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#### The Trolley Accident at Pittsfield

The most unfortunate collision which took place between one of the cars of the Pittsfield Electric Street Railway Company and the carriage carrying the President of the United States, on the morning of Wednesday, Sept. 3, has been the cause of much unnecessary agitation against high-speed operation of trolley cars. Unfortunately for the accuracy of the reports telegraphed over the country purporting to give details of the catastrophe, the reporters who were the President's constant attendants on the trip were miles away at the time. It has been said that the authoricity of history is inversely as the number of witnesses to any given event, and many of the published accounts of the Pittsfield accident show earmarks of having been founded on the hysterical utterances of excited passengers.

We give, in another column, a conservative statement of the facts as they appear from an investigation on the spot by an editorial representative of this paper. That the railway company or its employees are entirely to blame for the occurrence will be seen to be quite inadmissible, but the amount of responsibility which should be placed upon their shoulders must be left for the courts to decide. We believe that, while in many States the law gives the right of way to the trolley car in a case of this kind, in Massachusetts both motormen and drivers are expected to exercise an equal amount of care. That the driver of the President's carriage failed to look behind him before turning on to the railway track directly in front of the approaching car seems evident. Whether the motorman was guilty of culpable negligence will be decided when the official investigation takes place, and it is fortunate that this hearing has been postponed for several weeks, so that an impassioned examination of all the facts bearing upon the occurrence can be had.

#### The Pennsylvania Tunnel Franchise

Discussion of the terms proposed for the Pennsylvania tunnel franchise has been renewed by representatives of the Pennsylvania Railroad Company and the city of New York, and it now appears that there is still a wide difference of opinion between the Aldermen and the railroad management, and that each side has evidently determined to insist upon having its view accepted. The principal points of difference developed at the meeting last week were upon the suggestion that the tunnel company indemnify the city against any claim for damages that may arise out of the closing of Thirty-Second Street between Seventh Avenue and Ninth Avenue, and the proposal that a clause be inserted in the tunnel contract providing for the prevailing rate of wages for men at work on the tunnel and for an eight-hour day. The company refused positively to accept these terms. In agreeing to the price of \$778,600 for the ground within the vacated portions of Thirty-Second Street, the company contends that it is paying what is admitted to be the full fee simple value of the land, and that this value largely results from such vacation. It held, therefore, that it is incumbent on the city to meet such damages, if any, occasioned by the vacation, for which it may be held legally liable. Regarding the question of wages and the eight-hour clause, the company contends that this whole question has been fully disposed of by the Court of Appeals of New York, that the law is now settled, and that the city can not impose such conditions, even in the building of its own subway. Moreover, it is pointed out that the work will be let to contractors, who will necessarily have to conform to the labor situation as it exists in New York.

The Pennsylvania Railroad Company has pursued a broad and liberal policy throughout these negotiations, and has met every reasonable demand that has been made by the city. It has even submitted to conditions that have never before been exacted from any corporation seeking a franchise of similar character in this city or elsewhere, but it has firmly and emphatically resented the attempt to impose terms that would seriously handicap the company, directly conflict with its established policy and invite

meddlesome reformers and sandbaggers to annoy the management in the future. Moreover, it would establish a dangerous precedent, and one of which other municipalities would quickly avail themselves. President Cassatt very clearly explained the attitude of the company upon the questions in dispute. Much as the corporation desires to secure the franchise, it is evident that it cannot consistently or safely abandon its position, even for such a valuable prize. The city's representatives admit that the clauses affecting labor and wages which they seek to have inserted in the contract can not be enforced, as the courts have decided that such matters are not within the province of the municipality to regulate, yet they persist in their demands that these promises be made. It has been explained that this is done merely for political effect, and that the difficulty might be solved by permitting the Aldermen to insert the obnoxious clauses, accepting the contract in that form and then ignoring these provisions. This plan was broadly hinted at during the conference last week by one of the advocates of the amendments, but the company positively refused to accept any clause which it had not the power and inclination to enforce. It has been frank, consistent and honorable in its dealings, and because of its attitude enjoys the respect of the community in a higher degree than ever before. We believe that public sentiment will eventually compel the granting of the franchise without the obnoxious clauses, although there may be some delay in securing the necessary legislation. \*

The failure of the city and the railroad to agree upon terms would result in great disappointment and embarrassment for the company, but it would prove a much greater loss to the city. It would deprive the city of a large sum of money which the company had agreed to pay for the franchise, the tax for track mileage alone amounting to upward of \$2,000,000 for the first period of twenty-five years under the terms fixed in the original contract. The city would also forfeit a large expected increase in assessable valuation, especially in the Borough of Queens, resulting from this improvement. But of far greater importance would be the loss to the business interests which are now suffering from lack of proper railroad terminal facilities. The abandonment of this project would work serious loss and disadvantage to laboring men of the city, to whom many millions of dollars would be paid by the company during the construction of the tunnel and the station. It may be said that \$25,000,000 would be a moderate estimate of the loss and injury to the city through the abandonment of the Pennsylvania Railroad's undertaking. The Aldermen are certainly risking a great deal to satisfy their desire to compel the company to accept their terms, especially when no advantage is to be gained. In other words, the Aldermen are willing that this great improvement should be sacrificed, unless the company will accept certain conditions and make certain pledges which both parties know can not be enforced.

#### Promise and Performance

A St. Paul politician, who was elected to the Assembly on a platform advocating 3-cent fares, undertook to carry out his promises, but found that he and his associates were powerless. At his request the corporation attorney was instructed to make a report upon the authority of the City Council to fix the fare at 3 cents. The city's legal department has conducted a very careful examination of the records since that time, and, as a result, finds that the Council has no right to compel the reduction of fares on the St. Paul street-car system to 3 cents. The ordinance under which the company is now operating, it has been found, is a contract agreed to by the city and accepted by the company, and can not be modified by either. The street-car company is operating under a fifty-year franchise, of which thirtyseven years still remain. The result of this movement should teach the people not to pin their faith to the political reformer, who generally promises much more than he can possibly perform, no matter how good may be his intentions.

#### Regarding the Fuel Bill

The present high price of coal is likely to fall ere long, but the predictions of the economic prophets will go far wrong if it drops for some time to come to anywhere near the old plane. Indeed, for the last few years there have been many signs pointing to a steady upward gradient in the cost of fuel of every kind. The coal supply is, by no means, so near to exhaustion as the soothsayers of the past would have us believe, but for practical purposes it makes little difference to the man who foots the bill whether the supply is lessened by approaching exhaustion of the mines or by production deliberately limited. From either aspect the outlook for cheap fuel is distinctly bad, but if the present scarcity, by its acuteness, can teach the economical use of what fuel is available it will have been not altogether an unmixed evil. Particularly in the early days of electric railroading, when coal was low, there came to be a reckless disregard of measures of economy, and we well remember how even the use of condensing engines was regarded as a sort of theoretical refinement unworthy the attention of the practical man. In those days, when the chief item of operating expense was the repair bill, the fuel account seemed a small factor in the total expense. To-day, we face a very different situation in every respect, and unless we mistake greatly the cost of motive power will steadily give the manager more and more concern. The old fallacies regarding the virtues of simple non-condensing engines have gone by the board long ago, and a really modern power plant for an electric railway is highly economical. But the evil days have come apace, and more attention must be given this subject than ever before.

\* \* \*

Perhaps the first subject for immediate consideration in this particular is the chance for successful power transmission from water power. An investment in such a proposition is almost absolutely certain to rise in value, for the desirable powers are rapidly being taken up, and each increase in the price of coal gives transmission from water power an added economic advantage. Furthermore, the working distance for successful transmission is steadily increasing, and many a proposition that was apparently turned down upon its merits five years or six years ago is now highly attractive. Hence, it is the part of wisdom to cast about for opportunities of this kind. One must not plan, in a permanent investment like a street railway, for next year alone, but for the next generation, and even if a power transmission seems barely able to pay at the present time, it will probably be paying very handsomely before the securities issued to pay for it reach maturity. Even the element of change in the art alone is likely to improve the economic status of power transmissions, while no change in the art seems likely to improve very greatly the fuel situation. The only factor tending in that direction is the increasing use of producer gas, and this is of somewhat dubious utility on the scale necessary in modern electric railroading. All in all, therefore, the water-power question seems to be particularly well worth looking up, and we do not doubt that many roads will find it worth their while to introduce it. But there are many points at which hydraulic power is not conveniently available, even with the present facilities for transmission. Burning practically refuse fuel at the pit's mouth has often been suggested as an important future phase of power transmission, but save in two or three plants of moderate size it is not yet an accomplished fact. Now and then, however, it may prove to be worth serious consideration.

\* \* \*

Improvements in generating power are always and everywhere applicable, and the keenest watch should therefore be kept on everything of this sort that looks at all feasible. The development of the steam turbine is a subject worthy of the closest attention, since it seems to be able to give asssistance in small plants and at relatively light loads, the very points in economical power generation where help is most needed. We must, of course,

recognize the fact that the turbine is in a comparatively early stage of development, but it certainly gives great promise even now. When a rather small turbo-generator can show economy comparable with that attained in a good-sized plant with compound condensing engines, a great step forward has been taken, and there is reason to hope for even better results in the future. Even aside from turbine practice, every year shows some improvement in engine performance, so that the best work of ten years ago seems rather ordinary to-day. Greater, we think, than any probable saving in the engine itself, is the possibility of improving the performance of boilers and furnaces, particularly the latter. Almost every class of fuel has some peculiarities in combustion that require modifications in the furnace, in order to obtain the best results. The ordinary standard furnaces require, for the most part, good coal to obtain the results for which they are designed. A change to poorer grades of fuel ought to imply, for the sake of economy, a change in the furnace and the scheme of firing. Again, the enactments against undue production of smoke bear heavily on those who are trying to economize by the use of low-grade coal, and furnaces must be designed not only to give economy with such fuel but to diminish the smoke. Generally, the two ends may be met simultaneously, but a so-called smoke consumer does not necessarily imply obtaining good evaporative efficiency from the fuel. Far too little attention is given to the boiler and furnace end of the power station. A decrease of 10 per cent in the steam required per hp-hour would be a sensational improvement in engine performance, but an evaporation of 10 lbs., instead of 9 lbs., of water per pound of coal by better furnaces and firing achieves the same economic result at, probably, lessened expense. And to retain the evaporative efficiency while burning a grade of coal 10 per cent cheaper than before is an equally important advance, although it is not so heralded from the house-tops. The "man behind the poker" is a very essential factor in economical power production.

#### Sauce for the Gander

Experience brings wisdom even to Boards of Aldermen, and after a decade of electric traction, municipal authorities have recognized the advantage of being fairly liberal in the matter of speeds permitted. To get the greatest good from modern methods of traction, it is necessary to allow time as fast as security permits, and the city which keeps the schedule time down to 8 miles an hour steadily falls behind her more progressive neighbors. The ordinary electric road is fairly well suited with the conditions at the present time, but we are disposed to think that there is trouble brewing. Why should our plutocratic contemporary who drives his Devouring Dragon 50 miles an hour over the public roads be exempt from the same limitations that are enforced against the trolley car? The latter is a public convenience, the former a public nuisance. Why should the one be repressed, while the other goes scot free? To be sure, the police occasionally screw their courage up to the point of arresting some venturesome chaffeur, whose employer promptly pays the \$5 or \$10 fine as often as it is imposed. If both were given thirty days for the first offense and a double dose afterward, it would hurt their feelings, no doubt, but the death-rate would be perceptibly decreased.

\* \* \*

So far as danger is concerned, a trolley car at 20 miles per hour is a far less serious menace than an automobile at the same speed, for the former is rigorously confined to a track which all can see and avoid, while the latter runs where it pleases, has relatively very inefficient brakes, and is driven by those who care very little for collisions, so long as their own precious skins are not endangered. Further, a trolley car, from motives of economy, is geared so as to have only a moderate margin of speed above the rate ordinarily required for the schedule, while very many automobiles are deliberately built for three times or four times the legal speed, and with the intention of running at the

top notch. The temptation to "cut loose" seems to be irresistible among operators of autombiles.

\* \* \*

This is no joking matter, despite the comic papers. If vehicles weighing two tons or three tons are run over public roads at 30 miles to 50 miles per hour, why should an electric car confined to a track which all may see and avoid be held down to 12 miles or 15 miles? Or, conversely, if considerations of public safety have demanded that the car be confined to this moderate speed, why should a private vehicle of a much more dangerous character, often driven by reckless and irresponsible persons, be permitted to transgress all rules of decency? One does not die the easier because he is run over by Mr. Billions, of the Soft Soap Trust, rather than by a plain trolley car driven by No. 1049.

This matter, moreover, has a practical and commercial, as well as an ethical side. Suppose Mr. Billions and his friends, instead of being satisfied with "tooling" a green and yellow four-in-hand, establish an automobile line from Snobhurst-on-the-Sea into town. And following this, suppose we should have a season of fast automobile omnibuses coming into direct competition with the electric cars? How about the speed limit then? You can not hold a private Juggernaut to one limit and a public one to another, and why should not both be held rigidly to the conservative limits already imposed on electric cars? What is sauce for the goose is sauce for the gander, and we know of no good reason why the public streets should be given over body and soul to dangerous vehicles. In a few years the competition which cuts no figure to-day may become, by steady improvements in the automobile, a pretty serious matter, and it seems to us that whatever influence the electric railroads can muster should be turned to securing one law and one practice of enforcing the law for themselves and their competitors. The competition is trivial now, but if a coterie of wealthy scorchers, with big pulls, gets the bars down in the matter of speed now, they will never go up again. It is well to kill snakes before they get a chance to grow

Seriously, the unfairness of allowing in automobiles which may be, and will be, used for public traffic, speeds which are forbidden to electric cars running under much better conditions for safety, is manifest. We think that, in most cities, the street cars are allowed all the speed that good conservative practice permits, and practically the speed is generally limited not by statute, but by the conditions of service. To place automobiles on the same fair plane requires not raising the limit allowed for street cars, except, perhaps, in a few places, but stern enforcement of the same legal speed limit for both classes of vehicles. The operation of a vehicle geared for two times or three times the legal speed in the public streets ought to be prima facie evidence of law-breaking, to be treated as such, and the punishment ought to extend beyond nominal fines. Truth to tell, we do not know of any passenger automobile in the market which is not geared to run at illegal speeds-if there is such an one, we shall be glad to give it publicity and commendation. The great and useful future of automobiles lies not in scorching, but in the development of types fitted for the steady and useful work of every-day transportation. It would be a good thing for the business if the law should step in and compel designers to turn their thoughts to a steady-going, reliable motor-vehicle to run at a maximum speed of 10 miles or 12 miles per hour, and to be available for the ordinary work and play of life. And the time is soon coming when the law must step in. Racing is well enough in its place, and some men are born with a love of a hot pace which they may reasonably expect to gratify, but the world's work is done at a more moderate rate. Certainly, there should, at least, be fair play in the matter of speed, and the electric car deserves enough from the public to be permitted a fair show in the public streets, and the street railways have a right to demand that others shall be held to the same rules as themselves.

#### President Roosevelt in a Trolley Accident

While driving from Pittsfield to Lenox, Mass., on Wednesday, Sept. 3, a carriage containing the President of the United States and the Governor of Massachusetts was struck by a trolley car. The accident resulted in but slight injuries to the occupants of the carriage, but caused the death of Secret Service Agent Craig, who was on the box with the driver, and severely injured the latter.

air speech to the citizens of Pittsfield earlier in the morning, and was being driven to Lenox and Stockbridge, where arrangements had been made for further speeches previous to his taking his train for Great Barrington and other cities in his extended New England tour.

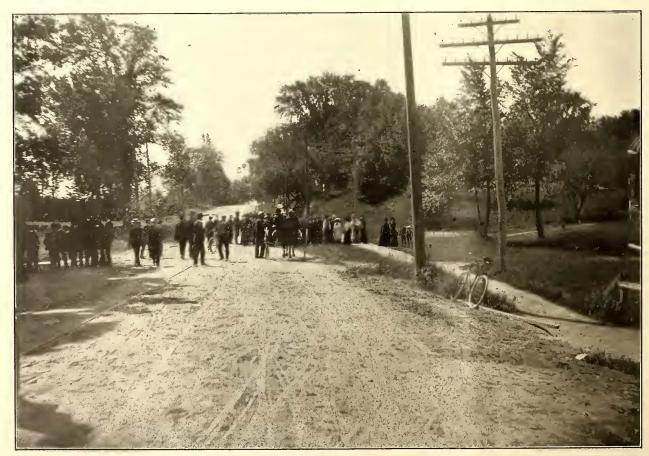
Unfortunately, the brake containing the corps of newspaper men who had accompanied him on his trip had been sent on ahead of the carriage, while the President stopped to visit a moment with ex-Senator Dawes in Pittsfield, and the first reports of the



SCENE OF THE ACCIDENT

The car was a special car, chartered by members of the Pittsfield Country Club from the Pittsfield Electric Street Railway Company, and was about 1000 ft. from the end of the company's line when the collision occurred. The President had made an open-

accident that reached the daily press contained, therefore, many inaccuracies and exaggerations. On account of these misstatements, which appeared in their reading pages, the editorial writers of a large number of papers have felt it incumbent upon them to



VIEW OF THE ROAD, SHOWING POINT OF CROSSING TRACK

flay unmercifully the motorman, the railway company, the city authorities, and, in fact, the New England electric roads in general. The hearing, which will be held in a few weeks to fix the blame for the accident, will undoubtedly disprove many of the stories that have been so widely circulated, and the Pittsfield Electric Street Railway Company, which only the night before had handled 4000 passengers between Pittsfield and Dalton, without a scratch to its patrons or any member of the crowds thronging the streets of the latter city in honor of the President's visit, will be placed in a position where a more reasonable estimate of its responsibility may be had.

The facts of the accident are as follows: There is a single-track line running from the center of the city to the Country Club, a distance of about a mile and a half. This track holds the center of the road, South Street, until within a short distance of the terminus, where the roadway bends slightly to the left, and the track keeps on in a straight line, passing from the center to the side of the road. Ordinarily the vehicular traffic going south, i. e., in the direction of the club, keeps to the west side of the track



THE PRESIDENT'S CARRIAGE AFTER THE ACCIDENT

until the end of the road on that side is reached, as the good condition of the road and the wheel tracks at this point evidences. A carriage, therefore, which has not reached this turning point is naturally expected by motormen of approaching cars to keep off the tracks as completely as if they were to cross the track at any other point on the The President's carriage on Wednesday was in just such a position, between 250 ft. and 300 ft. from the ordinary crossing. As the car had almost reached the vehicle Driver Pratt, of the President's carriage, whose attention was wholly occupied in managing his four-horse team, swung the leaders suddenly to the left and attempted to cross immediately in front of an approaching car. The motorman did everything in his power to stop, but was too close to avoid the collision, overturning the carriage and throwing Mr. Craig, who had jumped to his feet at the approach of danger, directly under the wheels of the trolley car.

The gearing of the motors was such that running on level track 15 miles per hour would have been the maximum speed attainable. The accident occurred, however, on an up-grade, and it is attested by passengers on the car that the motorman was running at the time with current off. That the car was stopped almost immediately after striking the carriage is shown by the fact that the body of the vehicle was scarcely marred, and that there was hardly a scratch on

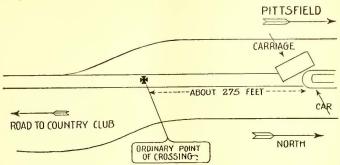


DIAGRAM OF ROADWAY, SHOWING RELATIVE POINTS

the car. The strain on the wheels on the far side of the carriage caused them to give away, tipping the occupants out into the road and inflicting a few bruises. The near hind

wheel was broken in, and it is probable that this was the point of collision. The carriage was pushed to one side and the car went far enough ahead to hit and kill one of the wheel horses.

Motorman Madden, who had charge of the car, was a thoroughly reliable man, having been in the service of the railway company for a long time, and having had a most excellent record. He was not, as was reported, a new man, and he did not lose control of his car. In many of the stories published impertinent remarks were said to have been made to the President by the motorman, a statement which is entirely without foundation in fact.

While the President was in the city the regular schedule on the railway lines was suspended so that the City Hall Square could be roped off during the addresses. The car which was in the accident was a special car, chartered by members of the Country Club to carry them from the City Hall Square after the President's address to the club house, where it was expected to give him an ovation as he passed. Before the trip the conductor was given special instructions that he need not hurry, as the schedule had been entirely abandoned for the time being, and he could take as much time as he wanted in getting back. That he tried to pass the President's carriage in a place where vehicles ordinarily kept to the road is true, but that the car was moving at a dangerous rate of speed seems highly improbable. The official result of the



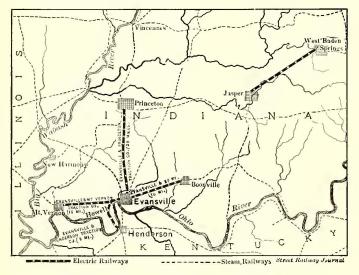
REAR WHEEL OF CARRIAGE STRUCK BY TROLLEY CAR

hearing will be awaited with impatience by street railway men throughout the country, and until the testimony of the motorman, conductor, passengers, driver and others is made public all the facts connected with this catastrophe cannot be known. The foregoing, however, is as accurate a description of the accident as can at this time be obtained by a careful investigation, on the spot, by a representative of the editorial force of this paper, and shows that not only were the published reports in the daily press greatly exaggerated but many of them contained details that were pure fabrications. The unenviable position in which it has placed the town of Pittsfield, however, has produced a combined effort of the press and public to "regulate" the speed of trolley cars. It is quite likely, therefore, that sufficient pressure will be brought to bear upon the company to compel it to modify its present excellent high-speed schedule, which has previously been operated with universal satisfaction and perfect safety.

