.).....	a124½	a130

aAsked. \*Last sale.

## Judge Lacombe Upheld in a New York Suit

The appeal taken in the matter of the claim of William W. Ladd, as receiver of the New York City Railway, in the suit of the Barber Asphalt Paving Company against the Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad, was dismissed by a decision filed on Aug. 3, 1909, in the United States Court of Appeals. The decision sustains the order of Judge Lacombe in which he remanded the cause for a rehearing to Edward H. Childs.

There were two parts to the claim, one being a balance alleged to be due upon an open account and the other a claim upon a promissory note for \$893,433. The claimant asserted that he had made a case for the recovery of \$107,830.54 upon the open account, and also that he had proved his right to recover on the promissory note. Upon these grounds he contended that the claim should be allowed in the total sum of \$1,001,263.

Special Master Childs found that the amount charged and claimed for interest on the note by the New York City Railway and its receivers should be disallowed, as it exceeds the balance claimed to be due on the account. He also found that the New York City Railway, by virtue of its lease from the Metropolitan Street Railway, was bound with respect to "controlled companies" made by the Third Avenue Railroad in its first consolidated mortgage to the Morton Trust Company as trustee.

The protective committee of the Dry Dock, East Broadway & Battery Railroad, a party to the appeal, in the brief filed said in part:

"The contention was made upon the argument of this cause that it was a 'test case,' and the court below rendered a short decision upon the report of the master without an extended discussion of the many important questions involved in order that this court might as speedily as possible render a decision which would settle the law not only of this case but of other similar cases pending in the court below.

"A suit is pending in the court below similar to the suit at bar, brought by the American Hay Company against the Dry Dock Company. In that suit the Central Trust Company, as trustee, has intervened as a party defendant. A claim has also been filed against that company as a trustee upon a note similar to the note for \$6,000,000 in the case at bar. The testimony on that claim has not yet been completed. The two notes amount to about \$2,000,000.

"A similar suit involving similar issues is pending in the court below against the Union Railway, brought by the Lorain Steel Company.

"The master disallowed the claim because it was not known that the note was based upon any consideration; in our cause we believe that we have affirmatively shown both failure of consideration and the existence of a counter claim in favor of the Dry Dock, East Broadway & Battery Railroad against the claimant in excess of the amount of its claim."

The decision of the Court of Appeals follows:

"Judge Lacombe's order is in no sense final, even assuming that a decree finally determining this proceeding is itself a final decree in the suit from which an appeal can be taken. The reference which he has directed the master is not a mere ministerial act in execution of a final order; it is a substantial part of the litigation upon the determination of which the rights of the parties wholly depend. Although no parties to the record have raised this point, the brief of others interested does raise it, and in any case no jurisdiction can be conferred by consent, for the proceedings are coram non judge.

"We must, therefore, dismiss the appeal, and the parties must prosecute the reference before the special master."

**Central Pennsylvania Traction Company, Harrisburg, Pa.**—At the annual meeting of the Central Pennsylvania Traction Company, held recently, Frank B. Musser, the president, presented his report and the following directors were elected for three years: E. S. Herman, James Russ, W. H. Seibert, T. E. Walz and E. Z. Wallower. Subsequently the directors organized and re-elected the officers. The matter of a cash dividend was discussed, but no action taken at the meeting. President Musser's report showed that the company now operates about 71 miles of track and 133 cars. During the last four years the company has expended \$264,390 for paving and about an equal amount for track reconstruction. Relaying tracks last year cost \$38,340. Twenty-seven miles of track have been paved. A \$300,000 bond issue recently authorized will take care of the cost of the new work planned. The gross receipts last year were \$731,261. The company paid \$51,826 in taxes. A script distribution of \$2 per share was allowed on the stock.



## Traffic and Transportation

### Hearing by Massachusetts Commission on Salem Willows Fares

The Massachusetts Railroad Commission gave a public hearing on July 30, 1909, in connection with the petition of the Selectmen of Peabody for a reduction in the fare from 10 cents to 5 cents between Peabody Square and Salem Willows. The petitioners were represented by Town Counsel Donnell, and the Boston & Northern Street Railway, respondent, by its counsel, Bentley W. Warren, Esq., Assistant General Manager Reynolds and Division Superintendent Chalmers.

The petitioners attempted to show the existence of heavy traffic between Peabody Square and Salem Willows by records of car register readings taken recently at Town House Square, Salem, a point on the route about 1.5 miles west of the Willows, which is the electric railway transportation center of the Salem district. For the company Mr. Warren said that the travel between the points named in the petition is heavy in the summer season, but very light at other times of the year, and showed that the figures submitted by the petitioners are of little value, since they do not show the travel from Peabody Square to Town House Square alone, but count everyone who boarded the cars and paid fare in Salem. The figures were also defective in not showing where the passengers in the car at Town House Square traveled after leaving that point, since a mere register count at a point on the route gives no indication of the distribution of travel or the fitness of the service between specified points.

Mr. Warren also emphasized the characteristics of the Salem Willows travel, showing by questions addressed to the petitioners and reference to the knowledge of the company's officials of the situation from month to month that the place is solely a summer resort, with approximately 19 permanent residences. The territory between the Willows and Salem is sparsely settled. The company believes that a line built to accommodate summer travel in this way should be permitted to reap greater profits per car and per trip in the short portion of the year when it can earn its right to exist than a line favored with a more substantial and regular travel.

Patrons of the company, according to Mr. Warren, can go from any part of Peabody to any part of the settled district of Salem for 5 cents, and the company feels that it is more important to maintain a 5-cent fare between Peabody and the great shoe manufacturing section of Lynn than to establish a 5-cent fare between the Willows and Peabody Square. It holds that the workingmen who are obliged to travel daily between their homes and the shops are more justly entitled to such low fares than persons who ride merely for pleasure. The distance from Peabody Square to Salem Willows is 3.78 miles, and under the conditions of travel the year through this is not an unreasonable fare. A fare of 10 cents here is a rate very much below what it would cost a passenger to go to the Willows by any other conveyance. If the commission should order a reduction it would deter the company from building similar lines to summer resorts. The matter of distance is not the whole consideration. Mr. Warren concluded by saying that in his opinion it is impossible to carry passengers with profit on a street railway in Massachusetts under the conditions there imposed at a rate of a cent a mile.

Counsel for the petitioners, in reply to a question by Mr. Warren, admitted that the present 5 per cent dividend of the Boston & Northern Street Railway is by no means too high, and acknowledged that if the company's revenues are cut at one point, they have to be made up elsewhere. Chairman Hall suggested that the petitioners and the company prepare figures, if possible, showing the traffic at the present season between Peabody Square and the Willows, and said that in deciding the case the commission would consider existing fares in Massachusetts, the earnings and fares of the company, and any other points of direct relation.

### Chicago Companies Refuse Wage Demands of Employees

Opinions in Chicago regarding the possible amicable settlement of the differences between the employees of the Chicago City Railway and the company and the employees of the Chicago Railways and the company differ. Both companies have refused to comply with the demands of the men for increases in wages. The agreement between the Chicago Railways and its employees and the Calumet & South Chicago Railway and its employees expired on May 31, 1909, and a settlement was postponed until Aug. 1, 1909,

**Chattanooga Railway & Light Company, Chattanooga, Tenn.**—The Chattanooga Railway & Light Company was incorporated on July 24 with an authorized capital stock of \$5,000,000, divided into \$3,000,000 of common stock and \$2,000,000 of 5 per cent cumulative preferred stock, as a consolidation of the Chattanooga Railways Company and Chattanooga Electric Company. Mention of the ratification of the plan to consolidate these companies was made on page 1140 of the ELECTRIC RAILWAY JOURNAL of June 19, 1909.

**Dayton & Xenia Transit Company, Dayton, Ohio.**—The reorganization committee of the Dayton & Xenia Transit Company has been given until Aug. 28, 1909, to complete the payment for the property. The foreclosure sale was confirmed by the court on June 29. The company will be reorganized under the name of the Dayton, Springfield & Xenia Southern Railway.

**Interstate Railways Company, Philadelphia, Pa.**—A bill in equity has been filed in Common Pleas, Court No. 5, by the American Railways Company against the Interstate Railways Company, the United Power & Transportation Company, the Real Estate Title, Insurance & Trust Company and the Real Estate Trust Company for an injunction to restrain the United Power & Transportation Company from pledging its securities for moneys to be borrowed by the Interstate Railways Company for improvements or to pay interest on bonds of the Interstate Railways.

**Interborough Rapid Transit Company, New York, N. Y.**—The \$10,000,000 of 3-year 5 per cent notes of the Interborough Rapid Transit Company dated March 1, 1907, have been called for payment on Sept. 1, 1909, at 101 and interest at the office of the Morton Trust Company, New York, N. Y., trustee.