#### Trolley Construction in Southern Indiana

With the growth of trolley enterprises in the States of the Middle West it would be expected that Southern Indiana would come in for some attention. In no section of the country are the people more enthusiastic in the prospect of enjoying the pleasure and convenience of interurban roads than those of "the Pocket." No doubt considerable municipal aid could have been secured to supply necessary financial backing had that plan been adopted by promoters at an earlier date, but now that the public has been assured so unqualifiedly by some of the companies organized that their propositions will go through, it would be more difficult to get financial assistance.

Up to the present time no work except surveying has been done on any line projected in this section. Four companies have been incorporated to construct roads to connect outlying towns with the city of Evansville, but some of them have not shown the financial stability that was expected of them. The first in the field was the Evansville & Southern, with a proposition to build a line to Boonville, in Warrick County, 18 miles in length. This has been abandoned, although right of way was obtained. The Evansville & Princeton Traction Company was next incorporated, to



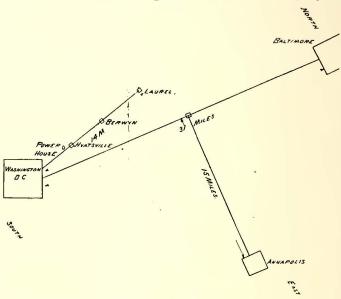
MAP SHOWING TROLLEY EXTENSION IN SOUTHERN INDIANA

build a line of about 28 miles to Princeton, in Gibson County. This line is now being surveyed, and the public is constantly assured through the daily newspapers that financial arrangements have been made for its completion. There seems some doubt about this, however, and local subscriptions are being asked for. The line has many attractive features, extending through a fine, thickly settled district. The third company to be incorporated is the Evansville & Mt. Vernon Traction Company, to construct a line of about 16 miles to Mt. Vernon, in Posey County. The money necessary to construct this road has been secured, but before entering upon the work it was desired to make arrangements for the satisfactory bonding of the property, so as to replace local money. This line is intended to connect with the Evansville Street Railway. Recently the Evansville & Henderson Traction Company has been organized to construct a road from Evansville to Henderson, Ky., using a ferry to cross the Ohio River at the latter point. It is also proposed to connect with the city lines of Evansville. A company has been incorporated to build a road from Jasper, in Dubois County, to the West Baden Mineral Springs, a well-known health resort. Evansville is surrounded by a wonderfully fertile agricultural country, and the people have been unusually prosperous for several years, and it is probable that any of the proposed lines would be a financial success, especially when the city is experiencing a steady and reasonably rapid growth.

#### Single-Phase Equipment for Washington, Baltimore & Annapolis Interurban Railway

As announced in the last issue of this paper, the Westinghouse Electric & Manufacturing Company, of Pittsburgh, has contracted for the equipment, with alternating-current apparatus throughout, of the Washington, Baltimore & Annapolis Electric Railway, which is to operate an interurban system, including a line from Washington to Baltimore about 40 miles in length, and a branch to Annapolis 15 miles in length.

Single-phase, alternating current will be generated in a main power house located at Hyattsville, by three 1500-kw singlephase Westinghouse generators, delivering current at 15,000 volts and driven by Hamilton-Corliss cross-compound engines. This station is of more than average size, and is, in no sense, experi-



MAP OF WASHINGTON, BALTIMORE & ANNAPOLIS INTERURBAN RAILWAY

mental. The power house will be built of brick with stone and concrete foundations, and will contain, in addition, two 125-velt direct-current generators to be used as exciters for the alternators. and a large switchboard with electrically-operated oil switches, circuit-breakers, lightning arresters, etc. Current will be distributed from the power house at 15,000 volts to transformer stations located at suitable intervals along the line. These transformer stations will contain only stationary transformers with the necessary switches and fuses, but no moving machinery, and will not, therefore, require the presence of an attendant. From these stations, current will be fed to the single trolley wire at 1000 volts. The pressure of 1000 volts, which has been adopted for the trolley wire, is not a necessary part of the system, as a much higher voltage could have been used if it had been deemed advisable by the engineers of the road.

The cars will probably be 60 ft. in length and weigh about 50 tons cach. They will be supplied with M. C. B. trucks designed for high speed; the track is laid with 80-lb. rails, and it is expected that the distance of 31 miles will be made in forty-five minutes, including stops. The cars are to be equipped with four motors, each of 100 hp, and it is expected that a normal speed of 40 miles to 45 miles can be attained and a speed of 60 miles

reached when necessary.

The motor, which is the novel part of the equipment and the key to the entire system, is a variable speed machine having characteristics adapted to railway service, and the manufacturers claim that it is, in all respects, equal to the present direct-current railway motor. It has been developed and tested in severc service by the Westinghouse Electric & Manufacturing Company, under the supervision of B. G. Lamme, assistant to the chief The company thus far, however, has closely guarded engineer. the details of design and construction, but it claims to have attained very satisfactory results in experimental work.

As mentioned before, the power house is now being erected at

East Hyattsville, Md., where the railway company owns a site of three acres. This station will be completed in about twelve months, will be 133 ft. x 203 ft. in size and cost in the neighborhood of \$350,000. It is located conveniently to water for condensing purposes and to railway facilities for handling coal, and will furnish power for the Chesapeake Beach Railroad, which is to discontinue the use of steam, and, perhaps, in addition, to manufacturing plants to be located in this neighborhood.

The company is to take over a small direct-current road about 14 miles long, running from Washington to Laurel, Md., and current for this line will be furnished by two 200-kw single-phase rotary converters located at the power house in Hyattsville. This apparatus is also a new departure and of considerable interest, especially since it shows the possibility of operating the new system with existing direct-current plants.

The single-phase motor, if successful, will mark a radical departure in electric railroading. In the ordinary method of operating street railways, direct current is fed to the trolley line for the car-motors. For city lines and densely-populated districts, the current is often generated as direct current, but for long-distance interurban roads this would involve a cost of copper conductors entirely prohibitive. To meet the latter objection, it

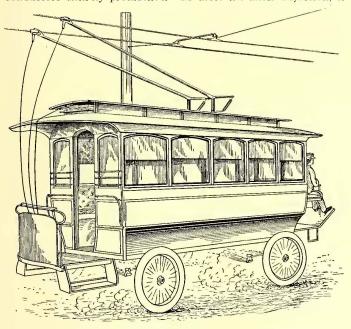


FIG. I.—TRACKLESS TROLLEY CAR AND OVERHEAD CONTACT ARRANGEMENT

has become common practice in this country to generate alternating currents at 10,000 volts to 30,000 volts and transmit them to sub-stations where, by means of transformers and rotary converters, the current is supplied to the trolley wire as direct current at the usual railway voltage from 500 volts to 650 volts. rotary converter sub-station, however, has always been an expensive feature, chiefly on account of the cost of the apparatus and building and the attendance required. In Europe the polyphase induction motor has been used to some extent, but it implies the use of two or three overhead wires, and, moreover, the characteristics of the induction motor in regard to starting and average efficiency in railway service are said to be not of the best. Other systems which have been proposed involve the use of singlephase motors upon the cars driving generators, which, in turn, supply power to the motors on the axles, or, in other words, placing a sub-station upon the car itself, which can not be considered a great improvement over the ordinary alternating-current, direct-current system. Details regarding the new Westinghouse system have not been given out, but it is contended that by its use the limitations of the induction motor and the disadvantages of the multiplicity of overhead conductors, as well as the great cost of the system last described, will be avoided.

The engineers of the new road are the Cleveland Construction Company, of which Will Christy is president. The officers of the Washington, Baltimore & Annapolis Railway Company are W. H. Lamprecht, president, and Otto Miller, secretary, both of Cleveland, Ohio. The directors are as follows: W. H. Lamprecht, F. T. Pomeroy, F. N. Wilcox and Otto Miller, all of Cleveland, Ohio; Will Christy, of Akron. Ohio; James Christy, Jr., of Washington, D. C., and W. L. Marbury, of Baltimore, Md. It is also stated that Henry Everett, E. W. Moore and W. J. Mandelbaum & Co., of Cleveland, are largely interested in the enterprise.

#### The Trackless Trolley in New England

Mention has been made of several projects to introduce the "trackless trolley" in New England, but thus far no serious attempt has been made to establish a commercial system in this country after the manner of the foreign undertakings. Now, however, it is announced that a company has been engaged upon the problem and that a modification of the methods described in the Street Railway Journal, of March 1 and Aug. 2, has been perfected and will shortly be put into practice in Lowell, Mass., and other places in New England where permission has been secured from local authorities. It is claimed that A. B. Upham, of Boston, president of the Eastern Trackless Trolley Company, more than a year ago installed a temporary line to demonstrate its practicability; and the company of which he is president hopes soon to have a line in practical commercial service.

The accompanying sketch, Fig. 1, shows a car designed to seat twenty passengers, with standing room for ten more, and is equipped with two motors, and controller for changing speed. In this system two trolley poles are employed. They press apart

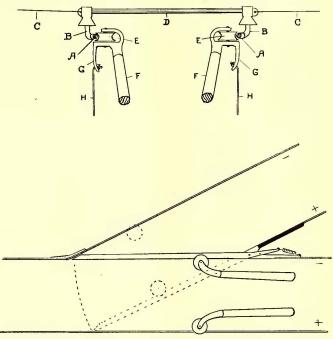


FIG. 2.—TRANSVERSE SECTION OF TROLLEY WIRES, AND METHOD OF CONTACT WITH TROLLEY WHEELS

a pair of horizontal trolley wheels, as shown in the cuts. As these wheels are horizontal and pressed against the sides of the wires, it makes no difference what angle the poles make with the wires, as viewed from above; whether in the same vertical plane, or reaching over sideways from any direction. On this account, the vehicle can travel with greater freedom either directly beneath the trolley wires, or along lines parallel with the wires at any distances within the reach of the trolley poles. This, with trolley poles of the usual length, gives a variation extending to about 8 ft. on each side of the wires; thus permitting a vehicle 6 ft. in width to travel along any part of a roadway 22 ft. wide, and is found to be ample for all practical purposes, as it enables the motorman to guide his car around and between other wagons without thought of the trolley.

The two trolley wheels are strongly pressed apart with their flanges embracing the inner faces of the trolley wires, and they thus constitute, in effect, a dovetail hold upon the wires. Such arrangement permits of a simple and practical method of switching the trolley from one line to another. The form of switch employed for this purpose consists of a laterally swinging switchtongue, introduced as a section of one of the trolley wires at a point where another pair of wires join the main line, as shown in the accompanying sketch, Fig. 2. A spring retains the switchtongue closed and so permits the trolley wheels to traverse the main line without interruption; but, when a trolley approaches on the branch line, the instant one trolley wheel meets the switchtongue it forces the latter over until its end makes contact with the opposite main-line wire, and so provides a means for guiding the wheel over to this wire, while the other wheel simply rolls about the corner from the branch wire to the other of the two main-line wires. After the trolley wheels have passed, the switch-tongue is returned to its normal position by its spring. Fig. 2 is a transverse section of a pair of trolley wires showing

their hangers and trolley wheels in engagement with the wires, the reference letters AA indicate the trolley wires; BB, the wirehangers; CC, the stay wires; D, the wooden bar joining the hangers; EE, the trolley wheels; FF, the trolley poles; GG, the bearing extensions for guiding the trolley wires into the grooves of the trolley wheels, and HH, the cords reaching from the bearing extensions into the reach of the car conductor.

Another advantage in the horizontal arrangement consists in the facility with which the wheels can be applied to the trolley wires. This is accomplished by providing the bearings of each wheel with a rigid extension flush with the wheel flange, and having a rope hang from the end of each extension into the reach of the occupants of the car, while a third rope is provided for drawing the two trolley poles together and at the same time giving them an upward pressure.

To apply the trolley to the wires, the conductor or motorman pulls upon this third rope until the upper ends of the poles are drawn together and so rendered capable of rising up between and above the wires, the two ropes first named being used to guide the same. The third rope being then released, the trolley poles and wheels separate until the two ropes meet the wires. These latter ropes are now pulled down upon until the extensions referred to reach the wires, and until the wires pass from these extensions into the flanges of the wheels.

Owing to the facility with which the trolley can be shipped and unshipped, it may be adapted for a mixed passenger and freight business. It is explained whenever a swift passenger car approaches or overtakes a slow freight carrier, the latter removes its trolley while the other steers around and past it without stopping. This facility would likewise do away with waits at turnouts, enabling the cars on a single line to keep on until two approach each other, when the out-going car, for instance, removes its trolley and the other passes without delay.

#### Home-Made Parlor Car

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The equipment of the Concord, Maynard & Hudson Railway Company includes a handsome parlor car, which is in constant demand for theater parties and excursionists who desire to make a trip over its lines and enjoy the natural beauties of that section. The scenery in this part of New England is unsurpassed, and the ride over the company's line forms a very popular trip, as it passes a number of historical houses and points of interest. A picture of the car, which is now in operation, is presented herewith, together with an interior view, which shows the decorations and

furnishings of this handsomely fitted coach. This car is particularly interesting, as it is the first of three special cars to be turned out from the company's shops under the personal direction of John W. Ogden, superintendent of the system. At the present time there are two more cars of the same type going through the



INTERIOR OF CONCORD PARLOR CAR

shops, and these are being hurried to completion because of the demand which has been created by the operation of the first car.

The company had six cars which were originally built for a storage battery road, but which were never put into service. These cars were spliced so as to make three trolley cars, 40 ft. over all. As the entire frame work, including sills, cross timbers and studding, was of extra heavy construction, it was an easy matter to rebuild them into a substantial structure. One end of each battery car was taken out to a point about 3 ins. above the door, and the end was arched, as may be noticed in the interior view. The advantage of this plan was in preserving the frame of each car intact and making the whole structure particularly strong when bolted together. After joining these parts they were reinforced by 6 in. x 8-in. Southern pine timber, extending the whole



RECONSTRUCTED PARLOR CAR OF THE CONCORD, MAYNARD & HUDSON STREET RAILWAY

length of the car and bolted through the original sill. Outside of this timber was secured a \[ \frac{1}{2} \end{a} \]-in. angle iron, 5 ins. x 5 ins., and a small angle iron as well for drip rail to increase the rigidity of the top of the car. For bolsters 8-in. x 8-in. oak was used, reinforced by \( \frac{1}{2} \)-in. plates. Another improvement was effected in changing the windows so as to open up instead of dropping down, as originally designed. The old hoods were saved, but new platforms and vestibules were built. The floor of the car is of \( \frac{1}{2} \)-in. maple, and the sheathing inside of white wood, mahogany stained.

The outside of the car is painted dark blue for the body and the trimmings are in a lighter shade. The scrolls are gold leaf and aluminum. As represented in the illustrations the car presents a very handsome appearance. The car is wired for eight ceiling lights and twenty side lights, with lily pattern shades of different colors, thus ensuring an even distribution and the diffusion of subdued light. The panels back of the side lamps are painted a light blue and the rest of the interior is of mahogany finish. The draperies at the windows are of electric blue, with white cord and tassels, and a very handsome velvet carpet covers the floor. In one corner of the car is a toilet room, and there are also provided two ice boxes arranged under seats, so as not to occupy space and not to spoil the appearance of the cars. The tops of these corner seats are upholstered in crimson plush. In addition there are twenty-one rattan chairs with colored plush cushions, two tete-atetes, one mahogany and one rattan table, and plenty of sofa pillows to ensure the comfort and convenience of the occupants on long rides. The bronze rod from which the draperies are hung runs the entire length of each side of the car, and the brackets supporting it were especially designed so as to furnish at the same

the Council of the municipality, having the right to regulate the rate of fare or other conditions of travel. The ten-year provision is seriously objected to. A leading promotor, in speaking of the proposed code, summarizes the results in a very few words. "We will," says this authority, "be unable to finance a road under such conditions. It practically means a straight ten-year franchise, and no bond-buyer would consider the bonds of a road having such franchises. The State of Ohio has, within the last few years, had its tax duplicate increased from \$40,000,000 to \$50,000,000 by capital from New York, Boston and Philadelphia invested in interurban roads, not one of which could have been financed under the provisions of the proposed Nash code. The franchise is one of the first things financiers look at in furnishing money for such a road. Twenty-five years is short enough period under which to sell bonds, but ten years is out of the question."

#### Electric Locomotive for Freight and Industrial Service

The establishment of interurban roads and the development of the freight and express business of these lines have created a demand for electric locomotives for hauling heavy trains in place of single cars mounted on electric trucks. Up to the present time, heavy railroad service has not received as much attention at the hands of electrical engineers as the street railway and elevated service. For this reason the field has been left practically to the steam locomotives, but in many cases it has been found that electric locomotives can be conveniently and profitably em-

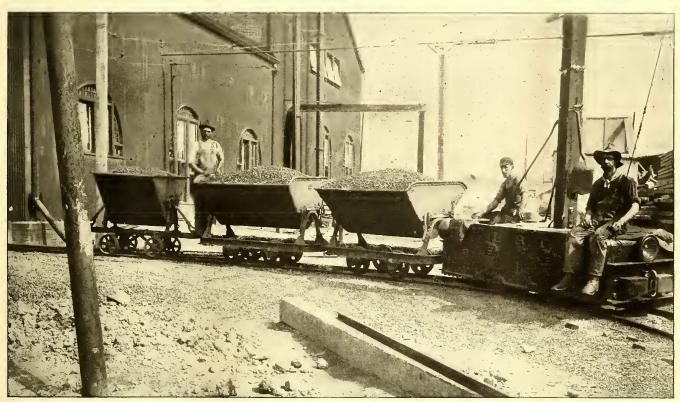


FIG. 1.—FOUR-WHEELED, TWO-MOTOR, ELECTRIC LOCOMOTIVE FOR HAULING COAL AND ASHES OF BROOKLYN RAPID TRANSIT COMPANY

time hooks upon which to hang wraps and hats. All the trimmings and furnishings throughout the car blend harmoniously and present a very attractive appearance. The car has a seating capacity of thirty-one people.

The dimensions of the car, as rebuilt, are as follows: Length over all, 40 ft. 8 ins.; height, 12 ft. 5 ins.; width, 7 ft. 10 ins.; distance between bolsters, 21 ft. 3½ ins.

The car body is mounted on Peckham No. 14 B-3 double trucks, with four 12-A 30 motors, K-12 controllers, Christensen air equipment, arc and incandescent head lights, trolley catchers and two trolley poles.

#### To Defeat Twenty-Five-Year Clause in Ohio

The traction interests of the State are exerting every effort to defeat the clause in the proposed code for Ohio cities, which provides that railway franchises shall be for twenty-five years, and that every ten years they shall be subject to change at the will of

ployed. This is also true of private railway lines in large industrial establishments, of switching yards, and where it is desired to replace steam locomotives in hauling trains through tunnels.

A careful examination of the problem shows that under suitable conditions, especially where the work is largely concentrated, a central power plant transmitting electrical energy to a number of motors is more economical than numerous steam locomotives, which, of necessity, are not working under the conditions most favorable to economy. This is particularly true of localities where the cost of fuel is high, and it is believed that the transmission of electricity at high potential for long distances will open up a wider field for electric locomotives in heavy railroad service. For short branch lines or for suburban freight or passenger traffic, where it is not convenient to equip the cars with motor-driven trucks, electric locomotives may be operated economically, but this, of course, is governed largely by local One of the most promising fields for electric lococonditions. motives is the switching service, either for heavy or light traffic. Where the service is intermittent, as, for instance, at railway terminals and on docks and in industrial plants, they are especially economical. There are some classes of industrial establishments to which electric locomotives are particularly well adapted, as for instance, in lumber mills, on account of the fire risks or where-

haul sugar-cane from the plantations to the grinder. This also is a 4-wheeled, 2-motor equipment. Fig. 3 shows a 4 ft. 8½ ins. gage switching locomotive weighing 13 tons. This locomotive is employed at the Atlantic Coast Lumber Company's yards in



FIG. 2.—HAULING SUGAR CANE FROM HAWAIIAN PLANTATION TO GRINDER

ever the smoke and gases from steam locomotives would be objectionable.

Several examples of recent installations of this kind are illustrated in the accompanying cuts. Fig. ī shows an equipment employed by the Brooklyn Rapid Transit Company for hauling coal and ashes at its power plant. This is a 4-ton, 4-wheeled locomotive of the mining type, equipped with two direct-current motors and a trolley pole standard. Fig. 2 shows another type in use by the Hawaiian Electric Company. It is employed to

Georgetown, S. C. It is a 4-wheeled locomotive driven by two motors capable of exerting a full load draw-bar pull of 4500 lbs. at a speed of 6 miles an hour. A series-parallel controller is used on this locomotive, and permits of a speed of 3 miles an hour with the motors operating in series. Probably the most interesting example for the steam railroad men is that presented in the illustration of the Carnegie Steel Company's equipment, Fig. 4. This comprises an 8-wheeled electric locomotive liauling a heavily-laden freight train. Two motors are employed.