**New York State Railways, Rochester, N. Y.**—The Public Service Commission of the Second District of New York gave a further hearing on July 22, 1909, on the petition of the New York State Railways for permission to issue a first consolidated and refunding mortgage to secure bonds to the amount of \$35,000,000. Walter N. Kernan appeared for the company. Horace E. Andrews, president, and A. L. Linn, Jr., general auditor, testified concerning the details of the various applications. Complete financial statements of the companies comprising the New York State Railways as of March 22, 1909 (the date of consolidation) were filed.

**Northwestern Elevated Railroad, Chicago, Ill.**—The Northwestern Elevated Railroad has declared an initial dividend of 1 per cent on the \$5,000,000 of 5 per cent non-cumulative preferred stock, payable Oct. 18, 1909, to holders of stock of record on Oct. 9.

**Portland Railway, Light & Power Company, Portland, Ore.**—An initial dividend of 1 per cent has been declared by the Portland Railway, Light & Power Company on the \$10,000,000 of common stock, payable Sept. 1, 1909, to holders of record on Aug. 15.

**Puget Sound Electric Railway, Tacoma, Wash.**—The Puget Sound Electric Railway recently concluded negotiations for the purchase of the property of the Pacific Traction Company and formally took over the holdings of the company on Aug. 1, 1909.

**San Francisco (Cal.) Electric Railways.**—The San Francisco Electric Railways, which is a subsidiary of the United Railways Investment Company, with \$10,000,000 of authorized stock and \$10,000,000 of bonds, has taken over the Parkside Transit Company.

**Syracuse, Lake Shore & Northern Railroad, Syracuse, N. Y.**—The Syracuse, Lake Shore & Northern Railroad has obtained through Willis A. Holden, who purchased the same at mortgage foreclosure sale, all the property, franchises, etc., of the Oswego Traction Company, and will operate them in the name of the Syracuse, Lake Shore & Northern Railroad Company, Oswego division.

**Third Avenue Railroad, New York, N. Y.**—Judge Lacombe, in the United States Circuit Court, has filed an order postponing the foreclosure sale of the Third Avenue Railroad from Sept. 2, 1909, to Oct. 27, 1909. The order also postpones until Sept. 27, 1909, the filing by the special master of the inventory of the property of the company. The postponing of the foreclosure sale was made at the request of Bowers & Sands, counsel for the Central Trust Company, which procured the decree of foreclosure.

**Toledo Railways & Light Company, Toledo, Ohio.**—The protective committee of the stockholders of the Toledo Railways & Light Company, through H. F. Swift, of Toledo, its secretary, is sending out another appeal to holders to deposit their stock with the committee. The committee announces that a majority of stock is now controlled by it, but that work of refinancing is being retarded by many small holders failing to lend their support.



on which date the agreement between the Chicago City Railway and its employees expired.

T. E. Mitten, president of the Chicago City Railway, said personally some time ago that he did not feel that the company could afford to grant the increase of 3 cents an hour demanded by the men, but that he would submit the matter to the directors. To substantiate his statement that the men are receiving wages that are fully commensurate with the services they perform and that they compare more than favorably with the wages paid in other cities where conditions are equally severe, he presented a comparative table of wages in 16 cities, including New York, Boston, Philadelphia, Pittsburg, Detroit, Minneapolis, Milwaukee, New Orleans and Cincinnati. He also submitted the following statement of wages in cents per hour paid to platform men on the Chicago City Railway since 1901:

	Cents.		Cents.
1901	22.69	1905	24.88
1902	23.59	1906	24.69
1903	25.10	1907	26.20
1904	25.08	1908-1909	26.68

The directors of the Chicago City Railway were of the same opinion as Mr. Mitten. On July 30 Mr. Mitten addressed the men by letter and suggested that the matter be submitted to a board of arbitration. In this communication Mr. Mitten said:

"The earnings of our older employees, taken from the May pay roll, vary from \$80 to \$100 a month. The average wage for all conductors and motormen was \$70.01 per month, the average time on duty per man per day being 8 hr. and 28 min. The wages now paid by the company are much higher than the wages formerly paid, and are also higher than the wages paid elsewhere, including Philadelphia and Pittsburgh, where strike conditions have recently prevailed and new contracts have been entered into at prices lower than the existing contract price paid by this company. The facts clearly do not justify an increase in the wage scale.

"The company is willing to renew the existing contract or submit the whole question of wages (not simply the question of an increase of wages) to arbitration, the arbitrators also to fix the duration of the new contract."

The demands of the employees of the Chicago & Oak Park Elevated Railway for an increase in wages through a reduction of hours and changes in working conditions have also been rejected by Clarence A. Knight, president of the company.

The refusal of the Chicago City Railway to comply with the demands of its employees for an increase in wages was met by a call for a special meeting of the men on Aug. 2, at which they voted down the proposition of Mr. Mitten to arbitrate the matter and ordered an immediate referendum strike vote. The men say that the statement that the company cannot afford to increase their wages is not well founded, and point to the moneys received by the city in two years as its share of the receipts of the company to substantiate their contention. Mr. Mitten is reported to have said that he would be perfectly willing to have the city stand the expense of any increase, deducting the additional charge for wages from its percentage of the earnings of the company under the new franchise.

### Report on Pay-Within Cars in Washington

H. C. Eddy, executive officer and secretary of the District Electric Railway Commission, Washington, D. C., reported to the commission under date of July 21, 1909, on the operation of pay-within cars in Washington. The Capital Traction Company has been operating pay-within cars on its Chevy Chase line between Chevy Chase Lake and Fifteenth Street and New York Avenue, N. W., for some time. Mr. Eddy in his report describes briefly the pay-within cars used in Washington and recites the claims of the patentees regarding the safety and comfort of this type of equipment. In his report, he says:

"It will be remembered that I visited Philadelphia on my return from the convention of the American Street & Interurban Railway Association at Atlantic City in October, 1908, and witnessed the construction and operation of pay-within cars, after which I made a brief report to your commission in regard to the same. Since that time I have been investigating the operation of the pay-within car and have received considerable information in regard to the same from the Philadelphia Rapid Transit Company and the Electric Service Supplies Company, the patentee of the pay-within principle.

"I am informed by the general manager of the Philadelphia Rapid Transit Company, which now has about 300 pay-within cars in operation, that this company has found the cars very satisfactory in every way, the chief complaint in regard to the same being from ladies who are afraid that they might be injured in boarding or alighting from the

cars, and I have been informed through another source that a few such accidents have actually happened, clothing being sometimes caught in the folding step. I believe, however, that the pay-within car is a long step toward the increased comfort, convenience and safety of passengers.

"The cars of this type now being operated by the Capital Traction Company are typical pay-within cars. They are provided with 14 transverse and four short longitudinal seats, giving a seating capacity of 44 adults. The seats are covered with rattan. Four motor equipments and semi-automatic air brakes, with the usual hand brakes are provided. Illuminated end signs and side signs (not illuminated) are also provided. The doors are wide and a rear exit arrangement is provided. It is to be hoped that the Capital Traction Company will be more liberal in allowing the use of this rear exit than it has been generally in the case of the P. A. Y. E. cars. The cars are richly finished within and without, the exterior being painted a dark olive. They ride very easily, especially over the new tracks which have recently been laid on Connecticut Avenue-extended, and the patrons of this line are to be congratulated on being provided with an up-to-date car which is safe, convenient and comfortable."

### Accident Report of Indiana Commission

The accident report of the Railroad Commission of Indiana for the quarter ended June 30, 1909, follows:

PASSENGERS INJURED	
By collisions	64
By getting on or off moving trains	17
By getting on or off moving cars after stops are made	4
Miscellaneous	3
<b>Total</b>	<b>88</b>
RESULTS	
Deaths	12
Fractures or dislocations	12
Sprains	7
Cuts and bruises	43
Miscellaneous	14
<b>Total</b>	<b>88</b>
TRAVELERS ON HIGHWAYS HURT	
To vehicles	8
On foot	1
<b>Total</b>	<b>9</b>
CAUSES	
Struck on crossings	3
By teams frightened	5
Miscellaneous	1
<b>Total</b>	<b>9</b>
INJURIES TO EMPLOYEES	
Conductors	5
Motormen	4
Laborers	5
<b>Total</b>	<b>14</b>
CAUSES	
By collisions	2
Miscellaneous	12
<b>Total</b>	<b>14</b>
RESULTS	
Deaths	2
Fractures or dislocations	3
Cuts and bruises	3
Miscellaneous	6
<b>Total</b>	<b>14</b>
INJURIES TO TRESPASSERS	
On track	10
Miscellaneous	1
<b>Total</b>	<b>11</b>
RESULTS	
Deaths	6
Fractures or dislocations	5
<b>Total</b>	<b>11</b>

### New York Commission Against Separate Cars for Women

The Public Service Commission of the First District of New York, by a vote of two to one on Aug. 3, 1909, denied the request of the Women's Municipal League for an order directing the Interborough Rapid Transit Company to install a special car for women on all subway express trains in rush hours. Commissioner Eustis voted for a trial of the women's cars during this month and next, but he was voted down by Commissioners McCarroll and Bassett.

Commissioner Bassett, in his report, admitted the existence of undesirable conditions in the subway service, but made the following objections to the proposed change:

"Special cars for women will unbalance the loading of trains and discommode many of both sexes. Women will be compelled to stand in special cars much the same as now. Overcrowding would still take place in certain trains and hours. At other times the unnecessary cost of running an almost empty special car will be incurred. Un-



doubtedly women suffer inconvenience and sometimes indignities in the subway cars, but I do not believe that the operation of special cars will ameliorate these conditions—at least not sufficiently to warrant the new inconveniences and risks that would be created. Moreover, I do not believe that there is any preponderant demand among the women of the city for special cars.

"It is to be further noted that after this complaint was filed the Hudson & Manhattan Railroad voluntarily set aside the rear car on its trains for the exclusive use of women. After this test, which was apparently fairly and carefully conducted, it was abandoned on the ground that there did not appear to be a demand on the part of women for such a car and the commission has been so advised by that company."

Commissioner Eustis, although advising that the Interborough Rapid Transit Company be required to try the plan, admitted that there was much to be said against the special car project as well as for it. In his report Mr. Eustis said in part:

"It was conceded at the hearing that for a certain period each day, morning and night, women are compelled to ride in the subway trains in close proximity to men; in fact, they are often crowded in as closely as they can stand together. This condition of travel was very strongly objected to, and a large number of letters have been received calling attention to the indecency of such mode of travel. On the other hand, almost an equal number of people have taken the opposite side, and stated that one car would not begin to be sufficient for the women, and that the men are a protection to the women in a crowded car, and that they prefer to ride in cars where men and women are together; that while there are rare occasions when some brute will take advantage of the situation to insult a lady, on the whole the gentlemen are the best protection that the ladies want against such conduct."

**Increase in Wages of the Interstate Railways' Employees.**—The wages of the employees of the Interstate Railways have been increased from 17 cents to 18½ cents an hour.

**Accident on Spokane & Inland Empire System.**—Several persons were killed and more than two-score were injured on July 31, 1909, in a head-on collision between two trains of the Spokane & Inland Empire System near Cadwell, Wash., the station between Cœur D'Alene, Idaho, and Spokane, Wash.

**Increased Service on Elevated in Brooklyn.**—The Brooklyn (N. Y.) Rapid Transit Company has recently put into effect a number of changes in the service on its elevated lines on Saturday afternoons and on Sundays which are estimated to have increased the capacity of the lines 35 per cent and 40 per cent, respectively.

**Arbitration in La Crosse.**—The La Crosse (Wis.) City Railway and its employees have decided to submit to arbitration the differences between them regarding the conditions that shall govern the terms of service of the men with the company. The board of arbitration is to consist of a member of the State Board of Arbitration, a representative of the men and a representative of the company.

**Another Side-Door Train in New York Subway.**—Another side-door train was put in operation on the West Farms subway express line of the Interborough Rapid Transit Company, New York, on Aug. 3. This is the second 8-car train of this type now in use by the company. The side doors are used only in the rush hours. By Aug. 15 the company expects to have four more side-door trains in operation.

**Traffic Circulars in Cleveland.**—J. W. Butler, manager of the touring car service of the Municipal Traction Company, Cleveland, Ohio, has issued a number of circulars about the company's seeing-Cleveland-by-trolley service. One of these is a poster in red and black. It is 12½ in. wide by 19 in. high, and contains detailed information about the service. The seeing-Cleveland trip is one of two hours, and the cost is 25 cents per passenger. Mr. Butler has also issued several other attractive circulars printed in colors, which tell about the special service of the company and how it is possible for visitors to the city to see the city conveniently at small cost by means of the facilities afforded by the company.

**Refrigerator Service of the Inland Empire System.**—The Inland Empire System, Spokane, Wash., has published an attractive traffic sheet calling attention to the summer refrigerator service on its Spokane & Inland and Cœur D'Alene divisions. Refrigerator cars leave Spokane on Monday, Wednesday and Friday nights and arriving at Colfax on Tuesday, Thursday and Saturday mornings. Other cars leave Colfax on Monday, Wednesday and Friday mornings and arrive at Spokane the same afternoons. A similar

schedule is maintained between Spokane and Moscow. On the Cœur D'Alene division refrigerator car service is provided daily, except Sunday. The company accepts perishable shipments at the shippers' own risk on days when the refrigerator service is not operated.

**Hearing on Coney Island Fare.**—The matter of the 5-cent fare to Coney Island on week days will be given a public hearing by the Public Service Commission of the First District of New York on Aug. 11, 1909. The hearing will be on the new complaint entered by Jonas Monheimer, requesting the commission to order the Coney Island & Brooklyn Railroad to establish the 5-cent rate on all days save Saturdays, Sundays and holidays, allowing the collecting of the 10-cent fare, the present regular rate, for these days. The first complaint filed by Mr. Monheimer demanded the 5-cent fare every day. The rate he now specifies is the one that the Public Service Commission has reported as being fair. The railway company has intimated that it will secure an injunction and contest the matter in court if the change is ordered.

**Another Philadelphia Suggestion Card.**—The Philadelphia (Pa.) Rapid Transit Company has issued its second suggestion card. It is dated Aug. 3, 1909, and says: "About every so often a car slides past its regular stop on the near side of a right-angle crossing and bumps into the broadside of another. Whether the rail was bad or the judgment of the motorman was poor, the bump counts against our record at the end of the month. Now, in the future, when ready to take a crossing, with another car approaching at right angles, let's hold up for a second or two, until we are satisfied that he is going to be able to make his stop safely. Furthermore, let us approach these same crossings ourselves with a keen appreciation of this very danger." The purpose of these cards was explained on page 161 of the ELECTRIC RAILWAY JOURNAL of July 24, 1909.

**Views On and About Mt. Tom.**—As is well known, Mt. Tom is one of the wonder sights of the East. It is the highest peak of the Mt. Tom range, and dominates the beautiful and picturesque section of the country of which it is the central figure. A publication just issued by the Holyoke Street Railway is devoted entirely to Mt. Tom and the surrounding country. The first part of the book is given over to representative views on and about Mt. Tom, done by the tri-color process. Six pages at the back of the book are devoted to the description of the surrounding country and the summit house. The company has set a price of 15 cents by mail for the book, as the publication is distinctly in the nature of a souvenir. The company has also issued a series of postal cards, with the Mt. Tom country as a subject.

**Historical Leaflet of the Berkshire Street Railway.**—C. V. Wood, traffic manager of the Berkshire Street Railway, Springfield, Mass., has prepared a circular which gives information about 60 spots of historical, geographical and industrial interest on the company's lines between Great Barrington, Mass., and Bennington, Vt., which have been marked by the company to correspond with the descriptions in the circular. In all there are 62 descriptions. To convey an idea of the character of the circular, the following descriptions, numbered 12, 18, 40 and 62, were selected at random: "12.—Stockbridge. The old Indian town. Home of the Stockbridge Indians. Here was established in 1734 John Sargent's Indian Mission, and here Jonathan Edwards lived and wrote 'The Freedom of Will.'" "18.—Lee. Town incorporated in 1777 and named in honor of General Charles Lee of the Revolutionary Army. A pioneer town in paper manufacturing, at one time having 22 paper mills. Known also for its marble quarries, which have furnished material for part of the Capitol at Washington, St. Patrick's Cathedral, New York City, and other noted buildings." "40.—Adams, originally East Hoosuck. Incorporated as a town in 1778 and name changed in honor of Samuel Adams, 'The Father of the American Revolution.' In 1878 the township was divided and North Adams was set off as a separate township. Population of Adams, 14,000. Here are located the Berkshire Cotton Company's mills, one of the largest plants in New England, and the Renfrew mills and the noted L. L. Brown Paper Company's plant." "62.—Bennington. A village of great historical interest. Noted as a summer resort. At Bennington Center may be seen the Bennington battle monument, 308 ft. high, built of native stone, the highest battle monument in the world. This marks the site of the Revolutionary storehouse, the objective point of one of General Burgoyne's expeditions. At Bennington Center may also be seen the monument marking the site of the old Catamount Tavern, the William Lloyd Garrison monument and the old cemetery with the monument to the British soldiers who fell in the battle of Bennington. In another part of the town is the Vermont State Soldiers' Home, with its noted fountain."