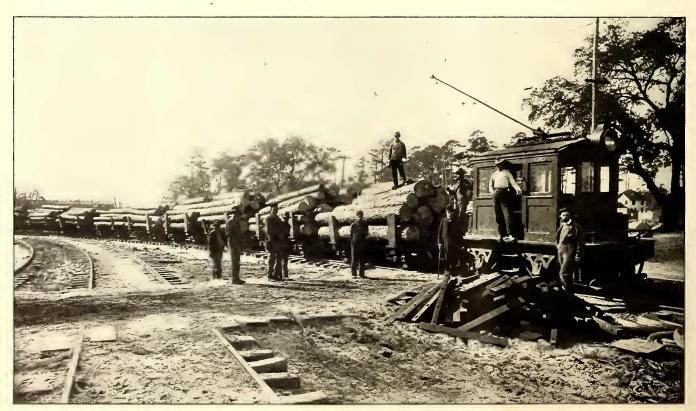


FIG. 3.—ELECTRIC LOCOMOTIVE HAULING LUMBER TRAIN OF ATLANTIC COAST LUMBER COMPANY

All of these locomotives have been built and equipped by the Baldwin Locomotive Works and the Westinghouse Electric & Manufacturing Company, which have been engaged jointly in investigating the special requirements of this service and developthe motors exactly the same as if hung between the wheels with single gears.

Small 4-wheeled pedestal-type locomotives usually have frames made of wood, substantially put together in the same manner as



FIG. 4.— EIGHT-WHEELED, FOUR-MOTOR, ELECTRIC LOCOMOTIVE OF CARNEGIE STEEL COMPANY

ing suitable apparatus to meet the conditions of general practice. The mechanical details of these equipments receive the same careful attention that is given to steam locomotive work. A large variety of motors are available that are suitable for ordinary gages, but on exceedingly narrow gages, such as are sometimes used in industrial plants, it is found desirable to use motors of larger size than can be placed between the wheels, and special designs have been prepared, whereby motors of large capacity may be applied to any reasonable gage by double-transmission

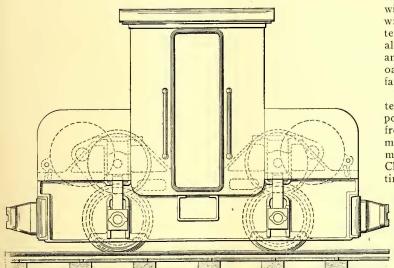


FIG. 5.—MOUNTING LARGE MOTORS ON A NARROW GAGE

gears. The general arrangement of gears and suspension is illustrated in Fig. 5. The journals of the shaft carrying the intermediate gear run in boxes working in pedestals over the main journal boxes of the locomotive and rigidly connected with them, permitting the locomotive to rise and fall on the axles without disengaging the gears. The locomotive is supported on springs in the usual manner. The motors are hung on the shafts of the intermediate gears, as if they were the ordinary wheel axles with the usual nose suspension. This arrangement gives a motion to steam locomotive tender frames, with cast-iron pedestals securely bolted. Most of the larger 4-wheeled locomotives and all locomotives with eight wheels have frames made either of steel channels or of cast-iron channels, securely bolted.

Trucks for 8-wheeled locomotives are designed especially for the weight they are to carry, allowing strength for an ample factor of safety. Two types of trucks may be used; the "M. C. B. equalizing-bar" type, illustrated in Fig. 6, or the "direct-spring hung" type. The latter has springs placed over the journal boxes, supporting the frames. Either of these types may be constructed with swing bolsters or rigid centers. The frames are made of wrought-iron throughout, carefully finished to templet, with center frame or transom and pedestals accurately fitted and squared, all bolts being turned to a driving fit in reamed holes. Bolsters and spring planks are made of channels, steel plates or bars, or of oak. Equalizing bars of wrought-iron are designed for ample factor of safety in service, two bars resting on the journal boxes

The locomotive is entirely supported on springs, of cast-steel, tempered in oil, designed to insure smooth riding and prevent pounding. The motors are suspended on springs, relieving them from shock in starting and on rough tracks. On small locomotives the wheels are generally of chilled cast-iron, while locomotives of larger size are usually equipped with steel-tired wheels. Chilled wheels have the advantage of cheapness, while the steeltired wheels have in their favor durability and facility in making renewals. Tires are secured to the centers by retaining rings,

permitting replacements to be readily made.

In general practice, it is recommended that one end of the motor be attached to the axle with suitable bearings, and the other end supported by a spring suspension hung from the locomotive frame on four-wheeled locomotives, and usually from the truck transom on eight-wheeled locomotives. The eight-

wheeled double-truck type may also be equipped with the Gibbs cradle suspension, in which the entire weight of the motors and cradle is carried on the axles, the suspension springs taking up the shock in passing over frogs, switches, cross-overs, rail-joints and unevenuess of track.

The experience of the engineers who have been engaged upon this investigation, as well as the companies that have employed electric locomotives, is that one of the most important questions to be determined is the proper capacity of the motors to be employed. Locomotives of the same draw-bar pull may require very different motors. It is pointed out that a short, straight haul over a level track, as in carrying material from a railway

line to industrial works, requires a moto- differing in capacity from that used in a locomotive employed in shifting; and the presence of grades may further differentiate the types of motors. The power required for propelling a locomotive is, therefore, exceedingly variable, and the railway motor under normal conditions works for only a brief interval at any one given output. The maximum load which it can momentarily carry under such conditions will, of course, depend upon its commutation, but it is almost invariably the temperature rise of the coils which limits its capacity. With rapidly intermittent and varying loads, this tem-

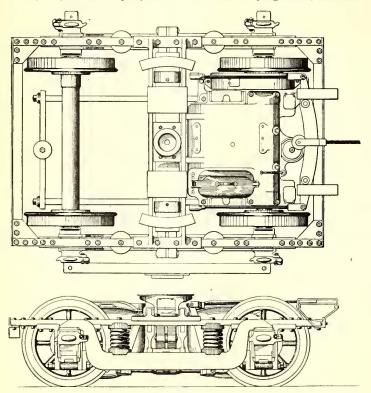


FIG. 6.—PLAN OF ELECTRIC LOCOMOTIVE TRUCK

pcrature rise will not follow each application or change of the current, but will depend upon the average rate of working of the motor.

The equipment includes controllers of the series-parallel or rheostat type, the latter being recommended for switching. The controllers are provided with a magnetic blow-out device. An automatic railway type circuit-breaker and a Wurts lightning arrester are also provided.

The trolley is designed to withstand heavy strains, and where the current is large, a double-tandem trolley is employed. Where service conditions prevent the use of a ground return, a double trolley for an overhead return system is furnished. In some installations it is desirable to use a third-rail for the distribution of current, and for them a cast-iron contact shoe is furnished. Current connections are made by a flexible cable. The standard shoe is of the same design as that used on the Boston Elevated and the Brooklyn Rapid Transit systems.

#### Increase of Wages in Buffalo

During the early part of this year an announcement was published in this paper of an increase in wages of conductors and motormen on the lines of the International Traction Company, of Buffalo, and, in connection with this increase, of a system of paying premiums for immunity from accidents. This system has proved so satisfactory to the company that last week a second announcement was made of another increase in wages. This, following a number of other improvements which the management has made in the condition of its employees, and several outings which have been extended during the summer to the families of the workmen have cvoked a great deal of favorable comment from the men, as well as from the general public and press of Buffalo.

The increase just made amounts to about 10 per cent of the wages paid the men, and was made without solicitation on their part. The information was conveyed to employees, who are about 1300 in number, in the form of an individual letter to each motorman and conductor in the employ of the company. This letter read as follows:

Dear Sir.—The general excellence of the service rendered by

our trainmen prompts me to express my appreciation and to take this opportunity of thanking you personally for the part you have taken in bringing about such a gratifying state of affairs.

Your painstaking efforts have made the present success possible, and in recognition thereof I now advise we will at once materially increase the wages of all trainmen; notice to be posted on Sunday will give the new rate, effective on Sept. 1, 1902, as follows:

Twenty cents per hour, platform time, for the first-year continuous service.

Twenty-one cents per hour, platform time, after one year's continuous service.

Twenty-two cents per hour, platform time, after two years' continuous service.

I would also remind you that the wages paid on the various lines controlled by this system, in March, 1900, ranged from 14 cents to 18 cents per hour, an average increase of over 5 cents per hour having been made since the date of our meeting in Saint Stephen's Hall. Superintendent Coons and his assistants have aided me in carrying out the promises made at that time, and, as a result, the rules have been modified and revised regular men are not obliged to forfeit their runs as formerly; runs have been so arranged as to make the hours of relief most pleasing to the men; all high-speed cars have been equipped with air brakes and seats have been provided for motormen of interurban lines.

It is, therefore, apparent that we appreciate your loyal support and intelligent work, and, in consequence, are endeavoring to so improve both the wages and surrounding conditions as to make the positions worthy of your best efforts.

Trusting that the present happy state of affairs may continue undisturbed, and that each man will do his utmost to give this company the reputation of having the most careful and courteous trainmen in the world. I am

Yours truly,

T. E. MITTEN, General Manager.

#### Pennsylvania Tunnel Franchise

Representatives of the Pennsylvania Railroad Company, the Rapid Transit Commission, Board of Estimates and Appropriations and Board of Aldermen, and the borough presidents, of New York, held a conference last week, at which the terms of the proposed contract between the city and the railroad, for the building of the tunnel from Jersey City under the North River into Manhattan, and thence under the East River into Long Island City, were discussed. There were several points upon which the conference failed to reach an agreement. The position of the Pennsylvania Railroad Company was very clearly set forth by President Cassatt in a letter which was submitted to the conference, and which was, in part, as follows:

In discussing the terms of a revised franchise with your joint committee, amendments were suggested covering proper sanitary supervision of the tunnels, the right of the city to place its fire and police wires within the same, and insuring prompt completion of the work, and the permanent possession of the franchise by a New York corporation. No objections were made to these amendments and the Tunnel Company is quite willing to accept them; but another suggestion that the Tunnel Company shall further indemnify the city against any claim for damages that may arise out of the closing of Thirty-Second Street, between Seventh Avenue and Ninth Avenue, cannot be assented to, for the reason that in agreeing to the price of \$788,600 for the ground within the vacated portions of this street, the Tunnel Company is paying what is admitted to be the full fee simple value of the land, and which value largely results from such vacation. It is, therefore, incumbent on the city to meet such damages, if any, occasioned by the vacation, for which it may be held legally liable. It can hardly be claimed that the Tunnel Company should first pay full value for the land and in addition thereto pay damages which are an essential part of such value.

One point more remains to be referred to, upon which the Pennsylvania Railroad Company desires that no misunderstanding shall exist, and that is the suggestion that in the grant of the franchise, a condition shall be imposed regulating the rate of wages and the hours of the men employed upon the work. Counsel advise that this whole question has been so fully disposed of by the Court of Appeals of New York, that it is unnecessary to do more than to say that the law is now settled, and that the city cannot impose such conditions even in the building of its own subway. As has been explained to your committee, this is a question of no practical moment, for the reason that the work will be let to contractors, who will necessarily have to conform to the labor situation as it exists in New York. It would, therefore, be simply a pretense for the Tunnel Company or the Pennsylvania Railroad Company to agree to do something over which neither company has any control. But, outside and beyond this, the City of New York is not justified in imposing any such condition.

So far as the Pennsylvania Railroad Company is concerned, its relations to labor, organized and unorganized, are of the most friendly character. It does not ask its employees whether they belong to one or the other class. It only asks for and insists upon faithful service.

Several modifications were proposed by the city's representatives, but to none of them would the railroad agree. The company took the position that the city could not legally saddle these conditions upon the company, that it could not enforce them if the company accepted them, and that the company would not lend itself to a scheme that was palpably a bid for the labor vote by Borough President Cantor and the Tammany Aldermen. Comptroller Grout wanted to know how the eight-hour and the prevailing rate of wages clauses could be enforced if put in the contract.

"If they are included in the contract I will be satisfied," said President Cantor. "Let the enforcement take care of itself."

The conference was discontinued after President Green agreed to submit the plan of arbitration proposed by Comptroller Grout to President Cassatt. Another conference will be held on the franchise on Sept. 17. ---

#### Transportation Arrangments for Detroit Convention

The transportation committee of the American Street Railway Association has completed special arrangements with the railway companies of the several sections of the country for the transportation of delegates and visitors to the Detroit Convention. The New York and New England delegation will have a special train, with which connection may be made by those living in cities throughout the Eastern district. Through car schedulcs have also been arranged from Western and Southern points to Detroit. The committee has issued the following bulletin, containing detailed information regarding arrangements from all parts of the country:

A special train will be provided, consisting of Pullman buffet, smoking and drawing-room and sleeping cars from New York and Boston as per schedule, under charge of a special passenger agent of the New York Central.

From New York and New England :

Boston—Leave Boston & Albany Ry. 2:00 p. m. Tuesday, Oct. 7. Worcester—Leave Boston & Albany Ry. 3:05 p. m. Tuesday, Oct. 7. Springfield-Leave Boston & Albany Ry. 4:29 p. m. Tuesday, Oct. 7. Pittsfield-Leave Boston & Albany Ry. 6:08 p. m. Tuesday, Oct. 7. Albany—Arrive Boston & Albany Ry. 7:30 p. m. Tuesday, Oct. 7. New York—Leave New York Central 4:00 p. m. Tuesday, Oct. 7. Poughkeepsie—Leave New York Central 5:56 p. m. Tuesday, Oct. 7. Hudson-Leave New York Central 6:53 p. m. Tuesday, Oct. 7. Albany-Arrive New York Central 7:35 p. m. Tuesday, Oct. 7. Albany-Leave New York Central 7:40 p. m. Tuesday, Oct. 7. Schenectady—Leave New York Central 8:10 p. m. Tuesday, Oct. 7. Fonda—Leave New York Central 8:45 p. m. Tuesday, Oct. 7. Utica-Leave New York Central 9:54 p. m. Tuesday, Oct. 7. Syracuse-Leave New York Central 11:15 p. m. Tuesday, Oct. 7. Rochester—Leave New York Central 1:05 a. m. Wednesday, Oct. 8. Buffalo—Arrive New York Central 3:00 a. m. Wednesday, Oct. 8. Detroit—Arrive Michigan Central 7:45 a. m. Wednesday, Oct. 8. Dining car serving dinner from Boston and New York.

Connections will be made from all New England points either at Boston, Worcester, Springfield or New York. Applications for sleeping car accommodations from Boston and Albany points should be addressed to J. L. White, city passenger agent, Boston & Albany Railroad, 366 Washington Street, Boston, Mass.; from New York and points on New York Central, to Milton C. Roach, general Eastern passenger agent, New York Central & Hudson River Railroad, 1216 Broadway, New York City. Early application should be nade for space on the special, as reservations will be made in the order applications are received.

THROUGH CAR SCHEDULE FROM WESTERN AND SOUTHERN POINTS TO DETROIT, MICH.

From Louisville and South:

Leave Louisville, Pennsylvania lines, 4:00 p. m. Pullman sleeper Louisville to Detroit.

Leave Indianapolis, Pennsylvania lines, 7:20 p. m. Pullman sleeper Louisville to Detroit.

Leave Logansport, Pennsylvania lines, 9:50 p. m. Pullman sleeper Louisville to Detroit.

Arrive Detroit 7:35 a. m.

Apply to agent, Pennsylvania lines, at points named.

From St. Louis and the Southwest:

Leave St. Louis, Wabash Railroad, 8:30 p. m. Through sleeping car. Arrive Detroit, Wabash Railroad, 9:30 a. m.

Apply to city ticket agent, Wabash Railroad, St. Louis.

From Cincinnati and South: Leave Cincinnati, C. H. & D. R. R., 9:45 p. m. Through sleeper.

Arrive Detroit, Michigan Central, 7:45 a. m.

Apply to city passenger agent, C. H. & D. R. R., Cincinnati, Ohio. From Pittsburgh:

Leave Pittsburgh, Pennsylvania lines, 1:05 p. m. Through sleeper. Arrive Detroit, Michigan Central, 7:45 a. m. Apply to city ticket agent, Pennsylvania line, Pittsburgh, Pa.

From Chicago and the West:

Leave Chicago, Michigan Central, 10:30 a. m., 3:00 p. m., 10:00 p. m., 11:30 p. m.

Arrive Detroit, Michigan Central, 6:10 p. m., 10:45 p. m., 7:35 a. m., 9:50 a. m.

Parlor cars on day and sleeping cars on night trains.

Address L. D. Heusner, general western passenger agent, Michigan Central

Railroad, 119 Adams Street, Chicago, for rescrvations.

Rates of Fare.—The various traffic associations have named fare and one-third on the certificate plan. When purchasing tickets ask the ticket agent

Pullman Fares.-Regular rates apply from all points.

The committee, in submitting the foregoing, announces that the lines named were selected as official routes, all having through Pullman service to and from Detroit. In addition to the foregoing, the committee advises the following direct connections:

From Philadelphia:

Pennsylvania Railroad. Sleeping cars to both Pittsburgh and Buffalo,

connecting with Pullman service to Detroit.
Philadelphia & Reading and Lehigh Valley route. Sleeping cars to Buffalo, connecting with Pullman service to Detroit.

From Baltimore and Washington:

Pennsylvania Railroad. Sleeping cars to Buffalo and Pittsburgh, connecting with Pullman service to Detroit.

From Canadian Points:

The Canadian Pacific and Grand Trunk lines run Pullman cars from Montreal and Toronto to Detroit.

#### New York Central Plans

The first official announcement of the plans of the New York Central & Hudson River Railroad Company regarding the substitution of electricity for steam in the operation of trains through its tunnel, and the other improvements contemplated at the terminal station, was made last week by President H. H. Newman in a communication to the city officials, asking for the necessary authority. The company has filed a petition asking the local Board of Improvements of the Murray Hill District to initiate proceedings immediately for certain changes in Park Avenue, between Forty-Fourth Street and Fifty-Sixth Street, and sections of intersecting streets at points where they cross the railroad yards. The petition asks for the widening and closing of a part of Park Avenue and for the discontinuance and closing of certain cross streets.

President Newman says that the improvements are to be effected without cost or expense to the city, and that it is the object of the railroad company to acquire title, by proper proceedings, to the discontinued portions of Park Avenue and intersecting streets, and the railroad company proposes to vest, or cause to be vested, in the city titles to the land to be acquired for a new portion of Park Avenue and to bear all the expense of opening, regulating, grading and paving the same. For the discontinued portions of the streets the railroad company agrees to pay the city full cash value.

Upon the subject of the change of motive power in the tunnel. President Newman says in his letter accompanying the petition:

It is the present intention of the railroad company, and the Mayor has already been so advised, to discontinue the use of steam as a motive power for all of its trains on the Hudson and Harlem divisions, within the city limits, and to operate by electricity on the Hudson division, probably as far as Croton, and on the Harlem division, probably as far as White Plains.

The date upon which operation by electricity can be commenced will be determined, the necessary authority being obtained, upon the time required for the construction and equipment of power houses. It was with the desire of hastening and of prosecuting so much of this work, as might be possible under the existing law, that the negotiations were begun; and with the same desire the company is ready, if it has the co-operation of the city as prayed for in the petition, to enter into contracts for the power houses required for operation by electricity, just as soon as necessary details can be perfected.

Accompanying this letter is the petition of the railroad company for authority to close the streets named. The petition is signed by W. C. Brown, third vice-president of the New York Central Railroad Company, and W. S. Crane, treasurer of the New York & Harlem Railroad Company. The petition contains a complete description of the streets to be closed, together with maps upon which the changes are clearly designated. The railroad company announces its willingness to indemnify the city from all costs and expenses which may be incurred, in order to effect the alterations, and agrees further that the existing bridges in the streets mentioned shall be properly and suitably extended over the portions of the streets proposed to be discontinued.

#### New Car House and Repair Shops at Minneapolis

The Twin City Rapid Transit Company is now building, in Minneapolis, on the property bounded by University Avenue, Fourth Street, First Avenue and Second Avenue, a most complete car house and repair shop, setting aside a portion of the building for the use of the employees. The structure is not an entirely

new one, but the old building has been so enlarged and remodeled that few traces of it remain. The entire front has been set back 40 ft., an addition, 125 ft. x 330 ft., and a new central building for offices and men's quarters erected, making the dimensions of the modern structure 330 ft. x 290 ft.

The cars are to be cared for in two long wings flanking the new central building. The entire floor space of these immense wings has been excavated 5 ft. below the floor surface, and a solid concrete floor has been laid over the excavated surface. The regular

pits for car inspection and repair work are provided

The central building, which is two stories high, contains the offices and men's quarters. These latter show, on the part of the company, an unusual consideration for the comfort, health and entertainment of its employees. It is, in short, a club for the motormen and conductors when off duty. Just back of the airy offices is the main room for the men, 24 ft. high, with a balcony on three sides. Here will be easy chairs, and tables for games, books and magazines, etc. Around the walls, both on the main floor and the balcony, are 650 handsome roomy lockers. Back of this room are the dressing and bath rooms, the latter including an apartment equipped with the latest type of shower baths, all of which will be open to the employees at all times and without cost. Still further back are the repair shops.

## London Letter

(From Our Regular Correspondent.)

Mr. James Dalrymple, C.A., accountant to the Glasgow Corporation Tramways, has been asked by the executive committee of the Association of Municipal Tramway Managers of Great Britain to prepare a full report on the standardization of tramway accounts to be put before the association at its next meeting. There is no doubt that all corporation accountants and tramway managers will be ready to assist in the preparation of such a report.

At the ordinary half-yearly general meeting of the shareholders of the Metropolitan District Railway Company, the chairman, Mr. R. W. Perks, M.P., in moving the acceptance of the report, together with the half-yearly statement of accounts, called attention to the fact that the company carried a larger number of first-class passengers during the period covered than during any previous term since 1892. The increase during the six months was 134,000 first-class passengers over the corresponding period of the preceding years. Continuing, he said in part: "We have carried 318,456 more second-class passengers than in the June half of last year, and our season-ticket business has very materially ad-We have, during the half-year, issued 2471 more season tickets than during the corresponding period of last year; but I am sorry to say that we do not get as good a return out of this traffic as we do out of our average traffic, excluding the season tickets. But when we come to deal with the third-class, and especially the workingmen's business, we are not so happy in our results. We have carried, during the half-year, 1,191,000 more passengers in our third-class coaches; but the bulk of those are workingmen, and that figure has been made up by the transfer from the third-class carriages of 657,871 passengers. We have lost £8,943, and we have only gained £4,082; so that there has been a net loss of £4,860. We have issued, during the half-year, £182,-000 of District second guaranteed stock, and we have been compelled to issue that stock, as authorized by you at a previous meeting, at a discount of £32,000. Under our arrangement with the Traction Company we are under contract to issue to the Traction Company ordinary stock at the rate of £25 for every £100 of stock, and we have issued some of that stock at that agreed price during the half-year to pay for expenditure which has been incurred by the Traction Company. We have been compelled, owing to the severe attacks made upon this company during the present session of Parliament, to spend a much larger sum than we care to do in parliamentary expenses. Our normal law expenses are £134, as against £200 in the corresponding period of last year; so that on our ordinary law expenditure we have really saved a little money; but when we come to the parliamentary expenses, instead of spending £191, as we did last June, we have had to spend, during the last half-year, no less a sum than £2,043. We have thought it better to charge the whole of this amount against our revenue account for the present half-year, and not to deal with it in the nature of a suspense account, or to carry it forward for discharge in future half-years." Announcement was also made that a meeting of the preference proprietors was held to consider a proposal which has been submitted to them by the Underground Electric Company. That company is under contract to take a very large block of ordinary stock as part payment for the electrical equipment of our railway. They are also building, at their sole expense, the power house at Lot's Road, and we shall

have to pay a rental to them for the use of a portion of that power house. They have, therefore, very great interests in our company, and they have a very sanguine opinion of the results of electrification. Having that high opinion they have made a proposition to the preference proprietors to guarantee them a dividend, rising from 1 per cent in the first year to 2 per cent in the second year, and then 3 per cent in perpetuity, upon the preference stock.

The chairman said the old arrangement with regard to the power house was that it was going to cost £400,000, and this company would have had the right of leasing it at 5 per cent, which would have been £20,000 a year. Now, however, the power house was going to cost £1,250,000, and of course they could not pay interest upon that amount, and therefore they would take their current either at cost or at an arbitration price. The board had decided to abolish the omnibuses which were formerly run by the company, as the directors considered that they did not pay.

The Northeastern Railway Company is inviting tenders for the electrical equipment of certain local lines in the neighborhood of Newcastle-upon-Tyne. These lines consist chiefly of: (1) A circular route from Newcastle-upon-Tyne, along the River Tyne, through North Shields, Tynemouth, Whitley, Monkseaton, back to Benton and Newcastle-upon-Tyne. (2) A new line which is in course of construction to Ponteland. (3) The Quayside Branch, a short piece of line laid on a gradient of I in 27, running down to the Shipping Wharfs at Newcastle-upon-Tyne, used for "Goods" service only. The total length of line to be equipped is equivalent to about 40 miles of double track, and the equipment will include all necessary sub-stations, high and low tension cables, fifty motor coaches and two goods locomotives. Current will be generated at one of the power stations of the Newcastle-upon-Tyne Electric Supply Company, Ltd., and supplied as three-phase high-tension current at 40 periods and 6000 volts. The normal passenger train will consist of two motor coaches and one trailer coach, operated on the multiple unit system, the Quayside Branch being operated by electric locomotives. The average speed of the passenger trains will be 22 miles per hour, including 20 seconds stop at each intermediate station.

The chairman of the London Road Car Company, presiding at the annual meeting, intimated that amalgamation was only a matter of terms with the London General Omnibus Company. The report of the directors contained many interesting facts. The company keeps an average of twelve horses for each omnibus running; the average omnibus earns £2 10s. a day, seven days a week; it costs £2 7s. 3d. for maintenance, thus yielding a profit, roughly, of 2s. 9d. a day. The total passengers carried by this company amounted to 35.934.262 in the first six months of this year alone. The horses in service average 5335.

The new scheme of electric trams to connect Ashton-under-Lyne and Hurst has been officially tried and inspected. A large crowd assembled outside the municipal offices, and as the car proceeded on its journey there was an outburst of cheering. A double-decked car was requisitioned, and the tramways committee, with the corporation officials, were driven along the circular route, making a circuit of Hurst Urban District. The new service will be a great boon to the inhabitants, knitting the districts more closely together.

The Hove Town Council has carried a report recommending an expenditure of £103,700 to introduce trams in the borough. The proposal includes the absorption of the Shoreham tramways running between Hove and Shoreham Station, 5 miles westward, and to have three new routes in Hove—one having a terminus near Brighton Station, another at King's Road, and another at Hove Station. A net profit per annum of £3,636 is estimated.

The protracted litigation between the Manchester Corporation and the Carriage & Tramways Company has ended. The dispute was over the terms on which the company's undertaking should be acquired by Manchester and the local authorities whose tramways are in future to be worked by Manchester. The corporation, as owner of the greater portion of the tram lines, contended that it was not bound to purchase the company's depots, cars, etc., which were used on lines that it leased to the company. The company's "undertaking," the corporation maintained, comprised only the lines that it actually owned as well as worked, and the local authority was obliged to buy just so much and no more of the depots and plant as was suitable to and used for the purposes of the tramway service over these lines. The company, on the other hand, urged that its whole system was its "undertaking," and that the distinction between owned and rented lines was fanciful and unjust. As most of the depots and the plant employed in the horse tram service will not be needed for the electric service, and will be of no use to the company, it was really a question as to who should bear the loss. Mr. Justice Bigham yesterday decided that the loss must fall on the purchasing authorities, thus

confirming the decision given in May by Sir Frederick Bramwell. Manchester and the allied districts have therefore to pay £496,068 instead of £229,353 for the company's undertaking, together with

all the costs of the proceedings.

Mr. Weir, in the House of Commons, called the attention of the president of the Board of Trade to the fact that the Glasgow electric tramway cars had not yet been fitted with governors or speed indicators, and asked would he take steps, under the Glasgow Tramway Act, 1899, to require their provision? Mr. Gerald Balfour replied that the requirements as to the provision of governors and speed indicators on the Glasgow Corporation tramways are those contained in the statutory regulations made from time to time by the Board of Trade. Under the regulations at present applicable, speed indicators must be fitted on all cars after Oct. 3, unless the board should see fit to prolong the time. Governors must be fitted if the board so require, but, as at present advised, the board are not convinced that it is in the interest of public safety to make such requirements.

The contractors for the construction of the permanent way of the tramway extensions at Walsall are to commence their work immediately. The erection of the car houses and depot at the

Birchills has been already commenced.

At Liverpool Chamber of Commerce Mr. Waller, of London, recently outlined a scheme whereby present and proposed tram lines of the South Lancashire Tramways Company, with those of Liverpool, which would, when completed, cover 400 miles, might be utilized for conveyance of goods by night when not used for passenger traffic. He contended that the cost of transshipment and terminal charges, compared with railway, should be considerably lower, and districts at present isolated brought into connection with the Mersey, whereby coal, iron, hardware and building materials would benefit. The scheme met with general approval.

The formal inauguration of the new electric tramways from Rothesay to Port Bannatyne has been duly celebrated. On the invitation of the company over one hundred gentlemen, representative of the various local bodies, proceeded on the old horse cars from Rothesay to the power station at Pointhouse, where, after an inspection of the works, the generating plant was set in operation by Provost McIntosh. The company then proceeded in two of the new electric cars to Rothesay, where they were photographed, and afterwards lunch was served in the public hall. Mr. Miles, of the British Electrical Traction Company, presided, and addresses were given by, among others, Provost McIntosh, of Rothesay; Provost Anderson, of Greenock, who referred in highly favorable terms to the same company's system at Greenock; Mr. J. Russell Thomson, secretary of Rothesay Tramway Company, and others.

The County Council is about to take over the system of the South London Tramway Company, whose lines run along the southern shore of the Thames from the Borough, through Southwark westward to Battersea and Wandsworth. This acquisition will enable the Council to consolidate and develop the whole of the South

London service.

The highways committee has recommended the London County Council to apply for parliamentary powers next session for extensions of the tramways system of a total length of 26½ miles, and at an estimated cost of £1,180,750. With three exceptions, the

underground electric conduit system is recommended.

At the half-yearly meeting of the shareholders of the Liverpool Overhead Railway Company dividends of 5 pcr ccnt on the preference and I per cent on the ordinary shares were declared, and £3,792 was carried forward. Commenting on a diminution in the gross profits, during the half year, of £3,508, the chairman, Sir W. B. Forwood, said it was mainly due to the competition of the corporation tram service, and partly to disturbances at the docks caused by the closing of many graving docks. The closing of the Dingle Station, owing to fire, accounted for about £700 of the falling off. A new electric fireproof equipment has been adopted.

Following upon the adoption of motor parcel mail vans between Manchester and Liverpool a few months ago, the postoffice authorities have decided, in spite of initial drawbacks which led to the temporary suspension of the system, to extend the service to some of the immediate suburbs of Manchester. Another contract has been let for two vans to run between Manchester and Altrincham and Manchester and Flixton, taking in Stretford and Sale on the former route, and Urmston on the latter. The vans will be each of 18-hp capacity and will carry between 25 cwt. and 30 cwt. They will be in operation by November 1.

The report of the Dublin United Tramways Company (1896), Ltd., for the half-year ended June 30 shows that the directors have declared dividends for the half-year at the rate of 6 per cent per annum on the preference shares, and at the rate of 5 per cent per

annum on the ordinary shares.

Messrs. Wernher, Beit & Co., London, the well-known South

African financiers, have appointed Mr. William Clark, the chief engineer of the Glasgow Corporation Tramways, manager of the Lisbon Tramways. The salary attached to the post is £1,500 per annum. Mr. Clark is a native of Dumfriesshire, but has spent nearly all his business life in Glasgow, having served in several large engineering firms in the city. In 1885 he became engineer to the Clcansing Department, and when Mr. Young was appointed general manager of the Corporation Tramways in 1892, he appointed Mr. Clark as his chief engineer. He has a thorough knowledge of all tramway work, and personally is highly esteemed.

At the ordinary meeting of the Central London Railway, Sir H. Oakeley presiding, the directors recommended dividends on the undivided ordinary and the preferred ordinary stocks at the rate of 4 per cent per anum. In moving the adoption of the report, the chairman said they had increased the number of passengers by nearly 2,500,000, having carried 23,000,000, including about 2,750,000 at half fares. They had earned gross receipts amounting to £185,-118, which was £20,000 more than in the corresponding half-year, and practically representing an increase of  $12\frac{1}{2}$  per cent in the receipts. They had earned £18,000 more at a cost of £2,300 less. With regard to the large sum carried forward, they had to face the expenses incurred in their unsuccessful bill during this session of Parliament, and, further, to meet the cost of the improvements and alterations necessary to avoid vibration. They were unable to ascertain precisely what the charges would be. The board, therefore, thought the shareholders would approve of the proposal to defer any definite appropriation of the available surplus until the end of the year, by which time they would have fuller knowledge of their liabilities. Lord Rathmore seconded the motion, and it was carried.

#### Rhode Island Labor Law Upheld

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The Supreme Court of Rhode Island has sustained the constitutionality of a ten-hour law passed by the General Assembly in January, which provided that no street railway company could work its employees more than ten consecutive hours in any twelve hours. The Supreme Court upholds the law by the concurrent judgment of five of the seven judges before whom the argument was made. Of the other two, Judge Douglass sat silent, for the reason that he is a stockholder in the corporation most directly and intimately affected. Judge Blodgett dissented in a long and vigorous opinion. In the majority opinion of Judges Stiness, Tillinghast, Wilbur, Rogers and Du Bois the right of the Legislature to limit the hours of labor performed under private contract is affirmed. As to the construction of the act they say:

The first section forbids an officer of a company to exact more than ten hours' work, from which an inference might arise that it could accept it, if rendered voluntarily, as by contract. The second section, however, rebuts such an inference, for in that section the intent is explained as follows: "The true intent and purpose of this act is to limit the usual hours of labor of the employees of street railway corporations, as aforesaid, to ten hours' actual work a day, to be performed within a period of twelve consecutive hours." This express intention to limit the hours is quite inconsistent with an inference to permit it by contract. If such an inference could stand it would be possible for parties to avoid the act by their simple content, and thus to render it a nullity. The apparent purpose of the act is not to create a right in favor of the employees, which they might waive, so much as to guard the public safety from service too prolonged for alertness in the exercise of reasonable care. If this be so, the public safety cannot be made dependent upon private contracts.

The dissenting opinion of Judge Blodgett concludes as follows:

To the constitutionality of such legislation I cannot assent, whether it is sought to be justified as a valid exercise of the police power or as an exercise of the reserved right to alter and amend the character of incorporation of the several companies affected thereby.

Section 2 of the act provides: "That it is the true intent and purpose of this act to limit the usual hours of labor of the employees of street railway corporations, as aferesaid, to ten hours' actual work a day, to be performed within a period of tweive consecutive hours, as aforesaid, whether such employees be employed by the trip, the job, the hour, the day, the week, or any other manner."

If the hours of labor in any lawful calling may be thus limited by law to ten in each day, beyond the power of either party to increase, if not to diminish them, it follows that they may be limited to eight or to twelve, or to any other number of hours in like manner and with like effect, thus substituting for the constitutional right of individual liberty of contract the transient and fluctuating will of a legislative majority which hoth plutocrat and demagogue will unceasingly strive to control and against which the individual will be powerless to defend, alike helpless whether the legislative spoliation of the employer or industrial servitude of the employee shall for the hour prevail.

And if the foregoing observations shall seem to have been directed less to the limits of the legislative power over quasi-public corporations, than to the limits of the same power over the citizen, it is sufficient to reply that the latter is the graver and higher question by as much as the man is above the

For the reasons set forth, I am of the opinion that the act in question is unconstitutional in the particulars enumerated and is wholly void. It follows from the unconstitutionality of the act, and as a necessary conclusion, that a street railway conductor, gripman, or motorman, may freely contract for such hours of labor with his company as may be agreed upon between them.

## Convention of the New York Street Railway Association

The annual gathering of the street railway men of New York State was held on Sept. 8 to Sept. 11, at Caldwell, on Lake George, one of the most picturesque spots in the State. It was the twentieth annual meeting of the Street Railway Association of the State of New York, and was celebrated in a fitting manner. The programme for the meeting itself was carefully arranged, and provision had been made for the discussion of several very important topics; moreover, special attention was given the social features, and, as a result, there was an unusually large attendance of ladies. Ample provision had been made for their entertainment, and many of the railway men took advantage of the occasion to make the convention an extension of their outing.

The programme opened with a reception and hop at the New Fort William Henry Hotel, on Monday evening, at which delegates and visitors were entertained. The business sessions began Tuesday morning with a meeting of the executive committee at 9 o'clock, followed an hour later by the formal opening of the convention.

Tuesday was given up entirely to the business of the association and long sessions were held during both the morning and afternoon. The entertainment provided for the ladies on Tuesday morning was a trip by the mountain cable railway to the summit of Prospect Mountain. This road, which was described in the STREET RAILWAY JOURNAL for October, 1895, has a terminus very near Fort William Henry Hotel. The annual banquet was held in the evening at the Fort William Henry Hotel, and was a very successful affair. There was a large attendance, and about 200 delegates and guests sat down at the tables. An innovation was made in inviting the ladies to attend the banquet, and a large number did so. Their presence added very much to the pleasure oi the banquet, and many wishes were expressed, both in speeches and otherwise, that this feature of the banquet should be made permanent in the future meetings of the association. Speeches were delivered by Messrs. Rogers, Colvin, Daly, Powers, O'Connor, Brady, Stedman and Ely. Mr. Colvin acted as toastmaster, and was particularly felicitous in introducing the several speakers.

Wednesday morning was also devoted to the sessions of the association, and the day being clear the ladies made the excursion to Warrensburg by carriage, which had been originally arranged for Tuesday afternoon. The final business sessions of the association were held on Wednesday morning, and in the afternoon a trip was made by steamboat down the lake through the Narrows. The scenery at this point is considered the most beautiful on Lake George, and the air was clear and exhilirating, and just such as was needed to make the trip an ideal one. Nearly all the delegates, ladies and others in attendance at the convention participated in the trip, and in the opinion of the tourists, one of the speakers of the previous evening, at the banquet, was perfectly correct when he characterized Lake George as the most beatiful lake in the country, and among the five most beautiful lakes in the world.

The steamer returned to Caldwell pier in time to allow those who desired to take the evening train south, but many of the guests remained to take the trip to the top of Prospect Mountain, where a beautiful panorama of the surrounding Adirondack region and Hudson Valley, and extending into three States, was obtained.

Altogether, the convention was not only one of the most successful but also the largest in attendance of any in the history of the association, while the work accomplished was most valuable. The space at the disposal of this paper this week precludes the publication of more than a brief note in regard to it, a few of the papers and the president's address, but it is the intention next week to publish the additional papers as well as a report of the business meetings of the association.

## To Regulate Fares on Interurban Lines in Indiana

The incoming Indiana Legislature, it is said, will be asked to enact a law fixing a maximum passenger rate of 1½ cents a mile on interurban electric railways. It is claimed the State can do this, as it has established a maximum fare of 3 cents a mile for steam roads. The rates which now prevail on the electric railways are from 1¼ cents to 2 cents a mile, but an increase is threatened because of an increase in taxation by the State Tax

Board. The interurban companies can not conceive why the steam companies should be allowed a maximum fare of 3 cents and they be compelled to submit to a maximum of 1½ cents. The interurban roads will oppose such a movement.

#### Annual Report of the International Traction Company and the International Railway Company

The annual report of the International Traction Company and the International Railway Company, of Buffalo, N. Y., for the year ended June 30, has come to hand, under date of Sept. I. The report reviews the history of the organization of both the International Traction Company and the International Railway Company, setting forth the present status of the companies. As is well known, the International Traction Company was organized Jan. 18, 1899, for the purpose of consolidating under one management the street railway systems of Buffalo, Niagara Falls and vicinity.

In executing this plan the company purchased the entire capital stocks, as listed below in column A, of the following companies:

		201
Buffalo Railway Company	\$5,370,500	
Crosstown St. Ry. Co. of Buffalo		\$2,860,000
Buffalo Traction Company		600,000
Buffalo, Bellevue & L. Ry. Co		90,000
Buffalo & Niagara Falls Electric Ry	1,250,000	
Buffalo & Lockport Ry	1,000,000	
Elmwood Ave. & Tona. E. Ry. Co		14,250
Lockport & Olcott Ry	200,000	
Buffalo, Tona. & N. Falls E. R. R. Co	1,500,000	
Niagara Falls & Susp. Bridge Ry. Co	600.000	
Niagara Falls Whirlpool & N. Ry		50,000
Niagara Falls Susp. Bridge Co	400,000	
Lewiston Connecting Bridge Co Queenstown Heights Bridge Co	400,000	
Niagara Falls Park & River Ry. Co	600,000	
	\$11,320,500	\$3,614,250

Note.—The stocks listed in column B were owned by the companies whose stocks next precede in column A.

The capital stock of the company, authorized and issued, is \$15,000,000, of which \$5,000,000 is preferred 4 per cent cumulative, and \$10,000,000 common, and there has been authorized an issue of \$30,000,000 fifty-year 4 per cent collateral trust gold bonds, due 1949. A statement concerning bonds authorized under collateral trust indenture at June 30, 1902, follows:

trust indentare at June 30, 1902, follows.	
Total bonds authorized	\$30,000,000
Unissued and reserved under Sec. 3, Art.	
I, of collateral trust indenture for re-	
tirement of like amount of underlying	
bonds of purchased companies \$12,285,000	
.Sold and originally held by	
underwriting syndicate \$11,428,000	
Sold for purposes of construc-	
struction improvements and	
betterments. (See Sec. 4,	1
Art. 1, Collat, Trust Inden-	
ture) 1,020,000	
In treasury, applicable to cor-	
porate purposes 2,267,000	•
Total issued as per balance sheet 14,715,000	
Unissued and reserved under Sec. 4, Art.	
I, of collateral trust indenture for pur-	
poses of future construction, improve-	
ments, betterments and acquisitions 3,000,000	

Total	\$30,000,000
The stocks heretofore enumerated in column	A (except
shares qualifying directors), together with \$60,000 b	
Tonawanda Street Railroad Company, have been de	posited with

the Guaranty Trust Company, of New York, trustee, under the provisions of the collateral trust indenture.