## Personal Mention

**Mr. A. J. Sampson** has resigned as secretary-treasurer of the Saginaw Valley Traction Company, Saginaw, Mich., and Mr. Harry G. Kessler has been elected secretary, and Mr. John W. Glendenning has been elected treasurer to succeed him.

**Mr. Henry Floy** has been retained by Mr. Bion J. Arnold in direct charge of the appraisal of the street railway properties in Greater New York and of the elevated railroads in Brooklyn which Mr. Arnold is making in behalf of the Public Service Commission of the First District of New York.

**Mr. C. F. Richardson** has been appointed superintendent of the Terre Haute, Indianapolis & Eastern Traction Company at Brazil, Ind., to succeed C. W. Turner, resigned. Since 1897 Mr. Richardson has been connected with the Fond du Lac Street Railway & Light Company, Fond du Lac, Wis.; Trinidad Electric Light & Railway Company, Trinidad, Col., and the Lincoln Railway & Light Company, Lincoln, Ill.

**Mr. B. R. Stevens**, who resigned as general traffic manager of the Illinois Traction System, Champaign, Ill., on July 1, 1909, has been elected president and general manager of the Peoria & Galesburg Railway, Peoria, Ill., which proposes to build an electric railway between Peoria and Galesburg and has secured all the right of way and practically all the franchises. The road will extend directly west from Peoria to Farmington along the Iowa Central Railroad, thence northwest to Maquon, Ill., thence parallel to the Chicago, Burlington & Quincy Railroad to Knoxville, Ill., thence to East Galesburg and Galesburg, with a branch from Farmington to Canton, a total distance of 60 miles.

**Mr. E. G. Connette**, general manager and a director of the Worcester (Mass.) Consolidated Street Railway, and general manager of the Worcester & Webster Street Railway and the Worcester & Southbridge Street Railway, has been appointed chief of the transportation department of the Public Service Commission of the First District of New York, a position which has not heretofore been filled although contemplated in the original scheme of organization of the commission. Under this department will come the bureau of equipment inspection, formerly headed by Mr. A. W. McLimont; the bureau of transit inspection, headed by Mr. Daniel L. Turner, and the bureau of accidents and complaints, headed by Mr. George F. Daggett. According to the commission, the present bureaus of the body have rendered effective service in the inspection of equipment and operating details, but it was thought that a man of considerable practical experience as an operating manager, with knowledge of both engineering and transportation, should be secured to supervise the work. Mr. Connette will assume the duties of his new office on Sept. 1, 1909. Mr. Connette has been engaged in street railway work since 1890, and has been connected during that time with the Nashville (Tenn.) Street Railway, Syracuse (N. Y.) Rapid Transit Company and the Worcester Consolidated Street Railway, in the management of all of which he has been very successful. He was born in Austin, Ind., on Dec. 29, 1863. Mr. Connette's father died when Mr. Connette was only three years old, and the boy was compelled to earn his own way when only 13 years old. He secured a position at the local railroad station in Austin and qualified as an operator after 18 months' service. He then held various positions in the railway field until he accepted an appointment as telegraph operator at the general office of the Louisville, Cincinnati & Lexington Railroad, at Louisville, Ky. Subsequently he was transferred to the office of the general superintendent of the company. Shortly after the Louisville & Nashville Rapid Railroad purchased the Louisville, Cincinnati & Lexington Railroad Mr. Connette was transferred to the engineering department of the company. Two years later he was made chief clerk of the Henderson division of the company, with headquarters at Henderson, Ky. Mr. Connette was next appointed assistant to the superintendent of the company at Nashville, Tenn., and when the street railways in that city were consolidated in 1890, Mr. Connette accepted the posi-



E. G. Connette

tion of superintendent of the consolidated company. In 1891 he was made general manager of the company and in 1897 he was made chief engineer of the Cumberland Electric Light & Power Company in addition to general manager of the street railways. On April 1, 1900, Mr. Connette accepted the appointment of vice-president of the Syracuse Rapid Transit Company, which position he retained until 1905, when he was appointed general manager of the Worcester Consolidated Street Railway. Mr. Connette has been active in the affairs of the American Street Railway Association and its successor, the American Street & Interurban Railway Association, and has contributed several papers at meetings of the association. He was president of the Street Railway Association of the State of New York in 1903-04, and third vice-president of the American Street Railway Association in 1897-98. He is also chairman this year of the committee on the welfare of employees of the national association.

**Mr. J. W. Wolfe**, who was recently appointed superintendent of the Ohio River Electric Railway & Power Company, Pomeroy, Ohio, to succeed Mr. I. L. Oppenheimer, who has become general superintendent of the Lexington & Interurban Railway, entered electric railway work in 1894 as a conductor on the West Side Street Railway, Elmira, N. Y. In May, 1900, he accepted a position as conductor with the Elmira & Watkins Electric Railway, at that time operated by Mr. John Blair MacAfee, Philadelphia, Pa. In November, 1900, he was transferred to Pomeroy, Ohio, with the Ohio River Electric Railway & Power Company. Mr. Wolfe continued with the Ohio River Electric Railway & Power Company until May, 1902, when he was appointed assistant superintendent of the company. On June 12, 1909, he was appointed superintendent of the Ohio River Electric Railway & Power Company and the Pomeroy & Middleport Electric Company. He is also connected with the General Managers' Association, consisting of the managers of the various properties owned and controlled by Chandler Brothers & Company and Mr. John Blair MacAfee, Philadelphia, Pa.

**Mr. B. J. Jones**, manager of the electrical department of the Cincinnati Gas & Electric Company, Cincinnati, Ohio, who has been appointed district manager of the Ohio Electric Railway with headquarters at Springfield, Ohio, to succeed Mr. W. A. Gibbs, resigned, has had a very wide experience in both railway and lighting work and has been connected with the Cincinnati Gas & Electric Company since 1905. Previous to that he was associated with Sargent & Lundy, Chicago, Ill., consulting engineers, with whom he served from 1897 until 1905. His first work with Sargent & Lundy was that of supervising the electrical equipment of the South Side Elevated Railroad. Mr. Jones was prominently identified with a number of other important contracts taken by Sargent & Lundy, and in this way came into close touch with the electrical work of the Cincinnati Gas & Electric Company, with which he afterward became connected. Previous to his connection with Sargent & Lundy, Mr. Jones was superintendent of the South Chicago City Railway and before becoming connected with that company served in a similar capacity with the Sioux City (Ia.) Traction Company. Mr. Jones is the inventor of the flat flexible bond and solid terminal designed to go under the fish-plate which was sold originally as the Atkinson bond. He also designed many of the details of the high-tension construction used on the Indianapolis & Cincinnati Traction Company's single-phase line between Indianapolis and Rushville, which were adopted later by the Westinghouse Electric & Manufacturing Company as standard construction for certain classes of single-phase railway work.

### OBITUARY

**J. B. Peddle**, assistant treasurer of the Philadelphia (Pa.) Rapid Transit Company, is dead. Mr. Peddle was born in Philadelphia in 1831, and had been connected with the Philadelphia Rapid Transit Company and subsidiary companies for many years.

**Henry N. Putney**, chairman of the Railroad Commission of New Hampshire, died at his home in Manchester, N. H., on July 30, after having been in ill health for two years following a slight paralytic shock. Mr. Putney was born in Dunbarton on March 22, 1840, and was graduated from Dartmouth College in 1861. After beginning the practice of law in Manchester, he developed a strong interest in things political and he soon began writing political articles. In 1873 he became connected with the Manchester *Mirror*, to which he contributed until shortly before his death. Appointed chairman of the Railroad Commission by Governor Carrier in 1886, he held the office until his death, being successively reappointed by several Governors. In 1899, President McKinley appointed Mr. Putney a commissioner to the International Exposition at Paris.



# Construction News

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

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

## RECENT INCORPORATIONS

**\*Los Angeles Railway Land Company, Los Angeles, Cal.**—This company has been incorporated by interest identified with the Huntington System, but no announcement of its purpose has been made. Capital stock, \$50,000. Directors: Howard E. Huntington, G. S. Patton, G. C. Ward and E. T. Cook.

**\*Kansas City, Kaw Valley & Western Railway, Bonner Springs, Kan.**—This company has applied for a charter to build an electric railway from Kansas City, Mo., to Topeka, Kan., via Bonner Springs and Lawrence. Capital stock, \$1,500,000. Headquarters, Bonner Springs. Incorporators: John W. McDaniel and John C. Finney, Bonner Springs; Charles Knabb, Hiawatha; A. L. Cooper and W. H. Caffrey, Kansas City, Mo.