The combined income account of the International Traction

Company and the owned and controlled companies for fiscal years ended June 31, shows:

Surplus income of owned compa-	1900.	1901.	1902.
nies before charging dividends	\$350,255	\$528,389	\$1,135,554
Income of International Traction			
Company (interest on loans to			
owned companies)	70,832	132,839	208,917
Total income	\$421,087	φ061,228	\$1,344,471

Deduct:			
Interest on bonds, I. T. Co	457,120	462,885	497,920
Interest, discount and ex-			
change	5,209	58,749	78,526
Taxes	2,250	4,500	4,500
Sundry expenses	1,029	2,449	2,464
Total fixed charges, interest, etc	\$465,609	\$528,583	\$583,410
Surplus for year	*\$44.521	\$132,644	\$761,060
* Deficit.			
The condensed balance sheet of	of the In	ternational	Traction
Company of Lune 20, 1002 shower			

Company at June 30, 1902, shows:	
Securities owned	
Fifty-year 4 per cent collateral trust gold bonds	\$29,471,418.12
in treasury	2,267,000.00
Accounts receivable	237,126.91
Prepaid taxes	2,250.00
Cash	6,128.49
Total assets	\$31,983,923.52
LIABILITIES.	
Capital stock, common	\$10,000,000.00
Capital stock, preferred	5,000,000.00
Fifty-year 4 per cent collateral trust gold bonds	14,715,000.00
Bills and accounts, payable	1,600,622.40
Total liabilities	\$31,315,622.40
over liabilities	668,301.12
Total	\$31,983,923.52

The officers of the company are: W. Caryl Ely, president; Charles McVeagh, secretary; R. F. Rankine, treasurer. Charles Steele, Francis Lynde Stetson, Temple Bowdoin, Charles McVeagh, of New York City; Thomas DeWitt Cuyler, of Philadelphia, Pa.; L. J. Hayden, of Park Ridge, N. J.; William B. Rankine, of Niagara Falls, N. Y.; W. Caryl Ely, of Buffalo, N. Y.; Burt Van Horn, of Newfane, N. Y., directors.

The International Railway Company was organized Feb. 20, 1902, under the provisions of the general railroad law of the State of New York. Into it there have been gathered by consolidation, merger and purchase, under the laws of the State of New York and of the Dominion of Canada and the Province of Ontario, all of the operating companies, American and Canadian, embraced in the original plan, excepting only the Crosstown Street Railway Company, of Buffalo. This last-named corporation has an authorized capital stock of \$3,000,000, of which \$2,860,000 has been The International Railway Company owns all of the stock excepting shares qualifying directors. Two million dollars (\$2,000,000) of the capital stock is pledged under the debenture mortgage of the Buffalo Railway Company as collateral to the \$1,000,000 debenture bonds issued thereunder, and as soon as the bonds are retired the Crosstown Street Railway Company will be merged into the International Railway Company. Three hundred and fifty thousand dollars (\$350,000) of its issued bonds are held by the trustee of the consolidated mortgage of the Buffalo Railway Company to retire an equal amount of Buffalo Railway Company's consolidated bonds when matured. Its officers are the same as those of the International Railway Company and its property is operated by that company.

The capital stock of the company is \$17,000,000, of which \$16,320,500 has been issued and the balance is in the treasury of the company. The International Traction Company owns all the capital stock of International Railway Company, and has pledged the same with the Guaranty Trust Company, of New York, trustee under its collateral trust indenture.

International Railway Company has no funded debt, but it has assumed the payment of the outstanding bonds of its constituent companies, amounting in the aggregate to \$10,928,000. A substantial amount of the bonds can be retired at an early date, thereby effecting a very considerable saving in interest and a corresponding increase in the surplus earnings of the International Railway Company.

The system comprises 352.95 miles of single track, of which there are 212.61 in the Buffalo division, 59.32 miles in the Lockport division, 81.02 miles in the Niagara Falls division. The gage of the track is 4 ft. 81/2 ins. The equipment consists of 905 cars, divided as follows: 724 motor cars; 239 train and service cars, and 2 electric locomotives for hauling freight on the Lockport division; 15 car stations.

The following is the combined operating statement of the constituent companies of the International Railway Company for year ended June 30:

Gross receipts Operating expenses.	\$4,426,675.97	\$3,129,094		\$2,333,316
Earnings from operation				
ings	139,826.53	95,566	74,084	85,440
Total earnings Fixed charges, including interest on floating debt to International Trac-	\$2,310,021.06	\$1,649.773	\$1,275,332	\$1,063,843
tion Company	\$1,174,466.68	\$1,121,384	\$925,077	\$871,795
Surplus Per cent operating expenses to gross		\$528,389	\$350,255	\$192,048
receipts		50%	53%	57%
			-	- ·

(Trackage, equipment and operations of Crosstown Street Railway Company, of Buffalo, included in the above.)

The earnings of the Pan-American Exposition period (May-November, 1901,) were abnormal, and are not therefore suitable for purposes of just comparison. The natural growth of the company's business may, however, be seen from the following comparison of gross earnings of the first seven months of 1900 and

			Per Cent
	1900.	1902.	Increase.
January	\$209,176	\$250,150	19.5
February	190,592	225,160	18.1
March	206,239	256,341	24.3
April	198,094	246,848	24.6
May	203,389	259,470	27.5
June	213,823	266,065	24.4
July	241,557	322,117	33.3
Total	\$1,462,870	\$1,826,151	24.8

Since taking over the property in April, 1899, upwards of \$4,000,000 have been expended in new construction, improvements and betterments, and, physically, the company's property is in excellent condition. The officers of the company are: W. Caryl Ely, president; Daniel S. Lamont, vice-president; R. E. Rankine, secretary and treasurer; T. E. Mitten, general manager; H. M. Pease, auditor; Francis Lynde Stetson, Charles Steele, Daniel O'Day, Joseph P. Ord, Daniel S. Lamont, of New York City; W. B. Rankine, of Niagara Falls, N. Y.; Thomas DeWitt Cuyler, of Philadelphia, Pa.; W. Caryl Ely, Henry M. Watson, Robert L. Fryer, Elliott C. McDougal, Henry J. Pierce, of Buffalo, N. Y.; Burt Van Horn, of Newfane, N. Y.; Thomas Gibbs Blackstock and Edmund Boyd Osler, of Toronto, Ont., directors.

#### Freight Service Abandoned at Pittsburgh

The Pittsburgh Express Company, organized about four years ago and operating electric express cars over the lines of the Pittsburgh Railways Company, has announced the abandonment of this service, owing, it is said, to the opposition the company has encountered from the Pennsylvania Railroad Company. company had stations in East Liberty, Homestead, Braddock, Turtle Creek, McKeesport and Carnegie, in addition to a large receiving and distributing station in Pittsburgh. In conjunction with the express cars, a number of wagons were operated, and although at first the Pennsylvania is said not to have felt the competition of the electric express service, after a time the express business on its lines extending to points reached by the Pittsburgh Express Company's cars fell off considerably. Some months ago suits were brought in the name of Attorney-General John P. Elkin, supposed to represent the Commonwealth of Pennsylvania, against the Pittsburgh Express Company, the Consolidated Traction Company and the United Traction to restrain the companies from continuing to handle freight. The Pennsylvania Railroad, however, is generally charged with being the real complainant in these suits, which were to have been argued in October.

#### Street Railway Situation in New York\*

#### BY G. TRACY ROGERS

In behalf of the association and the Hudson Valley Railway Company, whose guests we are, it gives me great pleasure to extend a hearty welcome and cordial greeting to you all. We assemble upon this occasion, following a year of general thrift and prosperity. This is indeed fortunate, as without this condition of affairs disastrous results to the business interests we represent might have ensued, inasmuch as the summer months just past (the harvest season of street railways, particularly those of smaller cities and interurban lines) have proved the most unseasonable, stormy and disagreeable the country has ever experienced, a fact probably so plainly manifest to you all that even a casual allusion to the unfortunate condition of affairs is not necessary. I consider it proper to congratulate the street railroads of the State upon the excellent showing made under the adverse conditions that have existed.

When this year in the life of this association is completed, two decades will have passed since its birth and one has but to review the published proceedings of the twenty annual conventions to comprehend the wonderful changes which have taken place in the street railroad world during that time. What the next two decades will unfold to us is difficult to predict. During the first ten years of the association's existence the principal topic of discussion at these meetings was that of the care of horses and mules. During the last decade each succeeding meeting has proved a series of important and instructive surprises in the new and advanced ideas presented affecting street railways, their development, advancement and betterment. Instead of a few hours devoted to the business proceedings of the meeting, now the greater portion of two days is insufficient to give proper consideration to the many subjects of practical interest that could be profitably considered. In the early days of the association the number of different operating companies in New York City alone was almost equal to the present number of roads throughout the State, and the number of organizations in each city was in the same relative proportion, each charging a 5-cent fare over its respective lines, requiring a day's travel and a pocketful of nickels to reach a distant point in a large city. Truly what a wonderful change. To-day there is hardly a city which has more than one company, and in many cases the one company serves not only its own city but many of the surrounding cities, towns and villages. Cars are no longer moved by horse or mule power, and in place of the bob-tail cars running over tracks composed of a stringer and a strap rail, we have at present palatial cars, lighted, heated and propelled by electricity, operated over an almost perfect track. Now in nearly every city one may travel from one point to another and over different lines for one 5-cent fare, due entirely to the general transfer system adopted within the last ten years, and to consolidation or lease.

Were we to review in detail the evolution of the street railroad methods during the last twenty years and consider what has been accomplished in the interest of both street railroad properties and the public during that period, the time of this meeting would be more than fully occupied. We are now, without doubt, the best and most highly organized industrial body in the business world.

Years ago street railroad properties were small; served limited sections only and each respective road operated exclusively over its own lines within the confines of the city or village in which it was constructed, interurban street railway intercourse and the transfer system being practically unknown. These properties were owned by a few local mcn, who were usually officers of the company. To-day the public owns the street railroads, the stock and bonds are held for investment by all classes of men and financial institutions. The men in charge of the practical operation of street railroads are employed on account of their fitness and ability to manage the properties in the interest of the stock and bondholders, and to serve the public as the ostensible owners of the property.

The perplexities and cares of a successful management cannot be understood by the people at large. They are, unfortunately, too ready and willing to denounce the management of a road, when the cause of the criticism is often entirely outside of the company's control.

Does the public appreciate the efforts made by a street railroad company in its behalf? Apparently not, when compared with the horse and mule car days, when the captious public and press had little or nothing to say in the way of criticism or fault-finding,

\*Annual address of president of the Street Railway Association of the State of New York at the twentieth annual meeting, Caldwell (on Lake George), N. Y., Sept. 9, 1902,

and public franchises were dealt out by municipal officials for the asking. On the contrary, with the broad development and increased transportation facilities provided by the up-to-date street railway systems, and notwithstanding the company is striving to serve their best interests, often at a loss financially, the people generally are too ready to denounce them as grasping, greedy, dishonest and anxious for its own interests alone. This spirit is shown in a more pronounced way when the company seeks any courtesy or extension of franchises at the hands of the public authorities. It is then that our requests are viewed with suspicion and criticised; we are subject to all forms of abuse, inconvenience and loss of time and money. This should not be, as railroads to-day do not ask for franchises or grants unless they are needed to better subserve the comfort and accommodation of the people, as is clearly shown when these advanced ideas are put into practice; it is then that the public realizes more fully the benefit it derives as a result of the company's efforts in its behalf. Franchises are only valuable to the extent that they may be made to serve the people. It is the high state of development of street railroading of to-day that has given life and value to these franchises—that has, so to speak, created them. There is no public serving corporation more important to a community than a street railroad; the people are dependent upon it in all walks of life. There should be more sympathy, than now exists, between the street railroad and the public, and this must come from the people. In nearly all cases the street railroad is striving to meet the public requirements, and the situation is not benefited by the adoption of drastic laws and ordinances, ostensibly for the welfare of the public, but which are, in their ultimate effects, antagonistic to both railroad and public.

The electric road is so important, not only to the cities, but to the development of the country at large, that its growth should be assisted and not impeded or retarded, either through adverse public criticism, by curtailing of franchises, by the imposing of burdensome taxation or by the press, which too often caters to public clamor, inviting and exciting public hostilities for sensational purposes. The science of transportation is the greatest study of the day.

It is unnecessary for me to attempt to call public attention or the attention of the delegates here assembled to the enormous work that is being done by the electric railroads in the improvement of social conditions and the augmentation of values and populations. The civilized world has already recognized its value -for the electric railway has taken its place as one of the economic factors in all of the countries of the globe. Where communities have been isolated by topographical conditions, electric roads have made it possible, so to speak, to give freedom and expansion to the people by making other areas of land accessible for both residential and commercial uses and occupation—by annexing the adjacent territory, in fact. Factorics, extensive manufacturing plants and villages have grown up in waste places as well as outlying cities, and these have been made tributary to commercial and shipping centers, while farmers and cultivators of market gardens have found readier access for marketing their products.

A phase of the usefulness of the electric street railway, of its power for good in the direction of building up the moral, as well as the physical health of the people, is the opportunity that is afforded for outings and entertainment to the tired worker and his family-whether he be a worker of the office or factory, or the farm. For him the interurban railway especially affords the everpresent opportunity for a cheap and health-giving ride amid fields, woods and pleasant scenes; and still more is this noticeable where the company maintains a pleasure park, a casino, or perhaps a vaudeville entertainment as an adjunct to the railway system. In nearly all the cases that I know of, where such an additional attraction of a strictly moral nature is maintained, the investment has been more than satisfactory, and in many cases self-sustaining. Many of these resorts have been built upon a decidedly elaborate scale. But even if there be no pleasure resort, the outing itself is an invigorating ride and a means of entertainment as well as a promoter to the health of the minds as well as to the bodies of the people. I may, indeed, suggest that in this regard the trolley ride proves a moral factor also, by drawing people away from baser resorts within the closely-built and summer-heated cities.

It is my belief that in the near future the steam roads will seek ownership or a closer alliance with electric lines which will serve as feeders to them, as is illustrated by the acquisition and extensive construction of roads by the New York, New Haven & Hartford and other steam railways. The advantages of such an alliance to both parties are numerous and cannot help but be a benefit to the public and property. The recent decision by the Court of Appeals in the suit brought by the Hudson Valley Railway to compel the Boston & Maine Railroad to make a physical

connection of their tracks and to interchange freight, the court held that the Legislature of the State has recognized electric railways as a part of the transportation system of the State, and that travelers and shippers of freight are entitled to the benefit of all the facilities provided for in the articles of incorporation of transportation companies as well as the duties imposed by the railroad law of the State. The court after stating that the steam railroads have become great arteries over which the greater part of the commerce of our country is carried, says: "It has not been considered profitable or practicable for steam roads to be constructed to every village, hamlet or productive district in the country. This, however, is being rapidly accomplished by the numerous electric roads that are in process of construction or are contemplated. By their means the farmer and mill owner and the merchandise vender in distant places may be able to reach the steam roads, and through them the great markets of our cities, with their merchandise and products, and in this way one road with their mercandise and products, and in this way one road may may become the feeder and distributor for the other."

It can readily be seen that the court does not consider the two classes of roads antagonistic, but the electric road is rendering a service that both the steam road and the people alike require. In many cases the steam roads have recognized our usefulness and have welcomed a connection with our tracks, realizing that transportation begets transportation, and that development produces freight and through passenger travel. This fact is illustrated by the development of the Hudson Valley Railway, which has adopted largely steam railroad methods of construction and operation.

In my opinion, the progressive interurban electric road must adopt the best methods of both the steam and electric railroads. In our construction of roads, outside of cities and villages, we are now building, to a great extent, on our own right of way, with double tracks, and in many instances in conformity to steam railroad principles of construction. In a number of cases steam and electric service is now carried on over the same rails and roadbed.

The great activity in electric railroad building, which surpasses the most sanguine expectations of a few years ago, is in a large measure accountable for the falling off of the increase of new raileage by the steam railroads of over 50 per cent between 1890 and 1900, as compared with the interim between 1880 and 1890. When a steam road is requested to give additional train service by the public, the public is often met with the reply, "Another train won't pay." By this policy they do not stimulate travel. The electric road doesn't wait for business but goes after it, and the result is that when they tap a territory of an existing steam railroad, they increase the rides per capita per annum many fold over what they were with the steam roads. This is largely due to lower fares and more frequent service. The cordial relation existing between the steam railroads and street railways of this State is a matter of favorable comment and congratulation, and make possible a great deal in the way of development and interchange of business from which the general public inherit an untold benefit that would not be available if this friendly relation did not exist.

I may here be permitted to call attention to the prevalence of harassing and expensive litigation through damage claims.

Many bills are introduced each year in the Legislature in the interest of the negligence lawyer, more commonly known as the Ambulance Chaser." Each year they become bolder in their legislative demands, and to such an extent that they have fallen by their own weight and accomplished little or nothing. In the large cities their methods are no better than the highwayman who uses more violent means to accomplish his purpose. The legal profession has been seriously compromised by this class of lawyers. Equally prominent in formulating litigation is the doctor who recommends his particular friends as a lawyer, and not infrequently is a sharer in the unfair percentage wrongfully collected out of the company's treasury. In this connection I might state that, in my opinion, no better claim agent, especially for the smaller road, can be secured than the honest, upright company surgeon, who at all times works in the interest of the company. Juries are often biased and easily prejudiced by unfair counsel. They do not hear the insiduous entreaties of the shark lawyer or his agent to be allowed to bring the case upon a basis of 50 per cent and often larger. Some very good work has been done of late in exposing their methods, and it is to be hoped with good results. As the law now stands, a suit can be brought for \$10; the company must either settle or stand an expensive litigation and take its chances on the fairness of the jury. In my opinion, a large percentage of this speculative litigation of the "hold-up" class can be overcome by proper and just legislation. I am aware that the Court of Appeals of our State has approved in general language of agreement between lawyers and their clients, whereby the former should receive a percentage of the recovery for their professional services. However fair this may seem to be in those cases where the amount is

fixed in the contract or promissory note, I am unalterably of the opinion that this course of dealing should not be allowed in suits for personal injuries, but that on the contrary, the fee should be one fixed by statute or by a competent authority to pass equitably on cases of this nature. The sharing in the recovery, whereby the counsel becomes as much interested financially as the client in the recovery is a condition to be deprecated by all right-minded persons. This is exactly what Congress has found it necessary to do and has done by legislation in the cases of the compensation which attorneys are allowed to collect for services in pension claims against the government.

I will also call your attention to the injustice of the present law, whereby an action can be brought against us in an accident case any time within three years without giving notice. We and the individual or other corporations are entitled to the same consideration in this respect that is now given to the municipalities, whereby notice is required of the accident. This question has been before the Legislature for a number of years, and I believe it is the duty of every member of the association strenuously to urge that some law be passed to remedy the evil. In my opinion the association should make a determined effort to have a law passed to the end suggested, thereby in a degree stemming the tide of unjust speculative

litigation which is so rapidly increasing.

The Mutual Benefit Association so generally inaugurated on our roads still continues to be of untold value to all. The plan of furnishing pleasant club rooms for our men is another step in the right direction; too much interest cannot be taken in endeavoring to raise the standard of our men and looking after their comforts, by elevating them to a higher degree of efficiency and im-proved discipline. The sentiment and enthusiasm of the street railroad employee is of greater importance than in most any other business, as the dealings are more direct with the public than any other industry, and the success of the operation depends largely upon the policy of the company towards its employees. The discipline and handling of men is one of the most important, if not the most important, of a street railroad. Each year finds a marked improvement in the class of men on our roads. This improvement has been brought about, not only through care in selecting the men, but largely by the conditions we have surrounded them with, and this class of men must have just and fair treatment.

A number of street railroads are refusing to continue carrying the mails at a loss. I have referred to the fact in my previous report that the rate paid per car per mile for the transportation of the mails is insufficient to meet the expense; at the present rate we are simply paying for the privilege, and some step should be taken to have this injustice corrected.

The unfortunate recurrence of some half dozen severe and fatal accidents within the present summer brings to the members of this association, in the most forcible manner, the ever present obligation of ceaseless care and vigilance in the management and operation of their respective roads. It is a simple matter to lay down a formula for the "prevention" of such accidents, but so long as liuman nature is fallible, railway accidents can never be wholly prevented. The most that can be done is to minimize the risk or possibility of accidents. You all know what elements of care, of prudence, enter into this consideration—substantial construction, complete equipment, good discipline, and last of all, but of the highest importance, constant inspection and accountability. When due attention is given to these four elements, accidents will be very rare, and then will only occur through the failure of the human elements—the forgetful inspector, the careless motorman, the confused car dispatcher, or the incidents of storms or other unavoidable occurrences. We owe it to the public, as well as to ourselves, and to the reputation of industrial and mechanical intelligence, that every safeguard which experience, caution and liberal expenditure of money affords shall be applied to the carrying on of our several enterprises.

The standardization of equipment for electric railways is a subject which is year by year engrossing more closely the attention of both operating officers and manufacturers, and it is only necessary for me to say here that it is a matter worthy of fullest consideration. Its effect will be to facilitate, as well as cheapen maintenance, to improve practical operation, and to add, in a large

degree, to the safety of our patrons.