**\*Michigan & Chicago Westbound Railway, Kalamazoo, Mich.**—Incorporated to build an electric railway between Kalamazoo and Grand Rapids. Capital stock, \$3,000,000. Alfred Henry Brown, Chicago, Ill., is mentioned as the principal incorporator.

**Chattanooga Railway & Light Company, Chattanooga, Tenn.**—Incorporated under the laws of Tennessee as the merger of the Chattanooga Railways and of the Chattanooga Electric Company, in accordance with a plan mentioned on page 1140 of the issue of the *ELECTRIC RAILWAY JOURNAL* of June 19, 1909. Capital stock, \$5,000,000. Incorporators: Joe Brown, J. C. Lightfoot, Jr., T. G. Newman, M. J. Horan and W. E. Boileau.

## FRANCHISES

**\*Birmingham, Ala.**—W. J. Cameron, F. Y. Anderson, Geo. C. Kelley and associates have petitioned the City Council for a 30-year franchise to build an electric railway on certain streets of Birmingham and to use the tracks of the Birmingham Railway, Light & Power Company.

**Los Angeles, Cal.**—M. Welch, who was originally granted a 21-year franchise for the construction of an electric railway in Los Angeles on Aug. 6, 1906, with the stipulation that the road be completed in three years, has been granted an extension of three months from Aug. 6, 1909, in which to comply with the conditions of the original grant to him.

**Mayfield, Cal.**—The Peninsular Railway, San José, has applied to the Town Trustees for a franchise for an electric railway, to be advertised for sale, to extend through Main Street from the northern limits to the San Jose & Los Gatos Interurban Railway tracks south of Mayfield.

**Vallejo, Cal.**—Randall, Trowbridge & Wright, Oakland, have abandoned the attempt to secure a franchise for an electric railway from the City Trustees of Vallejo. They proposed to build a line to connect Vallejo, Benicia and White Sulphur Springs. R. L. MacFarlane, local representative. [E. R. J., May 22, '09.]

**Lewiston, Idaho.**—M. A. Means, president and general manager of the Lewiston Terminal Company, has applied to the City Council for a franchise to operate a street car system over the tracks that are being laid by the company in Lewiston. Gasoline motor cars will be used at first, but it is proposed eventually to electrify the system. [E. R. J., July 3, 1909.]

**Champaign, Ill.**—The Danville, Urbana & Champaign Railway has applied to the City Council for a franchise to extend its electric railway through the city to connect with the tracks of the St. Louis, Decatur & Champaign Railway on Neil Street and the tracks of the Urbana & Champaign Railway, Gas & Electric Company on Walnut Street.

**\*Brandon, Manitoba.**—J. H. Ingram writes that the application for a franchise made by him to the City Council of Brandon will probably not be granted as the city has the construction of a municipal railway in contemplation, when it deems that conditions will justify the expenditure. The proposed system was to be operated by gasoline motors.

**Wellesley, Mass.**—The Selectmen have granted the Natick & Cochituate Street Railway an extension of one year in which to double-track its system between Lake Crossing and the Wellesley College on Central Street. A bond of \$20,000 was given. [E. R. J., June 5, '09.]

**Elmira, N. Y.**—The Elmira Water, Light & Railroad Company has applied to the City Council for a franchise to build an extension on Maple Avenue from Miller Street south to the city limits.

**New York, N. Y.**—Adrian H. Joline and Douglas Robinson, receivers of the Metropolitan Street Railway, have applied to President McGowan of the Board of Aldermen, as chairman of the select committee of the Board of Estimate and Apportionment, for an extension of time from Aug. 1 to Sept. 1 in which to file an amended application for a franchise over the Manhattan Bridge.

**Dennison, Ohio.**—The Wheeling, Cadiz & Tuscarawas Traction Company has applied to the City Council for a franchise through Thornwood Park and along Logan Street, but action on the matter has been deferred to permit the company to comply with certain legal requirements. A. E. Townsend, president and general manager of the company. [E. R. J., April 17, '09.]

**Norwood, Ohio.**—The Cincinnati Traction Company, through its president, W. K. Schoepf, has applied to the City Council for a 25-year franchise to build a new street railway into West Norwood.

**\*Corpus Christi, Tex.**—Application has been made to the City Council by Daniel Hewitt, Salina, Kan., for a franchise to construct an electric railway in Corpus Christi.

**Nashville, Tenn.**—The City Council has granted the Nashville Railway & Light Company a franchise to extend its system from Sixteenth Street on Broad Street out to Hillsboro Pike.

**Salt Lake City, Utah.**—The municipal laws committee of the City Council has approved the proposed amendment to the Salt Lake & Ogden Railway's franchise whereby it can operate its cars over the street car tracks of Salt Lake City.

**Waukesha, Wis.**—The Milwaukee Western Electric Railway has applied to the City Council for a franchise in Waukesha via North Street. W. A. Dunn, president.

## TRACK AND ROADWAY

**Birmingham & Edgewood Electric Railway, Birmingham, Ala.**—The organization of this company, which proposes to build a railway from the South Highlands line to Red Mountains, has been perfected by the election of the following officers: Stephen Smith, president; George H. Harris, first vice-president and general manager; M. A. Miller, second vice-president; G. T. Brazleton, secretary and treasurer. Headquarters, 103 North Twentieth Street. It is stated that the contract will be awarded to a company which is now being organized. [E. R. J., July 17, '09.]

**Northwest Arkansas Electric Interurban Railway, Bentonville, Ark.**—P. H. Sackett, chief engineer of the Arkansas Co-operative Construction Company, which is building this company's proposed railway, writes that the surveys between Bentonville and Gentry, Ark., Springdale, Ark., and Joplin, Mo., a total distance of 103 miles, are completed. Right-of-way is now being secured. Location work is being completed between Joplin and Neosho, Mo., and grading is soon to start on the Gentry division. Several branches are contemplated which will open up the territory between the Kansas City Southern Railroad and the St. Louis & San Francisco Railroad. The new railway will connect with the Southwest Missouri Electric Railroad at Joplin, Mo. It is expected that the railway will be in complete operation within 18 months. [E. R. J., Feb. 27, '09.]

**Helena Street & Interurban Railroad, Helena, Ark.**—It is stated that this company has completed one mile of its street railway and has about three miles more of railway to be constructed. J. W. Burks, Helena, president. [E. R. J., Jan. 2, 1909.]

**British Columbia Electric Railway, Vancouver, B. C.**—This company has announced its intention to extend the electric railway south to the American boundary at Huntington, where it has secured a site for a terminal.

**Santa Barbara (Cal.) Consolidated Railway.**—This company expects to place within six months the contract for constructing 2 miles of extension in Santa Barbara.

**Manitou & Pike's Peak Railway, Manitou, Col.**—This company, which operates a cog railroad up Pike's Peak, will install a third-rail electrical system at a cost of \$750,000. The railway will have to be widened the entire distance of 9 miles and will use cogs, as on the old system. C. W. Sells, Manitou, president and general manager.

**Meriden, Middletown & Guilford Railway, Meriden, Conn.**—Surveys are being made for this company's proposed electric railway from Meriden to Guilford, a distance of 22 miles. Francis Atwater, Meriden, president. [E. R. J., July 31, '09.]

**Kissimmee, Fla.**—Messrs. McKinlay, McClintock and Sperry are said to be interested in the proposition of constructing an electric railway or motor car line from Kissimmee to Sanford. Mr. McKinlay is general manager of the proposed railway.



**Pensacola (Fla.) Electric Company.**—This company has opened an extension of its electric railway from Pensacola to Magnolia Bluff.

**Georgia Railway & Electric Company, Atlanta, Ga.**—The work of extending this railway on West Peachtree Street to Buckhead has been started. As soon as this is finished the extension on Ponce De Leon Avenue will be started. [E. R. J., June 19, '09.]

**Belleville & Mascoutah Traction Company, Mascoutah, Ill.**—It is reported that this company, which proposes to build an electric railway to connect the cities named in the title, has secured all rights of way and has let the contract for grading 3 miles east from Belleville. E. J. Kohl and Adolph Knobloch, Belleville, are among the directors. [E. R. J., July 10, '09.]

**Metropolis & Joppa Railway, Joppa, Ill.**—William H. Kershner, general manager of the American Engineering Company, Indianapolis, Ind., who made the people of Golconda, Unionville, Brookport, Metropolis and Joppa, Ill., a proposition to build an interurban railway through these towns, writes that this matter is only in the preliminary stages and as yet no progress has been made. [E. R. J., July 17, '09.]