I should consider myself derelict if I did not make a brief allusion to the excellent work performed by the committee appointed to prepare a standard code of rules. We all appreciate that this is a difficult proposition to handle to the entire satisfaction of all parties, but I feel confident that the vast amount of time and thought devoted to the report that will undoubtedly be submitted at this meeting will be productive of beneficial results.

I am also gratified by the large number of supply men that are always in attendance at our annual meetings, as they not only

add to the numbers but to the interest of the occasion, and the pleasant interchange of social intercourse between the street railway officials and the men with whom they deal cannot help but prove beneficial in many ways.

I take pleasure in stating that the predictions made in my last year's report regarding the street railway development of Greater New York and the continued advance in reconstruction of horse lines in the older city of New York have been fully carried out, and the general interests of the citizens thereof greatly subsrved. That very noteworthy improvement, the construction of the subway in the city of New York, is progressing and has now reached a stage where 70 per cent of the construction work is completed, and upon reliable official information I am prepared to state that the work is progressing quite up to expectations and that the contract for equipment, buildings, etc., are all made predicated upon beginning operation of a portion of the road to at least One Hundred and Forty-Fifth Street on the West Side, and to One Hundred and Forty-Fifth Street and Lenox Avenue on the East Side by Jan. 1, 1904. The rapid transit proposition seems still to be in an embryonic state, as far as furnishing a complete system of transportation is concerned, for the chief engineer of the subway frankly concedes that the present construction will not be adequate to satisfy the requirements of the city. The elevated roads in old New York still continue to carry on the work of improvement, and the introduction of a third-rail system on the several lines is well advanced, while the facilities furnished the public by the improvement are plainly noticeable.

I have often called your attention to the unjust discriminations in the State Franchise Tax Law, whereby we are taxed one per cent of our gross earnings and other public serving corporations pay but one-half of one per cent. This subject is one that merits your thoughtful consideration and action.

In this connection I desire also to mention the unjust burden imposed upon the street railways of the State by the enactment of the Ford Franchise Tax Law. I shall not attempt a detailed argument of the situation, which remains practically unchanged since the presentation of certain figures and statistics submitted by me as president of this association at the hearing before the Governor of this State on May II, 1899; suffice it to say that IoI street surface railroads operated by mechanical traction submitted reports to the State for the year ended June 30, 1901; sixty-one showing a surplus for the year, forty showing a deficit. Of the total surplus 58 per cent is shown by the companies of Greater New York; of the IoI companics, but sixteen declared dividends, three of which showed a deficit after so doing and which are included in the sixty-one roads mentioned as showing a surplus.

An enromous amount of money is invested in the street railways of this State, a large percentage of which was sunk in the depreciation of values and in demonstrating the practicability of electrical traction, the benefit of which the public at large has inherited, and for which the State under the Ford Franchise Tax Law now assess as real estate. That public corporations should pay their full and just measure of taxation none will deny, but that any discrimination should be made against them simply because they are public corporations is unjust and unfair.

The most serious annoyance and handicap the street railroads of the State have suffered since the introduction of mechanical traction is the burdensome and perplexing question of pavements. The general State law regarding the proportion of expense to be borne by street railway companies is one of the old methods of horse street railroading handed down, of which we are unable to rid ourselves. The exorbitant demands made upon us in this respect are a constant menace not only to the financial interest of the smaller roads of the State, but the larger ones as well. Fortunately the Legislature of the State recently modified the law slightly whereby the smaller municipalities and street railroad companies can now fix by contract the amount to be paid by the company. This is only a step in the right direction, and the modification should apply to all cities. That we are entitled to still further legislative consideration in the pavement matter no street railroad company which has suffered the burdensome taxation under the law as it now exists will gainsay.

In closing I esteem it a pleasure to briefly allude to the general usefulness of our association, which has been so clearly and frequently demonstrated in the past, especially from an operating standpoint. The annual meetings have proved fruitful and profitable, and I firmly believe that the properties we represent and public interest as well, have been greatly subserved by the presentation and discussion of the many subjects of practical interest. Notwithstanding the past enviable record of the association there is a still broader field of usefulness to be developed which can only be completely accomplished by every street railway company of this State becoming identified with the association and its work.

## Removal of Snow and Ice in the Borough of Manhattan\*

BY W. BOARDMAN REED

The handling of snow in the larger cities may well be treated under two heads. First, the keeping of the tracks clear for the moving of cars, and, second, the clearing up of the streets in accordance with certain statutes and ordinances, and, as we in Manhattan believe, for the benefit of our service and receipts.

My first experience as a railroad man was gained on a little steam road about 60 miles north of here, where 12 inches was not a heavy snowfall. I recollect some snow we had to handle there in 1888 after the storm ever since known as the blizzard, when one of the foremen stationed at an outlying line came to the main office on snowshoes and was able to rest his hand on the telephone poles on the way down. We were not, however, operating conduit electric lines, and some way the locomotives of this northern country get used to traveling through the snow. A 6-in. fall will tie up some of the steam roads entering New York, whereas up here such a storm is hardly noticed. We do not have such heavy storms in Manhattan as are usual in this section and the western part of the State, and our cars are, like the New York locomotives, not accustomed to traveling through snow, and will balk at a few inches on the rails. Still, we have had storms during the last few years that have, at times, called forth our best efforts, and once or twice tied up our cars not primarily from snow on the track but from the conduit being filled so that the plow could not pass through it or get proper contact with conductor bars. We hope, however, to be able to overcome this difficulty in the future, as we have increased very materially our

equipment for the cleaning of the conduit.

In 1893 I completed the construction of an electric road in Fulton County, and remained a few weeks to finish estimates, and I was thus able to watch its operation. The master mechanic, a young Irishman, had charge of cars, equipment, maintenance and all else. The first snow storm stalled many of the cars. He was appealed to by the general manager and asked what could be done. He replied, with ready wit, "kape the cars a-moving." We, in Manhattan, endeavor to keep our tracks clear of snow upon this same principle, for we use rotaries only and depend upon the frequency of their running. On about 153 miles of single track we have fifty-eight rotary sweepers, or one for little more than each 21/2 miles of track, enabling us to operate them on from 15-minute to 20-minute headway, so unless the snow is dry and drifting badly there is no chance for much accumulation on the rails. In addition to rotaries we use walkaways or ordinary road machines, drawn by two horses or four hourses, to shove the snow well back from the rails. These are worked in pairs, two machines covering from 2 miles to 4 miles of street. On streets that are narrow or have elevated railroad columns near the tracks, we are obliged, in case of heavy storms, to shovel the snow back from the rails by hand, and, of course, use hand power to get rid of what falls between the tracks. Special work is also cared for by hand. Special gangs are sent out to each place where there are switches, curves or cross-overs, as soon after it begins to snow as possible. They keep the curved rails, frogs and switches, both slot and tram rails swept clean, and use a very small amount of salt on the moving parts. No salt is used on straight track, except on a few very steep grades, and none on curves, except in severe sleet storms when ice is forming in the grooves. In Manhattan the "Trilby" section of rail is used almost exclusively. To keep the groove clean, diggers or small scrapers fitted to the shape of the groove are attached to each sweeper. These have always proved sufficient for the purpose, except in the few cases where the road has been tied up and rails became covered with ice and packed snow, when picking and pickeling had to be resorted to.

In regard to pickeling I may say that we find salt plays havoc with electrical equipment, especially the plows. Salt water getting on the shank destroys the insulation and often forms a short circuit around the plow. No amount of paint or grease will prevent it. A couple of winters ago we were called upon to assist in the operation of a new electric line in Manhattan. The superintendent, who received most of his education on horse-car lines where salt is the principal snow machine used, had general charge of the operation and maintenance. I sent a track foreman with some men to help him handle a light snow storm, cautioning both the foreman and the superintendent regarding the use of salt.

In a few hours his entire line was in bad shape from burnt-out plows. The superintendent denied using much salt and the re-

<sup>\*</sup> Paper read at the twentieth convention of New York State Street Railway Association, at Caldwell, N. Y., Sept. 9, 1902.

ceiver, in whose hands the road was, severely blamed the electrical department for furnishing his road with poor plows. Investigation showed, however, that considerable salt had been used, and, doubtless, caused all the trouble. On overhead trolley lines salt does not cause much immediate damage, but I think many motors which show defects a few days after a snow storm have been injured by salt water.

For cleaning the conduit we use a rubber scraper similar in section to the conduit suspended from a small flat car drawn usually by horses, though sometimes hitched behind a car. At all switches the conduit is much smaller than on straight track, and a scraper has to be used that will pass the switches. It will, therefore, not remove all snow from the conduit but keep it sufficiently clear to allow passage of plows and leave the conductor bars clean. From the conduit the snow is scraped into manholes situated from 100 ft. to 200 ft. apart. These drain into sewers, but, after little more than 6 ins. of snow has fallen, have to be cleaned out. With the beginning of freezing weather we put a layer of salt in the bottom of the conduit and keep it thus salted all winter. This prevents the forming of hard ice, and enables us to keep the conduit clean. We have always used mined salt when we could get it and consider it the best for our purpose.

To comply strictly with the statute which provides that street railway companies shall remove all snow that falls on its track, between its tracks and 2 ft. outside, it would be necessary to stop operation of cars as soon as it began to snow, fence in the area and stop all trespassing, or else have some method of marking each flake for identification.

In Manhattan the street railways have always removed more or less of the snow from the streets, but, until 1896, there was no system about it. That year an agreement was made with the Street Cleaning Commissioner whereby the street railway companies were to remove all snow and ice from the entire area of certain streets or parts of streets, such area being as nearly equal as might be to the area they should clean under the statute, the Street Cleaning Commissioner agreeing to remove the snow from all streets having tracks upon them as promptly as possible.

This arrangement has proved of great benefit to the public, to the Commissioner of Street Cleaning and to the railway com-

Previous to this arrangement, little attention was paid by the Commissioner to railway streets. It was, therefore, necessary to run horse cars doubled up; that is, four horses and two drivers to each car, electric cars and cable cars were badly blocked by trucks, passengers could not get on or off the cars without getting over their ankles in slush, and snow machines were kept running until the snow melted or wore away. These conditions often lasted more than a week, whereas now it is rare for us to be troubled more than 24 hours to 36 hours after a storm is over. In former days it required from 400 bushels to 500 bushels of salt per mile of track per season. Now I allow 275 bushels for horse-car lines and 415 bushels for electric, and nearly all of it is used in the conduit

The prompt removal of snow enables the public to go about their business and pleasure with comfort, thus adding very materially to our traffic, so the expense we are put to is about made up in the additional receipts.

Various ways of disposing of snow have been suggested and tried, but, though the method may seem primitive, we have found no better one than hauling it by carts or trucks to the water front and dumping it overboard.

The Island of Manhattan is of such shape that most of the snow can thus be carted with an average haul of little more than half a mile.

Melting machines have been used experimentally by the city during the last year, but they are not practical for our conditions. A few years ago the late Colonel Waring, then Commissioner of Street Cleaning, thought that it would be a good plan to line sewermanholes with coils of steam pipe, then shovel the snow into them, when it would melt and run away. We constructed for him a manhole for this purpose and gave it a trial. It took but a few moments to fill it with snow but an hour or more for the snow to melt. It is hard to overcome the fact that it requires 142 degs. of heat to make water out of snow or ice. Carting snow by cars has been suggested many times, and doubtless this method would be cheaper and more expeditious than carts and trucks, if there were proper dumping facilities and the street railway company could give up the use of its tracks for a sufficient time to allow snow cars to do the work. On our lines, cars are rarely operated on less than 2-minute headway, except between I o'clock and 5 o'clock in the morning, and even then they run on from 5-minute to 10-minute schedule, which would give no time for loading and handling of snow trains. A short time ago I estimated that were we to abandon the running of cars on

Twenty-Third Street between Broadway and the East River between I o'clock and 5 o'clock in the morning, giving snow cars exclusive use of them, it would require, for a 12-in. fall, with two trains of four cars each, thirty-six hours, or nine such nights, to clean up this small portion of the city, whereas it is done with carts and trucks in about twenty-five hours to thirty hours, and, as these work both day and night, this means but one day or 1½ days.

Contractors are paid by the cubic yard of snow removed both by the city and by the railway companies, the latter using their own carts, trucks and men as far as they are able. This year, however, the city is to endeavor to let the work per inch of snowfall. Could this be done, it would prevent much fraud that is sure to be practiced under the yardage system, especially since work of this kind, coming but five times or six times in a year does not permit the maintenance of a proper organization of foremen, tally-men, checkers, ticket-men, etc., the city being obliged often to use ordinary laborers to act in such capacities.

The shrinkage of snow is so variable, however, that one making a contract in this way must be something of a gambler. The average shrinkage on our work last winter was 80 per cent, though the heaviest storm gave only 59 per cent; that is, of the quantity that fell on the area of streets we cleaned we removed, on an average, only 20 per cent, whereas, in the larger storm, we removed 41 per cent. This shrinkage is caused by the packing, wearing away by vehicles and melting of the snow, depending on the humidity and temperature of the atmosphere and the amount of snow that falls at one time.

Last winter the street railway companies of Manhattan removed the snow and ice from about 90 miles of streets, and with a total snowfall of 30 16/100 ins., hauled about 117,000 cu. yds. of snow. In the heaviest storm, which occurred Feb. 16 to Feb. 20, there was a fall of 12 2/10 ins., and we removed 68,787 cu. yds., at a cost of about 30 cents per yard, including superintendence.

## The Handling of Accident Claims\*

BY WILLIAM A. DIBBS.

The subject of accidents, from the claim agent's point of view. is a theme which may be most interesting, showing the characteristics of the different claimants and something of the study of human nature. To begin with, the claim department is something of an important factor. If well managed it will help materially in the showing of the annual statement. Its employees must be men of honesty, students or human nature, of glib tongue and pleasing address. The claims presented at our claim department are varied and numerous, even for the most trivial thing. run from 5 cents to \$150,000. Most of these are presented by the claimants; frequently a representative or friend other than an attorney is sent, but when we find that the supposed injured are able to be about, we request a call form them, or we send someone to see them-under no circumstances do we deal with the representative without first seeing the claimant. As a result of our investigation we have found out on many occasions that there was no injured party. Following the reception of a claimant we question him closely as to the facts, getting every minute detail possible. This is then transposed into the form of an affidavit. This method has saved us a considerable amount of money and time. Frequently the claimants state in their affidavits that the car did not stop while they attempted to alight or board, that they did not see it until it was but a few feet away when they attempted to pass or cross. After their claims are naturally refused many of them start for an attorney, who invariably writes us that he has charge of the claim. We get into communication with him, tell him that his client has no case, and read to him or show him, if necessary, the affidavit; with but few exceptions the attorneys then drop such cases. Those that do not say the client signed under a misapprehension, believing that it was a receipt for money, or else the claimant is a client of their office and they have to prosecute the claim. A claimant calling personally is usually imbued with the idea that he has an exceptionally good case, and that he is permanently injured, though he walks from the upper end of the city to the office. He starts in to demand, when asked, \$1000. With this element, if the claim has some merit, we request them to call again in a few days. At the next call we have him examined by a physician, and if the examination shows any injury and the investigation shows it to be one for settlement we start to dicker. A good many times we have come in contact with those who put a figure for settlement, and no amount of arguing will

<sup>\*</sup>Paper read before the New York Street Railway Association's twentieth annual convention, Caldwell, Sept. 8, 1902.

budge them. We have found out, with one or two exceptions, that we can make cheaper settlements dealing direct with the injured party. If they are not able to present their grievance in person and a letter is sent, we then have our representative call upon them, obtain their statement in detail as much as possible, and from that follow up the case. When a lawyer writes a letter we acknowledge its receipt, look up the case, and if no report is on file call upon him and get what facts are obtainable, and if possible an examination by our doctor. If the case is not a bad one we let it lie dormant until the lawyer stirs it up again; frequently we never hear of it again. If it should not be a good one, from our point of view, we follow it up until some way disposed of. These cases, when adjusted, are a trifle higher than if settled direct. When a case is presented by a lawyer personally we handle it the same way as if the claimant had called, with the exception of getting an affidavit, and sometimes we get that. If the lawyer is known to us, and is of good repute, we deal directly with him. As to the other class, we demand the address and an interview with their client and doctor. As a conclusion to this part of the subject I would like to cite a few of the exceptional claims presented. An apparently intelligent man called at the office, asked if we had a report of his client, and we told him we had. He then said that he had given the case to an attorney and wanted from us the names of the crew and the names and addresses of our witnesses, so that he could prepare his case and have it in good shape when he went to court. He left, saying that it was funny that we did not comply with his demand. Another individual, an habitue of the Ghetto or East Side, came in one afternoon and said that he had received a transfer from one of the avenue cars to a crosstown car, that the crosstown car was blocked on account of a truck breaking down in front of it, that he had to wait several minutes, caught a cold and incurred a \$50 bill, which we should pay. One of the self-important, pompus kind strolled in one day, hammered on the counter, which is in the reception room, and when asked what he wanted, he replied: "Is this what is called the morgue?" We told him it was not, but that one would think so, however, from some of the stiffs that came in. He laughed heartily, which apparently cured his injury, for we never heard from him again. He never presented his claim and walked out. The 5-cent claimant mentioned before was for an extra fare on account of trouble with a transfer. The \$150,000 one was by a man worth about \$18,000,000, and he lost three days from business; he was knocked down while crossing the street. That, however, was not paid. One of the East Side residents, with the proverbial small derby hat, flowing whiskers and cigarette, called last winter, and presented an old family heirloom in the shape of an antique cane. Through his tears he claimed that the car heater had scorched the paint out of the cane and demanded \$5 for the injury. Again, a well-dressed man called, and claimed that while a passenger on a car the conductor, in ringing the bell, knocked the glasses from his nose, breaking them. He filed a claim of \$14. When questioned as to whether the glasses had cost the amount claimed, he said: "No; they cost \$4." "Then why do you claim \$14?" "Why, I had my eyes examined by a specialist three years ago and paid \$10; this, with the \$4, makes the \$14." It is needless to add that he had to "look" further. Still another case. A representative called upon a small East Side cloak manufacturer, who had his left thumb badly sprained in an accident. He explained at great length that he did all the cutting in his business, and was unable to use the cutting shears with the injured thumb. Our representative said that he failed to see how the thumb on the left-hand effected the right-hand. He instantly replied that he was "left-handed."

I have in mind a report received from one of the divisions. A motorman reported that while going through a rather dark street late at night he saw an object cross in front of his car. Before he could stop, his car struck the object. Then he found out that he had run into a two-ton coal truck. That case was settled.

We have in New York and Brooklyn, and no doubt in some of the larger cities of the State, a horde of what might be termed "blood suckers." I refer to the runners or ambulance chasers. This class is composed of all kinds of men and boys, and pretty shrewd ones at that. They congregate about Police Headquarters and watch the returns from the precincts as they are sent in. They are posted in a window. They immediately start out for the case; if an accident, go to the hospital or house. They start in to tell the injured person, if conscious or unconscious, what they have done in other cases, and the large amounts recovered. They show a printed slip citing the verdicts obtained against defendants. is compiled to suit themselves. It does not matter to these sharks what kind of a case the injured may have, as long as they bring something into the office of the lawyer who employs them, and the names of some of these lawyers would surprise you, as they stand high in the profession. If they should get the case they enjoin

upon the client absolute silence, to say nothing to anyone, particularly to the railroad men, and they start in to libel the road and everyone connected with it. If the man be ignorant he becomes prejudiced and it is pretty hard work even to get him to open his mouth, but after a while they come around and regret they ever had any dealings with these fellows. If the injured party is taken from the hospital and found to be but slightly injured, the lawyer to whom the case has been brought sends his own physician to attend. He then develops all the ills one can have, with several fractures thrown in. We have found out by experience that the less we have to do with the runner the better off we are. We now deal with none. If he presents the case, we treat it with suspicion and work it up accordingly. If this element were gotten out of the business there would be a big decrease in suits against the railroads and a decrease in the business of the courts, for many a man would not think of even making a claim or starting a suit were it not for the inducements offered by these people. They have often paid the claimant \$5 a week while laid up and then deducted that from the verdict or settlement, if any.

Now we get down to the investigation of reports. Cases which are sent in as unknown parties, unless they be rendered unconscious, very seldom turn into claims. These we do not investigate until a claim is made. Cases which have been turned in with the injured party's name should, in our opinion, be thoroughly looked into. A good many, when their name is asked, make up their mind then and there to present a claim. To let these wait until a claim or suit is started—for they sometimes do not make a move for a year or more, might bring out a poor defense; your witnesses do not always remember the facts and sometimes forget them entirely. A point to bear in mind is to first call upon the police blotter witnesses—those that are obtained by the police, and put in their report, as a good many of our friends mentioned before, have access to the blotters and are likely to play upon the sympathy of the witnesses and get them to distort the truth.

We believe it advisable to get physical examinations whenever possible. A man might be treated by an ignorant surgeon who claims he has a broken arm or thigh, which, after examination, turns out to be a sprain or a bad contusion, or that he has some internal injury which we find to be some previous chronic trouble. After you show the claimant or lawyer that the injuries are not as severe as at first presented it usually means a big drop in the price of settlement.

A persistent defense of suits has given a reputation in the profession and among lawyers that it would be more advantageous to them to effect a settlement. When the reputation is gained as a hard fighter they do not care to expend time and money and take chances. This has been stated by the lawyer or claimant whenever they call at the office and has induced them to accept less for their claim than they otherwise would.