**Bluffton, Geneva & Celina Traction Company, Bluffton, Ind.**—This company has awarded the contract for building its railway from Bluffton to Geneva to Bears, Brown & Company. Fred Davenport, chief engineer. [E. R. J., July 10, '09.]

**Columbus, Greensburg & Richmond Traction Company, Indianapolis, Ind.**—W. J. Gimmell and Edward Fee, Clarksburg, are consulting with the directors of this company with a view of arranging for the early construction of the railway connecting the cities named. The right of way has been secured and other preliminary work done, but the financial arrangements have not yet been completed. A. M. Kuhn, Indianapolis, president. [E. R. J., June 19, '09.]

**East St. Louis, Columbia & Waterloo Electric Railway, Columbia, Ill.**—E. F. Schoenning, president, states that this company will award contracts for construction shortly. H. Reichenbach, Waterloo, secretary and treasurer. [E. R. J., May 8, 1909.]

**Louisville & Eastern Railroad, Louisville, Ky.**—This company has awarded the contract for building an extension of its system to Shelbyville to Chas. L. Christopher, superintendent of construction of the Louisville Railway.

**Lake Charles Railway, Light & Water Works, Lake Charles, La.**—This company expects to extend its Hodge Street system  $1\frac{1}{2}$  miles to the Hi Mount Addition.

**Detroit, Lansing & Grand Rapids Railway, Detroit, Mich.**—Oliver H. Lau, president and general manager of this company, writes that the grading of the line from Detroit to Grand Rapids via Lansing, a distance of about 135 miles, has been started. The railway is independent of any other system, and will be operated by overhead trolley. Capital stock, authorized, \$25,000; bonds, authorized, \$5,000,000. Headquarters, 706 Union Trust Building, Detroit. Officers: Henry M. Wallace, vice-president; George Valentine, secretary and treasurer; and F. A. Bean, chief engineer, all of Detroit. [E. R. J., July 24, 1909.]

**Manistee, Mich.**—The R. G. Peters Salt & Lumber Company denies the statement that it proposes to electrify the railway from its timber land on Lake Mitchell to Manistee, about 7 miles distant. [E. R. J., July 24, 1909.]

**Butte (Mont.) Electric Railway.**—J. R. Wharton, general manager, advises that this company is building a 1-mile extension south of the city to connect with round houses and shops of a steam railroad and 1 mile north from the Columbia Garden route to a new addition.

**Rochester & Manitou Beach Railroad, Rochester, N. Y.**—The new trestle of this railway at Braddock's Bay has been opened and cars are now operated over it. The approaches to the trestle are built of solid reinforced concrete and the trestle proper is built on piles 40 ft. in length and driven through two depths of sand to a foundation of rock. A number of concrete jetties have been built out from the approaches to serve as breakwaters. The route across the trestle is a single track. The trestle was constructed by A. F. Chapman, Buffalo. [E. R. J., March 26, '09.]

**Albany & Hudson Railroad, Hudson, N. Y.**—Raymond H. Smith, receiver, announces that the plans for the reorganization of this company will include the purchase of the Greenbush bridge, double tracking and straightening of the railway to Electric Park at Kinderhook Lake, building of a direct line to Pittsfield, Mass., and improvements at Electric Park.

**Burgrahaw Interurban Company, Burlington, N. C.**—Grading is practically completed for this railway, which is to connect Burlington, Graham and Haw River, 8 miles

distant. The power house will be located midway between Burlington and Graham, and an amusement park will be laid out near it by the company. Jas. W. Murray is president. [E. R. J., May 1, '09.]

**Southwestern Ohio Traction Company, Cincinnati, Ohio.**—The Board of Directors of this company has been increased from 9 to 15 members, as follows: B. H. Kroger, Henry H. Hoffman, General Lewis Seasingood, Charles H. Davis, J. M. Hutton, C. B. Matthews and B. W. Campbell, Cincinnati; George H. Worthington, Cleveland; Charles R. Mayers, Columbus; W. L. Moyer, A. S. White, John E. Bleekman, Jacob L. Greatsinger, Samuel M. Jarvis and Charles Hansel, New York. [E. R. J., July 3, '09.]

**People's Railway, New Hamburg, Ont.**—H. B. Stuart, engineer, writes that this company has commenced its surveys on its proposed railway to connect Stratford, Berlin, Guelph and Woodstock by way of New Hamburg, Berlin, Fergus and Eldora. A. N. Warfield, New Hamburg, construction engineer. [E. R. J., June 5, '09.]

**Dunville, Wellandport & Beamsville Electric Railway, Wellandport, Ont.**—The by-laws granting aid to this company have carried in the townships of Moulton and Gainsboro, each voting a bonus of \$5,000. [E. R. J., June 12, '09.]

**Cumberland Railway, Carlisle, Pa.**—F. A. Zimmerman, secretary and treasurer of the Carlisle & Mt. Holly Railway, advises that the Cumberland Railway has taken over all the property of his company and proposes to build an extension from Carlisle to Newville, 12 miles, and later to Shipensburg. The officers of the Cumberland Railway are: John Graham, Newville, president; Walter Stuart, Carlisle, secretary and treasurer, and W. F. Pascoe, Carlisle, general manager. [E. R. J., July 10, '09.]

**Delaware County & Philadelphia Electric Railway, Clifton Heights, Pa.**—This company has started construction at Baltimore Avenue, Lansdowne, on its extension through the eastern section of Delaware County to the Sixty-ninth Street Terminal, Philadelphia and westerly to Lansdowne, and will be able to operate cars to Chester and Wilmington, Del., and to Media and Glen Riddle when the system is completed. The company also intends to improve the Chester, Wilmington & Darby system, and has ordered the material necessary for the work. The new line will connect with the elevated terminal at Sixty-ninth Street (Philadelphia). Bridges will be constructed at Maylor's Valley, over the Cardington branch of the Pennsylvania Railroad, at Cardington; over Darby Creek, between Lansdowne and Aldan, and under the Baltimore & Ohio Railroad crossing.

**Southern Cambria Railway, Johnstown, Pa.**—This company writes that the roadbed of its electric railway is completed between Johnstown and South Fork,  $3\frac{1}{2}$  miles. Tracks will be laid the balance of the 12 miles within 6 weeks, when the South Fork system is in operation. The bridges are all completed, except the viaduct at South Fork, which is about 250 ft. long.

**Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa.**—This company has started work on a 1-mile extension of its railway in Chambersburg to the town limits. The work is being done by the company itself. The track will be laid with 7-in. girder rails furnished by the Pennsylvania Steel Company. The cross ties and line material have been provided.

**Greenville (S. C.) Interurban Railway.**—Grading has been started by this company on its proposed railway from Greenville to Williamston, a distance of 18 miles. H. H. Prince, president. [E. R. J., Feb. 20, '09.]

**\*San Antonio & Vernon Railway, Amarillo, Tex.**—It is reported that this company has been financed by Eastern capitalists. R. O. Whyman of the Whyman Construction Company, New York, has organized a construction company in Amarillo, with a capital stock of \$50,000, which will be interested in the construction of this railway, which will connect San Antonio and Vernon.

**Bryan, Tex.**—The promoters of the electric railway between Bryan and the State College, a distance of 5 miles, have retained T. L. Fountain, Fountain & Shaw, Houston, to make preliminary surveys and estimate the cost of construction along the several routes surveyed. [E. R. J., April 17, '09.]

**Cleburne, Tex.**—The preliminary surveys for the electric railway connecting Fort Worth, Cleburne and Dallas have been completed, according to B. G. Leake, chief engineer, and the estimates of the costs are being prepared. H. M. Hyatt, Kansas City, Mo., is interested. [E. R. J., Jan. 16, '09.]

**El Paso (Tex.) Electric Railway.**—This company has contracted with the Stone & Webster Engineering Corporation, Boston, Mass., for constructing 7180 ft. of double track on Boulevard Street and for double tracking 2100 ft.



of Park Line in El Paso. The track will be laid with 80-lb., 7-in. T-rail on Boulevard Street and 60-lb. T-rail on Park Line. The contract includes the removal of about three miles of old track.

**El Paso Valley & Fort Hancock Electric Railway, El Paso, Tex.**—It is reported that this company will soon apply for a charter to build an interurban railway from El Paso to Ysleta, a distance of 32 miles. The board of directors contemplate the purchase of McKean motor cars. Surveys will be started within a few days from El Paso, and bids for material will be opened. The company's office has been established at the headquarters of Thomas O'Keefe, secretary of the company, Plaza Block, El Paso. Officers: C. N. Bassett, president; Felix Martinez, vice-president, and W. Cooley, treasurer, all of El Paso. [E. R. J., June 26, '09.]

**Milwaukee Western Electric Railway, Milwaukee, Wis.**—This company announces that it expects to begin grading this Fall on its electric railway from Milwaukee to Beaver Dam, if most of right of way is acquired. Contracts for material will not be let until the latter part of the year. W. D. Chapman, 1537 Marquette Building, Chicago, Ill., has the contract for constructing the railway. The railway has a total length of main line and branch approximately 68 miles. Headquarters, Majestic Building, Milwaukee. J. W. Barber, secretary.

#### SHOPS AND BUILDINGS

**Santa Barbara (Cal.) Consolidated Railway.**—This company announces that it expects to build a car house within 6 months at Santa Barbara.

**Cedar Rapids & Iowa City Railway & Light Company, Cedar Rapids, Ia.**—It is stated that this company will erect a freight depot on Court Street, Cedar Rapids.

**Topeka (Kan.) Railway.**—This company expects to place contracts during the next two weeks for building an extension 75 ft. x 104 ft. to its car house at Topeka. A. M. Paten, general superintendent.

**Old Colony Street Railway, Boston, Mass.**—The car house of this company at Avon has been completely consumed by fire with some 20 street cars, which were stored in the building. The loss is estimated at \$40,000. The car house was 200 ft. x 75 ft. and was used for storing cars out of season.

**Interborough Rapid Transit Company, New York, N. Y.**—This company has purchased 80 lots just west of Van Cortlandt Park, which will be used as a car storage yard. The company owns five city blocks between 240th and 242d streets and the Spuyten Duyvil Parkway and Corlears Avenue, and will immediately commence to build a terminal to relieve the present yards at 137th and 145th Streets.

**People's Railway, Dayton, Ohio.**—This company has issued a call for plans and specifications for a car house at Bolender Avenue and the Big Four Railroad. The building will cost about \$250,000. V. R. Powell, superintendent.

#### POWER HOUSES AND SUBSTATIONS

**British Columbia Electric Railway, Vancouver, B. C.**—This company has made application for 30,000 miners' inches from Indian River, near Vancouver, and propose to build an auxiliary power plant. R. H. Sperling, Vancouver, general manager.

**Rochester, Syracuse & Eastern Railroad, Syracuse, N. Y.**—This company has decided to increase the capacity of its power station at Lyons by installing a 5000-hp turbo-generator. The boiler capacity of the plant will also be increased and transformers will be added. The capacity of the plant will be 8400 hp when the new unit is installed.

**Columbus Railway & Light Company, Columbus, Ohio.**—This company has purchased from the Alberger Condenser Company a 4000-sq. ft. surface condenser, a 6-in. x 14-in. x 10-in. air pump, an 8-in. x 16-in. x 12-in. air pump, and 12-in. turbo volute circulating pump.

**Mahoning & Shenango Railway & Light Company, New Castle, Pa.**—This company has purchased a 600-kw Westinghouse motor generator set and a 200-kw General Electric motor generator set.

**Boyertown & Pottstown Street Railway, Reading, Pa.**—This company has commenced the construction of a substation at its park in Reading. W. J. Hardaker, superintendent.

**Sea View Railroad, Narragansett Pier, R. I.**—This company has installed in its Hamilton power station two 400 k.w. Westinghouse turbines driving Westinghouse 3-phase, 60 cycle, 360 v. alternators. This equipment is additional to a set of horizontal cross-compound reciprocating engines driving Westinghouse generators, already installed. The plant is supplied with Westinghouse Le Blanc condensers, which preserve a 28-in. vacuum.

## Manufactures & Supplies

#### ROLLING STOCK

**Fresno (Cal.) Traction Company** has recently purchased two 40-ft. cars and expects to have some more cars built.

**Pittsburgh (Pa.) Railways** has placed an order for 50 cars with the St. Louis Car Company and 30 cars with the G. C. Kuhlman Car Company.

**Twin City Rapid Transit Company, Minneapolis, Minn.,** has recently shipped 11 cars which were built in the company's shops for use on its Duluth lines.

**Milwaukee Electric Railway & Light Company, Milwaukee, Wis.,** is reported to be planning to rebuild a large number of its cars for pay-as-you-enter operation.

**Compania Electrica y de Ferrocarriles de Chihuahua, Chihuahua, Mex.,** has placed in service four motor and four trailer cars, recently purchased from the Danville Car Company and the American Car Company.

**Norfolk City & Suburban Railway, Norfolk, Va.,** mentioned in the ELECTRIC RAILWAY JOURNAL of May 1, 1909, as contemplating the purchase of two interurban cars, will close the contract for these cars during August.

**Hornellsville-Canisteo Railway, Hornell, N. Y.,** reported in the ELECTRIC RAILWAY JOURNAL of June 26, 1909, as being in the market for two open cars, has decided not to purchase this rolling stock owing to the lateness of the season.

**Peoria (Ill.) Railway,** reported in the ELECTRIC RAILWAY JOURNAL of July 24, 1909, as being in the market for 10 cars, has ordered this number from the American Car Company. They will be single-truck cars of the pay-as-you-enter type.

**Detroit (Mich.) United Railway,** which was reported in the ELECTRIC RAILWAY JOURNAL of July 17, 1909, as being in the market for 50 cars, has placed an order for 25 cars each with the G. C. Kuhlman Car Company and the Cincinnati Car Company.

**Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa.,** is in the market for a double-truck car with 5-ft. 2¼-in. gage and four-motor equipment, suitable for freight purposes. It also desires to purchase one second-hand single-truck passenger car.

**Chicago & Oak Park Elevated Railroad, Chicago, Ill.,** has placed an order with the American Car Company for the 20 cars, referred to in the ELECTRIC RAILWAY JOURNAL of July 24, 1909. These cars will be of the standard now in use on the company's lines and will have an over-all length of 47 ft. 5 in.

**Seattle, Renton & Southern Railway, Seattle, Wash.,** is just completing the construction of the fifth of nine all-steel cars for city and suburban service. These cars have many radical features in their design and ride remarkably smooth. The new car without motors, but with electrical equipment, weighs 41,500 lb. and seats nearly 70 people.

**Interurban Company, Burlington, N. C.,** which was reported in the ELECTRIC RAILWAY JOURNAL of Dec. 12, 1908, as being in the market for cars, has purchased six second-hand motor cars and six second-hand trail cars from the Dorner Railway Equipment Company, of Chicago. The purchase was made through the Interstate Construction Company, of Richmond, Va.

**Illinois Tunnel Company, Chicago, Ill.,** will soon ask for proposals on 1000 all-steel freight cars, to be used in the underground tunnels of Chicago. The specifications which are now being prepared will designate that the cars are to have an over-all length of 10 ft. 6 in.; width, 46 in.; height of bed-plate above the ground, 17 in., and are to be provided with sheet-steel side and end boards.

#### TRADE NOTES

**Brennan Electric Company, Chicago, Ill.,** has moved from 330 Dearborn Street, Chicago, to 127 LaSalle Street, Chicago.

**Grip Nut Company, Chicago, Ill.,** announces that Universal window fixtures will be used on 16 chair cars, 25 coaches and six 70-ft. all-steel dining cars to be built by the American Car & Foundry Company for the Rock Island-Frisco lines.

**Lord Electric Company, New York, N. Y.,** has just received a very substantial order for Earll catchers and retrievers as the result of a service test of eight months. Those interested in catchers and retrievers will be supplied with information regarding this equipment or other representative users.

**Dossert & Company, New York, N. Y.,** have concluded an arrangement with the Western Engineering Specialties



Company, 1732 Glenarm Street, Denver, Col., to act as agents for Dossert solderless connectors in the Rocky Mountain territory. A large stock of connectors will be carried in Denver.

**Edgar Allen & Company, Ltd., Sheffield, Eng.,** announce that the sole agency which has been held for some years past by Edwin R. Kent & Company for the sale of Allen products in the United States terminated on June 30, 1909, and that the business of Edgar Allen & Company, Ltd., in the United States will in the future be conducted in the firm's own name and under its own direct and personal management from 23 West Randolph Street, Chicago, Ill., and 282 Pearl Street, New York, N. Y.

**Ernst Schiess - Werkzeugmaschinenfabrik, Düsseldorf, Germany,** has recently brought out a machine for grinding corrugations off of rails. It consists of a carriage with three wheels, two of which, with the grinder, rest on the rail to be ground, and the other on the opposite rail of the same track. The grinding machine proper is equipped with a 10-hp motor supplied with current from the overhead line and an emery wheel which can be raised or lowered on the track. The inclination of the emery wheel can also be adjusted. By this machine, two workmen mill from eight to ten joints an hour.