As a final subject, we can take up the liability cases, those of admitted liability. We have found that the sooner we have these cases in hand the better off we are and the quicker the settlement, the cheaper. Cases of this character should be followed up immediately, and whenever possible gotten rid of. If delayed, someone is sure to advise them to ask for a larger sum and get some lawyer friend, who then sees a chance for a good settlement. On the other hand, there are cases of this character that are allowed to drift and go into suit. Cases where the claim is exorbitant, after waiting a few months and finding out their injuries are not as severe as first supposed, and that the money does not come as quickly as expected, they take off several figures, and usually come to terms. Sometimes a settlement cannot be effected; the claimant is stubborn, as well as the lawyer: a large sum is demanded; a figure offered adequate with the injuries, but this is not accepted, but when they see the case is to be fought by the defendant they invariably listen to a proposition.

Sometime ago we arranged with the operating department to report to them cases of liability that were settled, stating in our report the name of the person, name of crew, what the crew said and what the witnesses said. Since this has been in vogue there has been a dccrease of over 30 per cent in accident reports received at the claim department.

W. H. Park, of Youngstown, Ohio, and George Denison, of Cleveland, representing a syndicate of capitalists, formed to build electric railways in Cuba, have just returned from a trip to the island, and, as a result of their investigations, it has been decided to build on a broader basis than was originally planned. Grants have been secured for a line across the island, and the principal interurban line will extend from Havana to the south coast. The other terminal will be Barboa, an important seaport, a distance of 36 miles. Another line will touch Sand Beach, near Havana, where a hotel and casino will be established.

#### Discipline\*

#### BY C. B. FAIRCHILD

Sometime since the writer was riding on the front seat of an open car, on a country road, where it was not against the rules to talk to the motorman, and in conversation with a thoughtful man, he remarked: "The repair men give, and are required to give, special attention to the controller and motor equipment of our ears, but they frequently neglect or only give a passing thought to the brakes. If I can not make a car go I certainly can do no harm or have an accident, but if I can make my car go and am not able to stop or control it I can do untold damage." Now, the subject of this paper is not brakes, but discipline, and I quote the above only for the philosophy that is in it. Managers and others in operating street railway systems strain every nerve, advertise and make their cars attractive, to induce patronage, or to get nickels into the hands of their conductors, but what are they doing to insure that all these nickels get into the treasury, or after getting them into the treasury what are they doing to prevent their escaping or being paid out to meet excessive accident and repair claims, due to the ignorance and carelessness of the conductors and motormen? In other words, managers select their motors and other appliances with great care, and then watch, shield, nurse, protect and repair them assiduously to prevent their burning out, bucking or kicking, but what are they doing to improve, protect, shield and enlighten the two human machines that operate on the two platforms of the cars? Do they never buck or kick? And how about those others who have charge of the track and car-house repairs, as well as the clerical force?

What if a motor or controller does go wrong? You do not usually discharge it or lay it off without pay, nor take a crowbar and jam it into it and tell it what a —— fool it is, that it ought to know better, had been told often enough. Isn't it in your book of rules? You are not a profitable machine for this company. You do none of these things, but you put an expert on it and have it repaired.

It is to these human machines that our subject "discipline" re-

The word "discipline" is from the Latin disco, meaning to learn. The word "disciple" is from the same Latin word and has reference to a learner, or one who receives instruction from another. "Discipline" used as a noun means education, instruction, and usually comprehends instruction in arts, sciences, manners and due subordination to authority. "Discipline" as a verb means to instruct or educate, to inform the mind, or to prepare one by instruction in correct principles for a profession or any useful work.

Originally, these words applied only to instruction, but in ecclesiastical affairs, in the early church, when heresy hunting began, the word had reference, as well, to the execution of the laws by which the Church was governed, and the inflicting of penalties enjoined against offenders. So, in later times, the word means not only to instruct, but to correct, to chastise, to punish with a view to bringing the offender to repentance and reformation, and more attention is usually given to the latter meaning than to instruction, whereas the reverse should be the rule. For our present purpose, the word "discipline" will mean the rules and regulations by which a body of men are kept in a state of efficiency and order, and under complete command.

At once, it appears, that there are two related parties—the instructor and the learners, or the disciplinarian and the disciples, both human beings and of the same common stock, involving the principle of brotherhood with a common object in view, viz.: The efficiency of the service. The first recognition is this relation. The second, how best to impart the instruction and enforce its observance.

It was well remarked by a member of this association, at the last annual meeting, to the effect "that inasmuch as the machinery for propelling cars is decidedly in advance of the old type of machine (meaning horses), so the men who stand on the platforms of your cars must also be a decided improvement over the old street-car men." This is true, and it is also true that applicants for such positions, and in fact nearly all workingmen, are a different kind of men from those employed a decade ago, and they will not submit to the bossy and abusive treatment that was formerly supposed to be necessary in order to make men know their place, or to get work out of them, which was probably the outcome of the spirit of slavery then existing. For this reason a manager or superintendent must know the basic

principles upon which the relation of man to man exists, and must base his action on these principles in order to insure satisfactory results.

Among these principles are the following: The brotherhood of man is fundamental from the very nature and constitution of man, hence one can not do a wrong to another or speak unkindly without doing a greater wrong to himself. For the thought of wrong is first generated in one's own mind, where it will do its corrosive work before reaching its victim. Again, mankind are indissolubly related by ties of a common nature and origin too deep for anything to put asunder; and, being so related, self-preservation demands that one should act kindly and do justice to all, including the meanest and weakest and most defenseless of his fellow-men. Again, since man's constitution is based on the principles of charity and good will to all, slavery of any kind is not the natural birthright of any one, and when a master juts a chain about the neck of a slave, the other end must, of necessity, fasten itself around his own neck.

These principles were recognized and well illustrated by one of the speakers at your Rochester Convention. He said: "I do not believe that any workman was ever made a better man by harsh or cross rebuke administered to him by his superior in the presence of his fellows. He feels that he is an inferior, if he is subject to such treatment, and whenever I have occasion to speak to a man, for any infraction of duty or violation of rules, or the neglect of his duty, I take occasion to take him alone and appeal to the better side of his nature. My experience has been that more than 99 per cent of mankind are subject to the better influences. There is a great deal of man in every man, and all that you have to do is to develop it, give him a chance, bring him close to you, for there is scarcely a man so dense but what he is open to an appeal to the better side of his nature."

Employees in whatever situation reflect the color of the mind which directs them; so courtesy will be found to be one of the greatest factors in success. The writer is aware that most of the managers and superintendents who are members of this association recognize and practice the above principles, but the duties of a manager or superintendent in this matter of treatment of men does not end in his personal treatment of his associates and employees, but should be followed up by careful inspection to learn if the heads of departments and foremen are co-operating with him. He should know that every man down to the lowest grade receives fair and just treatment from his immediate superiors. It is a patent fact that a gang of workmen will not be better than their foreman, and if he is overbearing, cross and profane, the men and their work will partake of the same low If a foreman gets angry and abuses his men, he puts himself on their lowest level and loses his power of discipline, and, by getting angry, wastes his own physical strength that might better be spent in the service of the company. Let your men all understand that they are free to complain, or report any ill-treatment on the part of subordinates without fear of being persecuted. Let your men understand that they are not to be serfs, and are not expected to submit to petty tyranny, but that they are to be independent and have the right to resent, in a proper manner, any unjust or ungentlemanly treatment. Let your foreman and subordinates understand that each man sets an estimate upon himself, and if he uses the language of a blackguard he must expect his men to do the same. Let him understand that one must first learn to govern himself, and that anger is a confession of weakness.

In the enforcement of discipline one should remember that no matter how stupid, ignorant or vicious a man may appear, he still knows some things that the superintendent would be the better or wiser for knowing. Even though you have decided to discharge a man, by keeping cool, and winning his confidence, you may, by adroit questioning, be able to get from him admissions or confessions that will prove exceedingly valuable in rooting out discordant elements among the men, or draw out some hint that will be of value to the service. In reproving or cautioning men, keep on their good side, and regard all your men as so many feeders or avenues for seeking and transmitting to head-quarters knowledge that will add to the efficiency of the service, and all your men should be encouraged to plan and suggest.

In the matter of shielding employees, special attention should be given to the night men, whether car men or night repair men. The late night men are apt to be influenced unfavorably or debauched by the people who patronize the late night cars, and unless carefully watched will pick up carcless habits or shady practices that will, in time, spread to the entire force. Men should never be required to remain too long on late night runs, or at night-work of any kind. In the business of street railway management there are three classes or parties to which a superintendent finds himself related: First, the employees; second, the

<sup>\*</sup> Read before the New York State Street Railway Association at its twentieth annual convention at Caldwell, N. Y., Sept. 10, 1902.

public, and third, the stockholders; and in proportion to the attention given to the first class, does he benefit the other two When the employees please the public, the public become liberal patrons and the stockholders get the benefit of the extra nickels.

So much for the relation, now for the instruction and its enforcement.

We often hear it remarked by the heads of departments in street railway matter: "If you knew the calibre of the men we employ, you would know they would never think of using such or such an appliance if we should adopt it," or "our men can never be brought to such a state of efficiency." One who says such things only confesses his own inefficiency as an instructor, for men will do, and all men will do well, whatever they are properly instructed to do. It is in them as a possibility; the question is how to bring it out, and make it actual. It is not enough to dismiss the subject, and say that it has been tried and failed, for, so far as the writer is informed, men working in the street railway field are not generally fully instructed, or rightly informed. Note the difference between instructed and informed. They may be well instructed in mechanical details, and as to their particular duties in particular situations, but have never received instruction along the higher lines, as how to develop and employ their own native powers, their own power to think, and act promptly and correctly, under any and all circumstances that may arise. A man may be familiar with all the rules, and yet not know them, and it is a mark of a good instructor so to teach that his pupils know the subject, can digest it and make it a part of their own immediate knowledge, always ready for use without taking time to fish about in their minds to recall the rule that applies to any particular case. Every mind is so constituted that can acquire, if properly taught, and instruction is the only thing that will or can do away with the limitations that hamper street railway practice. Mere instruction, however, is only half, and the smaller half of the requirements. Every teacher knows that no matter how lucidly a subject is presented to a class of pupils, the learning is solely a mental act on the part of the individual pupil. The object of the teacher and pupil is the same, but the relation to the work to be done is different, and, as said above, the object can only be attained by the mental act of the learner, by his observing, remembering, etc. It is clear, then, that what he does, and not what the teacher does, is the essential part of the process; that is, the appropriation and assimilation of knowledge, by the mind, and can be performed by no one but The teacher can no more think for his men than he can walk, sleep or digest for them. The process of thinking, then, by which a pupil learns, being essentially his own, the teacher's part is that of a guide, director or superintendent of the operation by which the pupil teaches himself. The instructor can stimulate and direct, but he can not do the thinking necessary to give the desired results for his pupil. The teacher's problem is how to get his pupils to learn, how to get all his pupils to learn, the so-called stupid ones as well as the bright ones, and how to adapt his teaching to the calibre of the individuals, and see that they make the mental effort to learn. And he should remember that there is no need for haste, the only thing needful is accurate knowledge, to have something thoroughly, perfectly, immovably known, the same as is required of a machine, that it will work perfectly under all conditions. Even then the teacher's work is only just begun. Instruction must be followed up by continuous, persistent and careful inspection of the men when on or off duty, not with the view, merely, of finding if rules are being violated or for the purpose of administering reproofs and reprimands, but for the purpose of keeping acquainted, of watching their general conduct, and for the purpose of impressing upon the man the rightness and advantage of honesty, sobriety, and politeness. Let the reprimands and reproofs, if necessary, come afterward, when the individual offender can be called aside and warned, or instructed by himself. Indiscriminate censure, when anything has gone wrong, or is going wrong, only defeats good discipline. In the matter of inspection, remember, that if everything is found working smoothly one day, it is not an evidence or guarantee that it will be so running the next day, unless you make it so by your presence. Never take it for granted that your men or assistants are doing what you have told them, but watch and see; come upon them at odd spells day and night. Let them feel that you are omnipresent. In preparing a code of rules for the government of street railway employees it will be more expedient so to word them that they will all be constructive rather than prohibitive laws and penalties. It is much pleasanter and more effective to have laws that will tell men what they ought to do, rather than what they must not do. For instance, rules that read: "It shall be lawful and proper, etc.," rather than it shall be "unlawful and, etc.," "Said crime or misdemeanor or

infraction of rules shall be punished by fine, suspension or discharge." Rules that read "thou shalt not" often serve as a challenge or suggestion, to certain minds, to do the forbidden thing, for the purpose of showing their independence, and that they can do it without being detected. It weakens the force of a rule to state it arbitrarily with must or forbid when its violation can not be enforced. For instance, "Indulgence to excess in intoxicating liquors when off duty is positively prohibited." "Spitting in this car is positively forbidden." A man might be discharged for intoxication, but there is no way that the company can prohibit a man from becoming intoxicated. The rule about spitting can not be enforced, for the passenger might spit out of the window or the door, or might use the coal box, or if he should spit on the floor, the chances are that the conductor would not see him. A better notice would be "Gentlemen: Please do not spit on the floor of this car." Or "the Board of Health has made it a misdeameanor to spit on the floor of a car."

A book of rules should have no reference to specific rewards or punishment. These matters should be left to the individual judgment of the one who is responsible for their enforcement. Incentives are better than penalties in the matter of securing obedience to the rules, but as there are always employees with whom incentives have no weight, penalties are sometimes necessary. They need not be severe, however, but reproof or punishment must be certain to follow any offense, whether injury has resulted or not, and must tend to instruct or train the offender, so that he will want to obey the rule. In no case should a disciplinarian threaten a man, or impose a penalty, and then let him beg off. Investigate carefully and be sure of your ground before imposing a penalty. The offender should be made to realize that reproof or penalty is imposed for neglect or disobedience, not simply because the manager is displeased and seeks revenge. Penalties, except in rare cases, should not affect the man's pay, for if it does his family or friends may be made to suffer, and the women of his household, not knowing the circumstances, are apt to blame the manager, and gossip and circulate reports injurious to the interests of the company, and the man himself, thinking he is unjusty fined, will be apt to seek or try some means by which he may get even with the company. It is gratifying to know that this matter of affecting a man's pay has already been settled by a number of companies in this State, as shown by the reports and discussions of your previous meetings. Merit and demerit marks may be used, but a record of these necessitates an endless amount of bookkeeping, and often leads to no end of misunderstanding and jealousy among the men, and is often attended by annoyances that defeat the end sought to be gained. The bookkeeping mentioned does not refer to the man's record. It is better to leave it to the manager or superintendent to devise some original method of reward to suit meritorious cases, without any previous promise made in the matter. In the whole matter, however, it is better to remember that formation is better than reformation, and that more attention paid to instruction and drill will save time and worry in the matter of punishment. It is conceded by prison authorities and others that punishment as ordinarily administered is not reformatory. In enforcing discipline let not authority be the impelling motive. Temper your attitude by imagining yourself in his place. Think that if you had had his heredity, his conditions and environments, you would be just like him, and this will furnish a good lesson in toleration. Interpret the man from his own point of view, and remember that until he sees the justice and truth of your action it is not truth to him. To convince him, find other points of agreement, and he will be led toward recognition and at length exclaim: "I see it.' If you seek common ground you can always find it, and when found its area naturally increases. Hold the other man's view in respect and that will bring him toward yours. Your toleration will outlaw his law.

In the matter of correction, a distinction should be made between offenses from ignorance, indifference, recklessness, carelessness and those where wilfulness or guilt are involved. as the company is concerned, a loss from carelessness or forgetfulness is just as bad as a loss where guilt is a factor, but the penalties can not be the same. The fact, however, should be impressed on the minds of all the men that loss from any cause is a serious matter, especially when it is accompanied with injury to life or limb, and that accidents are not measured by the money value only, but have an important influence on the general reputation and patronage of the road. Accidents do not happen, nothing happens, there is a cause for every effect. There are no unavoidable accidents. According to psychological laws, the cause can usually be found in the mental make-up of the man responsible for the accident. The mental attitude of some men invites accidents and all sorts of so-called ill-luck. The man who has one accident will have another and another, and will con-

tinue to have them, unless his mentality is changed. The best men never have any accidents, and all the accidents can usually be traced to a certain few men who, when known, should be discharged or transferred to some situation where they can not do much injury, either to themselves, to others or to property. It is a mistake to suppose that men must necessarily have accidents, violate rules or be a little reckless or careless at times, in order to learn street railroading. People learn to walk by walking and not by falling down. Mistakes or accidents are not instructive or reformatory, and a man is never better for them. The writer was surprised to hear the statement made at your last convention by a superintendent that he would have no objection to employing a man who had been discharged from another road for having an accident, upon the ground that such a man would realize the seriousness of his error and make a better man than before. Such reasoning is contrary to mental laws and contrary to all the information the writer has been able to gather on the subject in his fifteen years' continuous association with street railway men.

All the triumphs of skill which we observe are merely the shaping of things by the subtle power of thought. The grander the achievement, the grander and more masterly the thought that has embodied itself. The scientific work which calls for the praise and admiration of men is the result of the scientific thought of the worker. Man, then, being a master of thought and of all things through it, any desired object or condition becomes possible of realization. Once master of the principles of thinking, one can become a specialist in any particular line of invention or discovery that may be demanded by the necessities of the service. Once master of that kind of thinking which builds men, bringing into expression the ideal qualities that are essential to profitable street railroading, a manager can advance his service to an earning capacity beyond anything he has ever imagined. The question is often asked, "What is your experience in such a matter?" or "In my experience I have found so and so to be of advantage." Now, experience is merely what has been found out in practice, but it should be remembered that there is much beyond what has yet been so found out. A turn may come in street railway affairs, and sometime a wiser method of discipline may be suggested, productive of unheard-of results. So it is never safe to reason on the basis of experience, or on a basis that one knows all that is to be known on any subject, and so declare a new idea impossible or silly. It is not always experience, custom of practice that is to be followed, but some higher, advanced or better Those who are the great masters of commercial matters to-day are those who have dared to try something new that has come to their thought. An example is found in the matter of welding the joints of street railway rails. Engineers who were skilled in all such knowledge, when told of the idea, pronounced it impossible and silly, declaring that in the summer's heat the rails would hump up, pull the spikes and ruin the road, or in winter time the rails would pull apart by contraction. Their reasoning was conclusive, according to experience up to that time, but when the actual trial was made, the results were surprising. There was little or no trouble from expansion or contraction and it has become an almost universal practice. who declared such ideas absurd have, in this day, their companions. Prompt action is the secret of success in the line of new suggestions, but it should be action that is right in line with one's regular work.

We must not limit the possibilities of to-day by the attainments of yesterday; if we should do so, we would bring to an end all progress, and in the matter of discipline no advancement could be made toward the time when there shall be fewer accidents, less expense for repairs and when employees shall be more considerate of the rights and comfort of passengers.

In the matter of instruction, it is a commendable practice to provide schools or lectures for instruction and practice, as has already been done by some of the largest systems in our State. In these schools, oral instruction should be given in addition to printed rules, and when rules are provided, it is best not to put them into the hands of green men to study, at first. Not until they have had some opportunity to become familiar with the names of the parts of a car and the road's equipment. Even then it is better that the rules be first read and explained to the men, as some men, although they can read, find it difficult to comprehend written instructions. It was well remarked at the last convention that "so far as the question of training is concerned, it should continue so long as the man is in the employ of the com-The training of every employee should be continuous, as new questions and conditions are constantly coming up." This training can best be given by having schools for this purpose, as is already the practice with some companies, and through the business and social meetings, in connection with the benefit associations or other organizations. Schools of some kind are especially desirable for small companies, as it is usually found to be more difficult to give thorough instruction to employees on a small system than on large roads, for the reason that the superintendent is so burdened with details that he finds little time to devote to instruction. Thus it frequently happens that a motorman, for instance, receives his entire teaching from another motorman, who receives all his instructions from a previous motorman. The result is that the rules that the last man receives are only copies of copies of copies, and are likely to be very much distorted from the original. Again, when frequent changes are made among the men, a new man may be put on to learn from a man who himself was new only a short time before.

It should be borne in mind that, in the present state of society, it is of advantage to a company to provide instruction in schools or by lectures for the men, along lines other than those relating to their mechanical duty. In other words, some means to counteract the philosophy of the "bar-rooms" and make the men conscious of their own mental and moral powers. Not only the philosophy of the "bar-rooms" is to be counteracted, but that given at public halls, where the men listen to bitter harangues on society in general, attacks on property, on the Church and the institutions of our social fabric, when men blame everybody and everything except themselves and fire the souls of their hearers, as bad whiskey fires the body and for the same reason. Labor troubles arise from ignorance, and can only be avoided by bringing all the men to the same general knowledge of all the local conditions that the chiefs in the service themselves enjoy. can be taught to feel that their interests and those of the company are identical. Individual opinions are founded upon and colored by an innumerable variety of factors which have preceded, and if you expect men to think as you do and be actuated by high and lofty motives and loyalty to the company, they must be taught the same things which have made you what you are. As was said last year, there are bound to be seeds of passion, seeds of discontent and disloyalty planted in the minds of employees somewhere and somehow; hence, as a matter of selfdefense, from a selfish or commercial standpoint, without any reference to ethics, morals or religion, street railway companies should undertake to fill the minds of their employees with seeds of truth, for truth's own sake. Men are tired of makeshifts, they do not wish to be bribed by gifts or abused by penalties, but they do want food for their minds, and when teachers are provided who will proclaim the brotherhood of man and the laws of mind, as founded on the very nature and constitution of man, men will crowd and throng the classes. Men must be shown that they have a higher nature, which is ever leading them on. That this nature has a tendency to evolve until they outwardly manifest in full their relations and possibilities, being filled with the hope and expectation of bettering their condition in life. When men are taught how to think, how to recognize and use their power to think, they will have the key to all problems, for thought is creative, and all creation and all progress of the race, as manifest in means for transportation, in printing, etc., has been through thought.