**M. L. Newman & Company, New York, N. Y.,** through a typographical error in the *ELECTRIC RAILWAY JOURNAL* of July 24, 1909, were reported to have opened an office at 26 Broad Street for the practice of industrial engineering in a consulting capacity. Newman & Company are at 25 Broad Street, Broad Exchange Building. M. L. Newman, the senior member of the firm, is perhaps best known by his long experience in the employ of the Government at the Brooklyn Navy Yard. Alfonse Kaufman, who recently severed his connection as manager of the Alaska Chemical Company, has become actively engaged with the new firm.

**Mirrlees-Watson Company, Ltd., Glasgow, Scotland,** has been making the Diesel type of oil engine for some time, but as the company has a very large business of its own in other engineering departments, it has been thought better recently to have an entirely separate company for the manufacture of this type of engine. A new company, Mirrlees, Bickerton & Day, Ltd., has therefore been formed, and it has now a thoroughly well-equipped and extensive factory at Hazel Grove, near Stockport. The chairman of Mirrlees, Bickerton & Day, Ltd., is Allan F. Baird, who is also the chairman of the Mirrlees-Watson Company, Ltd., and the managing director is Charles Day, who is also managing director of the Mirrlees-Watson Company, Ltd.

**Peter Smith Heater Company, Detroit, Mich.,** reports that it has received during the past 60 days orders for its hot-water heaters as follows: The Milwaukee Electric Railway & Light Company, 121 type 1-C which was especially designed to suit Milwaukee conditions; Omaha & Council Bluffs Street Railway, 25 type 2-C; Indianapolis Traction & Terminal Company, 44 type 2-C; Salt Lake & Ogden Railroad, 10 type 1-C; Topeka (Kan.) Railway, 12 type 3-C; Grand Rapids (Mich.) Railway, 12 type 3-C, for pay-as-you-enter cars; New York & North Shore, 3 type 2-C; Rochester (N. Y.) Railway, 4 type 2-C; Maner Valley Railway, 3 type 3-C; Pittsburgh Railways, 20 type 2-C; Ft. Wayne & Wabash Valley, 4 type 1-C; Ohio Electric Company, 6 type 1-C.

**H. M. Byllesby & Company, Chicago, Ill.,** announce that in order to meet the requirements for space resulting from the merger of the American Trust & Savings Bank and the Continental National Bank they vacated the fifth floor of the American Trust Building on Aug. 1, 1909, and have opened temporary offices in the banking rooms at Dearborn Street and Monroe Street, formerly occupied by the Continental National Bank. On Oct. 1, 1909, Byllesby & Company will move to the quarters at present occupied by the Continental National Bank and will remain in this location until June 1, 1910, when they will return to the American Trust Building. These removals are brought about solely to accommodate the banks, whose business demands the possession of the fifth floor of the American Trust Building, which has been occupied by Byllesby & Company since the opening of the building.

**Willans & Robinson, Ltd., Rugby, England,** report an excellent demand for their Willans-Parsons turbine. This machine, while of the standard Parsons type, includes a number of modifications for which Willans & Robinson are responsible, particularly in the method of fixing the blades in the foundation rings. Special means are also employed in the construction of the rotor so that the end shaft shall always be maintained in rigid connection with it, and in balancing the pressure of the steam against the rotor. The experience of the manufacturers has also led them to pay

special attention to insuring ease of inspection and other features of a mechanical character, quite as important, often, to the power user as features of design. While the firm will quote prices on complete turbo-generator sets, it prefers to leave the manufacture of the purely electrical parts to those who make a specialty of this work, but the company is in close touch with such manufacturers so that standard patterns of generators are suitable for direct connection with standard patterns of Willans & Robinson turbines.

#### ADVERTISING LITERATURE

**Lea Equipment Company, New York, N. Y.,** has issued a pamphlet in which is described its Lea high-duty turbine pump.

**Cooper Heater Manufacturing Company, Dayton, Ohio,** has issued a card describing and illustrating its improved Cooper heater.

**Western Electric Company, New York, N. Y.,** is issuing folders on Hawthorn magneto test sets and Hawthorn resin core solder.

**Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y.,** describes a new five-line combination switching telephone and a two-line switching device in pamphlet No. 18, just issued.

**Walter A. Zelnicker Supply Company, St. Louis, Mo.,** lists large quantities of new and second-hand T and girder rail suitable for street and interurban railway track in bulletin No. 90, dated July 24, 1909.

**Watson-Stillman Company, New York, N. Y.,** is distributing Catalog No. 74, devoted to hydraulic beam shears and coping machines, which have been added to its large line of hydraulic tools. A hydro-pneumatic accumulator which is used in connection with the coping machines and beam shears is also illustrated and described.

**A. G. Spalding & Brothers, Chicopee, Mass.,** have issued a catalog of their playground apparatus, also a little souvenir pamphlet, "Playtime." The latter quotes the opinions of many authorities as to the value of playgrounds for children; the former describes the many types of swings, seesaws and other equipment suitable for such places, as well as for trolley parks.

**J. G. Brill Company, Philadelphia, Pa.,** in the July issue of *Brill's Magazine*, publishes the seventh of a series of articles on conditions which govern the type of car used in large cities. The article in the current issue discusses the conditions in Washington, D. C. Other articles describe new cars for the Joliet & Southern Traction Company and for the Atlantic Shore line.

**British Thomson-Houston Company, Limited, London,** has just issued a bulletin giving the partial list of users of Curtis steam turbines, including a number of prominent tramway systems. The British Thomson-Houston Company has installed a number of horizontal Curtis turbines, as well as vertical, but all of the horizontal turbines have been in small sizes.

**General Electric Company, Schenectady, N. Y.,** has issued Bulletin No. 4677. It contains data relative to the Sprague-General Electric Type M system of control, and forms a revision of similar data contained in a previous bulletin on this subject. The publication contains numerous illustrations showing the various pieces of apparatus used in connection with this system, with a description of each and table of weights of this style of equipment for various horse-power capacities. Bulletin No. 4675 of the company describes and illustrates a new single-phase induction motor of the repulsion induction type, designated as Type "R1," and developed for use in connection with installations where the starting torque of the resistance reactance type of induction motor will not meet the demand of the driven machine, or where within certain limits variable speed is required.

**Keystone Lubricating Company, Philadelphia, Pa.,** in a leaflet published recently entitled "High Grade Petroleum Grease for Electric Railway Lubrication," presents a brief for mineral grease in place of the animal fats oftener used. The point is very clearly set forth that the bearing needs the viscosity of its lubricant most when the bearing gets hot and that this is precisely the time when animal fats show a disposition to thin and run away from their work. The thinner the grease the more easily it is squeezed out under the overlaid, which probably causes the heating. On the other hand, mineral grease has the property of retaining its consistency under all ordinary changes in temperature. It is therefore fed, not by the softening due to heat, but by pressure or gravity, according to the density employed, and if a certain grade maintains a film at one temperature it will do the same at any other temperature within the normal loading of the journal.



TABLE OF MONTHLY EARNINGS

Notice:—These statistics will be carefully revised from month to month, upon information received from the companies direct, or from official sources. The table should be used in connection with our Financial Supplement, "American Street Railway Investments," which contains the annual operating reports to the ends of the various financial years. Similar statistics in regard to roads not reporting are solicited by the editors. \*Including Taxes. †Deficit. ‡Includes Ferry earnings up to April 1.

Table with columns: Company, Period, Gross Income, Operating Expenses, Gross Income Less Operating Expenses, Deductions From Income, Net Income. Rows include companies like AKRON, O., BELLINGHAM, WASH., BINGHAMTON, N.Y., CHAMPAIGN, ILL., CHARLESTON, S. C., CHICAGO, ILL., CLEVELAND, O., DALLAS, TEX., DETROIT, MICH., DULUTH, MINN., EL PASO, TEX., FAIRMONT, SW. VA., FT. WAYNE, IND., FORT WORTH, TEX., GALVESTON, TEX., GRAND RAPIDS, MICH., HARRISBURG, PA., HOUGHTON, MICH., JACKSONVILLE, FLA., LEXINGTON, KY., MILWAUKEE, WIS., MINNEAPOLIS, MINN., MONTREAL, CAN., NORFOLK, VA., OKLAHOMA, OKLA., PADUCAH, KY., PENSACOLA, FLA., PHILADELPHIA, PA., PLYMOUTH, MASS., PORTLAND, ORE., RICHMOND, VA., ST. JOSEPH, MO., ST. LOUIS, MO., SAN FRANCISCO, CAL., SAVANNAH, GA., SEATTLE, WASH., TAMPA, FLA., TOLEDO, O.