The principles above enumerated are not one-sided, are not for one class only, but are to be observed by the employees, as well as the employer, but it must be remembered that these principles can not be forced upon any class of people nor upon the public. For this reason these truths can not be put into practice until your employees are educated up to them, but the responsibility of teaching principles to what are known as the laboring classes test with the higher or more advanced and enlightened, usually the employer. From the fact that street railways in their purchases are closely allied to almost every other industry, they have the opportunity, and it will be for their credit to take the initiative in this matter. It is often said by street railway men that they are not in the missionary business, but it is now known that any enterprise or industry is prosperous in proportion to its missionary work.

Some of the larger companies have formed schools for instruction. It would, doubtless, be to the advantage of the smaller companies if they would club together and organize schools in different parts of the State or subsidize and encourage private schools, where instruction can be given in all matters relating to street railway affairs, to which young men can go and fit themselves for the business or profession of street railroading. We have numerous commercial colleges. Schools of dramatic art, of music, etc., why not have schools for the science and art of street railroading and street railway management? Schools equipped with cars, motors, trucks and all the mechanical appliances, with a course of instruction in all the duties required of a street railway employee, embracing his relation to the public which he is expected to serve.

#### Power House Accountings\*

#### BY R. E. DANFORTH

The records kept in our power stations generally vary from practically nothing but a time book to a system which requires clerks to maintain. The question for discussion to-day, by the association is: "What records should be kept in the power stations that the station may be intelligently operated to the best economy." The object of this paper is to provoke discussion, in order that the members of your association may learn your opinions and experiences, and therefrom determine the accounting system which seems best suited for each local condition.

Power station records are kept for a two-fold purpose—to show the cost of power developed, and to enable the management to locate the uneconomical features of the plant. The accounts should show the amount of power generated or distributed, and the variour items, more or less classified, which enter into the cost of such power. It is, for instance, important to know that your firemen generate steam with the proper amount of fuel per horse-power, that the engines and generators convert this steam into electric power, with the least possible loss, and that in each of these operations the machinery is not only being worked to maximum efficiency, but with a minimum cost for repairs. It is further important to be able to determine whether the various units are cut in and out of service at the most economical time, to the end that the proper kilowatt capacity, and no more, is at times being operated.

To obtain the information here roughly described, certain records must be accurately kept. The several items may be briefly stated

as follows:

Weight of coal consumed. Gallons of water evaporated. Cost of labor in boiler room. Cost of boiler cleaning and repairs. Number kilowatt-hours current output. Number of units in service and hours each are run. Cost of labor in engine room. Cost of engine repairs. Cost of electrical repairs. From which should be derived: Fuel, per kilowatt-hour. Water, per pound of coal. Water, per kilowatt-hour. Labor in boiler room, per kilowatt-hour. Boiler repairs, per kilowatt-hour. Labor in engine room, per kilowatt-heur. Engine repairs, per kilowatt-hour.

In addition to the foregoing a carefully kept log is of great service to the engineer in keeping track of the work done by and

upon the various machines in his charge.

Total cost of power, per kilowatt-hour.

Electrical repairs, per kilowatt-hour.

Regular and frequent tests of combustible, of flue gas and ash, the inspection of feed and blow-off pipes, steam mains and valves and engine indicator cards, must not only be made, but systematically recorded and studied, and their lessons heeded. Ashes should be frequently weighed to determine the quality of fuel being furnished by the dealer. It is sufficient to obtain a clean card from your engines, but the cards must be carefully analyzed to ascertain the condition of cylinders and valves. Steam leaks however small should never be neglected, as the waste through a leak invisible to the eye often represents a considerable amount in the coal pile.

There is another fact that must be borne in mind—small plants do not require as elaborate accounts as large plants, and the larger the plant the greater the probability of loss through the usual method of depending on the opinion or judgment of some individual, rather than upon systematic and intelligent study of the

daily records.

One of the greatest aids in the study of engine service is found in a well kept load chart. Such chart may be compiled in a few minutes daily by the engineer, from recording instruments or from ammeter and voltmeter readings, taken at frequent intervals by the switchboard attendants. A fine example of such a chart was presented to your association two years ago by the Buffalo Railway Company, in connection with a paper on the Electric Storage Battery. On this chart was shown the number of engines in service at all times, and the work done by these engines, Niagara power and storage battery. At this station the engineer in charge consulted his charts in determining the most economical time to increase or decrease the engine capacity in service, and the proportion of peak load to be carried by the storage battery.

Concerning the blanks, forms and other details connected with power house accounts, engineers differ widely. A glance over the blanks and forms published within the last few years in the railway periodicals clearly shows a wide divergence. The writer has in mind also, sets of forms on file in his office, several of the blanks being huge sheets, calling for an endless amount of minor data, the compilation of which must be expensive and which is probably not used after being obtained; and of other sets of blanks which offer so little data that no idea of the work actually done can be shown thereon.

Each station or group of stations requires separate treatment in determining the details of the accounting system to be followed, but in the main the facts herewith briefly outlined cover the requirements.

#### Outing of the New England Street Railway Club

The annual outing of the New England Street Railway Club was held at Hampton Beach, N. H., on Thursday, Sept. 4, 1902, and was attended by about 140 members and their friends.

A special train left Boston via North Station, Causeway Street at 9:40 a. m. and arrived at Hampton at 11:07. Here electric cars were taken to the beach, which was reached about 11:15. Soon after arrival at the beach a ball game was called, and two nines, captained by Messrs. P. W. Whittemore and F. O. Nourse, played an exciting game. Bowling alleys were also in operation, and a number of the party enjoyed the fine surf bathing which the beach affords.

At 1:30 p. m. a fish dinner was served, and President Farmington presided. In the absence of Franklin Woodman, of Haverhill, Mr. Hayden made a few felicitous remarks, and then the athletic features that had been arranged were run off. E. D. Miller, of Boston, was clerk of course, ably assisted by F. S. B. Sias, with J. E. Johnston recorder. The judges were D. L. Prendergast, of Boston; F. G. Henderson, of Newton, and E. W. Goss, of Milford, with C. H. Hill, of Boston, starter, and P. W. Davis, of Boston, timekeeper. Four silver cups were offered as prizes to those scoring the most points in the games, and they were won as follows: First, P. W. Whittemore, winner of hundred-yard dash; second, R. W. Covant, winner of high jump; third, Mr. White, winner of potato race; fourth, F. O. Nourse, third in high jump and potato race.

At 4:45 p. m. the club left the beach for Haverhill by electric cars, and enjoyed a superb ride along the coast and country to that city, from which a train was taken for Boston at 6:47 p. m. The committees were: Transportation, Messrs. Wattles and Millar; subjects, Messrs. Winsor, Reynolds and Ellis; banquet, Messrs. Stone and Hodges; sports, P. W. Davis chairman, Messrs. Nourse, Sias, Millar, Coolidge, Pestell, Hart and Winter. The subject committee is now taking up the winter's work of the club, and the next regular meeting will probably be held in October in Boston.

## Legal Status of Reconstructed Steam Roads

An action has been commenced in the Superior Court by a taxpayer, at Cincinnati, to restrain the Cincinnati, Georgetown & Portsmouth Railway from entering the city over the tracks of the Cincinnati Traction Company. The suit involves the right of a reconstructed steam road to enter into traffic arrangements with an electric line. It is claimed that the interurban company can not enter the city without securing consents of propcrty owners and being awarded the contract after competitive bidding for the route. It is claimed the Cincinnati, Georgetown & Portsmouth is a steam road under the law, although it is being equipped with electricity, that it can not enter the city over the tracks of a street railroad, so-called, and, being a steam road, that it can not enter the city without condemning a right of way through the city. A similar injunction suit will be brought to enjoin the Cincinnati, Dayton & Toledo Traction Company from entering the city over the tracks of the Cincinnati & Northwestern, an old steam road recently acquired by the electric company and now operated as a part of it.

## The Strike on the Hudson Valley Railway

It is stated that the officials of the Hudson Valley Railway, of Troy, N. Y., have said that there will be no further negotiations with the striking employees with reference to a settlement of the trouble, and that the company will commence preparations to resume the running of cars. The conference at Glens Falls on Sept. 4 between representatives of the company, strikers and trades assembly, resulted in the drafting of a new agreement, which, when it was submitted to the men, was not accepted, and the conference came to an unsuccessful end.

<sup>\*</sup> Paper read at the twentieth annual convention of the New York State Street Railway Association, at Caldwell, Sept. 9, 1902.

#### Accidents on Electric Railroads-I\*

BY C. R. BARNES

As a representative of the Railroad Commission I have officially come in contact with nearly every manager of electric railroads in the State. My relations with them, I think, without exception, are cordial and friendly, and I hope that condition to continue, but I think your chairman has designs on me and is endeavoring to rupture the friendly feelings which now exist between the officials of electric railroads and myself. In carrying out this idea he has notified me to present to this convention a paper on accidents-he notified me, not requested me, to do so. You have continued him in office so long, he has become an autocrat. When he orders around such men as Vreeland, Ely and the rest of you gentlemen, and you do not resent it, I do not see what clse I can do but obey and wish I had a vote in the convention. Nero in his palmy days was not "in it" with this gentleman. I understand he is learning to play the fiddle, and I advise you to look out for your car houses and power houses.

But, seriously, gentlemen, the subject of this paper is at the present time a very important one. The author has had eight years' experience in the investigation of accidents in this State, and this experience has taught him the importance of the subject, and also how incompetent he is to present a paper on it before a convention of representative railroad men such as this. But to treat the subject in even my humble way, facts must be stated, and in doing this it is desired that every member of the association should know that there is no criticism on the management of any one particular road intended; but the general information in reference to the operation of all roads which has been obtained in my official position will be used in the hope that it may in a small measure aid in what you are all interested in accomplishing, namely, reducing the number of accidents to those which are incidental to the operation of an electric railroad and which experience shows to be practically unpreventable, even with reasonable care and foresight.

In the year 1898 there were 1,174.38 miles of electric railroads in this State; 4002 box, 3408 open, 10 mail and 208 freight, express and service cars operated. In that year there were 74 persons killed and 541 injured. In 1899 there were 1,225.16 miles of road; 4743 box, 3681 open, 139 mail and 631 freight, express and service cars operated. There were 126 persons killed and 589 injured. In 1900 there were 1,413.26 miles of road; 5098 box, 3666 open, 22 mail and 666 freight, express and service cars operated. There were 148 persons killed and 650 injured. In 1901 there were 1,548.66 miles of road; 5190 box, 3945 open, 10 mail and 558 freight, express and service cars operated, and 160 persons were killed and 867 injured. The complete reports of mileage and the number of cars operated for the year ended June 30, 1902, have not yet been received in the Railroad Commission office. In this year to June 30 there were 127 people killed and 823 injured. You are all familiar with the serious accidents which have occurred since June 30, one of which resulted in 14 deaths and the injury of 60 persons; another in 4 deaths and 20 or 30 injured; one where three were killed and several injured; two where one was killed, and several others where a number were injured.

These figures show that the death rate caused by accidents in reference to miles of road operated was .063 in 1898, .102 in 1899, .104 in 1900, and .103 in 1901. As stated above, these figures cannot be given for 1902. But, with the exception of the year 1901, in which year the death rate in proportion to miles of road was less than the year previous, there has been a continuous increase in the dath rate as compared to the mileage. This increase between the years 1898 and 1901 was .040, an increase of about 63 per cent. The percentage of passengers injured in reference to miles of road operated in 1898 was .462; in 1899, .480; in 1900, .450, and in 1901, .559. This shows a steady increase in the percentage of passengers injured in reference to mileage of road except in the year 1900, when the percentage was less than in the year previous. There has been an increase between the years 1898 and 1901 of .097, an increase of about 21 per cent.

These figures include the accidents on all of the electric railroads in the State, including city and other roads, and are compiled from the annual reports of the companies made to the Railroad Commission. It was the intention to have classified these accidents, and also to have made a percentage comparison based on car mileage, but the investigation of the number of serious accidents which have occurred recently has occupied so much time

that I was unable to make as detailed a statement of accidents and as clear a comparison of them with the growth of the electric railroads as would be desirable in a paper of this kind.

While these figures include the killed and injured resulting from all classes of accidents, a large majority of them are the result of head-on collisions, tail-end collisions, collisions at grade crossings of steam railroads, collisions at grade crossings of clectric railroads, derailments and failures of bridges and trestles. The future consideration of this subject will be confined to this class of accidents. The accidents incidental to city operation, such as striking persons and vehicles on the street, passengers injured boarding and leaving cars, passengers thrown from cars, etc., will not be discussed in the following portions of this paper.

The greatest loss of life and injury to passengers on electric railroads in the last five years has been caused by rear-end collisions; the next largest loss of life and injury to passengers has been caused by head-on collisions, and in this comparative line of the causes of death and injury to passengers are the collisions at grade crossings of steam and electric railroads, the derailment of cars and the collapse of bridges and trestles. The causes for this class of accidents are numerous, and to state only a small portion of them would be beyond the limits of a paper of this character. The more important ones will be briefly mentioned.

Head-on and rear-end collisions can be dealt with under one head, as the causes which produce them are in most cases similar. In the investigation of this class of accidents, it is found that motormen have two stereotyped excuses for their occurrence; first, "When I saw the car ahead of me I applied the brake, but it would not work;" second, "I then put on the reverse, but it would not take." The testimony of all persons directly interested in the operation of the cars in collision is taken in the investigation of accidents, and in nine cases out of ten this evidence goes to show that the motorman's statement was not true. When a motorman has been running a car the greater part of the day, making his usual stops without trouble, and in such a manner that the conductor's attention has not been attracted to them, this being the case on the run on which the accident occurred, it is safe to infer that the motorman is mistaken when he says the brakes would not work. Of course, there is always the possibility of the brake giving out on the stop just before the accident; but in the investigation of this class of accidents the inquiry must extend further than the crew of the car; it must be carried to a thorough examination of the methods of operation, the physical conditions of the road, the kind of brakes used on the cars, and the equipment of cars, including sand boxes. In the investigation of the methods of operation of railroads in reference to accidents, the statement can safely be made that in a large majority of them the primary cause of the accident can be traced to inefficient management of the road, and while the motorman may be the immediate cause of the accident, it in all probability would have been prevented had the management been more systematic.

There has been a large number of tail-end and head-on collisions. The larger portion of these have been caused by motormen running past switches where they were due to meet a car. Several have been caused by misunderstanding of train orders transmitted over a telephone system; several by conflicting orders being given by different officers of the company; some by crews attempting to "steal" a switch; several by crews taking it for granted that a car which was due at a junction of two lines had passed that point; others by the failure of block signal systems; a few by cars getting beyond the control of the motorman on heavy grades and not stopping at a switch where they should have stopped; a number by facing-point switches on crossovers on double tracks, and there have been two cases where motormen have seen cars approaching them on the same track, and have continued at full speed, with the intention of making the other car back up to the switch, the speed continued on both cars for the same purpose until it was impossible to stop either; two were caused by the running of special and work cars over a road without proper notice being given to the regular cars; one head-on collision was caused by an ordinary passenger car being used as a work car and not being placarded as such; a regular car met it on a switch where another regular car was due; supposing it was the regular car the crew ran out onto the main track, and the two regulars met in head-on collision. Among the causes of tail-end collisions may be mentioned the 500-ft. distance rule in use on a large number of suburban and interurban railroads; cars coming to a stop at points on the road where the view of an approaching car is limited; cars "running away" on grades and on wet and slippery tracks; regular cars running into work cars, standing upon the main track without protection; broken trolley wheels leaving a car standing on the track without lights; trains being run in sections without the rear end of the first section being properly protected, and a number of other causes.

<sup>\*</sup> Read before the twentieth annual convention of the New York State Street Railway Association at Caldwell, N. Y., Sept. 9, 1902.

The accidents at grade crossings of steam and electric railroads and at grade crossings of electric railroads, are invariably caused by violation of the running rules of the company, for I do not know of a crossing of steam and electric tracks in this State, where there is any considerable volume of traffic on the steam road, but what the company's rules require the electric car to come to a stop and the conductor to go ahead and flag his car over the crossing. But some collisions have been caused by the power giving out while the electric car was going over the steam tracks, or by the trolley leaving the wire while this was being done, in this manner stalling the electric car in front of the steam train or engine. At nearly every crossing of two electric tracks the cars on one of them are required by the rules to come to a full stop before proceeding over the crossing.

The causes of derailment of cars are so varied that it would be almost impossible in the limited space of this paper to enumerate them. The principal causes, however, are: Cars going around sharp curves at too high a rate of speed; the spreading of tracks on curves; the irregularity and poor alignment of curves and lack of proper elevation on them; where the grooved rail is used, the groove being filled with stone, sand or other substances; frogs and switches not being properly placed; open switches; poor alignment and surface of track; broken flanges on wheels; axles out of line; loose wheels; wheels not properly gaged, etc.

There have been several accidents resulting from bridge and trestle failures. These in most cases have been caused by leaving old structures in the road and increasing the weight of cars operated over them without increasing the strength of the structures. There have been two derailments on bridges, resulting in serious injury to passengers, brought about by the custom of planking highway and street bridges flush with the top of the rail, without proper guards to prevent a car from going off the rails and over the side of the bridge. This planking flush-with-the-top-of-the-rail is almost the universal custom and is a very dangerous one.

These are the most frequent accidents occuring on suburban and interurban railroads and the principal causes of them. The question now to be considered is how to prevent their occurrence. The solution of this problem, to some minds, appears to be an easy one. Read any of the papers of the daily press after an accident has occurred, and the editor volunteers a ready solution of the question of preventing accidents on electric railroads. In some of these papers you will see that double tracking a road would prevent all accidents on it in the future; in others equipping the cars with John Smith's automatic brake would prevent accidents of all characters; in another, the adoption by the company of Bill Smith's block signal device would be a guarantee against accidents, and so on through a long list of suggestions, the writers being confident of their ability to judge of the merits of the different devices mentioned and their positive knowledge that the adoption of that device or plan would be the solution of the question under consideration. But you, gentlemen, who are more experienced and far more interested than the editors in preventing accidents know that accidents on electric railroads have multiplied in variety and number with the advances made in electric railroading. It is not a case of a sick child where a dose of paregoric can be administered and the disease will disappear. The present conditions result largely from the tireless efforts of manufacturers and inventors of electrical machinery to increase the efficiency, power and speed of their apparatus, and from the failure of electric railroad managers to keep pace with them in track construction, safety devices and methods of operation. This condition has been a growth of years, and the remedy for it must be found in the free use of safety appliances, in more perfect and complete construction and equipment, and more careful and systematized methods of operation.

It is taken for granted that every member of this association realizes that the electric railroad business is face to face with grave problems; that the numerous serious accidents, not only in this State, but throughout the country, are injuring the standing of the electric railroad before the public, and that if they continue, the revenues must be impaired for the reason that people will lose confidence in electric railroads and will prefer to patronize steam roads. Up to this time the electric car has met with favor by the public, preference being given to it for suburban and interurban rides, even when a destination could be reached quicker by the steam roads. The comforts of the electric service, including fresh air, freedom from smoke and cinders, the unobstructed view which can be had from the open car, and especially the combined pleasures of a ride on them through a country district have caused the public to patronize them liberally; but these frequent accidents are creating alarm and distrust. The confidence of the public must be restored, or you will not only drive people from the electric cars, but you will drive capital from investment in electric railways. These statements are intended to apply only to roads other than the distinctively city roads in the State. The city railroads are operated in a manner which reflects credit upon the management of them. This condition of safe operation does not exist on all of the suburban and interurban roads and upon most of them the railroad commission has had to investigate serious accidents. Still, there are several of these roads which are operated under rules and regulations which compare favorably with steam railroad methods. On one of them there is a complete telegraph train dispatching system in use; on another, a train dispatching system, in which the orders are transmitted by telegraph and telephone; on several others there are train dispatching systems, the orders being transmitted by telephone only.

Of course, it is expected in a paper of this nature, after describing the character of accidents occurring on electric railroads, that suggestions should be made to prevent their occurrence, and this is the point where I realize my inability fully to meet the requirements of the situation. However, I will mention a few points in which my experience and observation have led me to believe that improvements could be made. As stated before, the investigation of accidents in a large majority of the cases shows a defect in the organization of the operating force and in the methods of operation. A well-organized operating force on an electric railroad can be compared to the motor, pinion and gear wheel of an electric car, the president being the motive force of the organization compared to the motor; the superintendent or general manager, through whom the president's policies are carried out, compared to the pinion; and the heads of the different departments, including motormen and conductors, to whom the superintendent issues his orders, represented by the different cogs on the gear wheel. The whole forms an unbroken line in the case of the organization from the president down to the motormen, conductors and other employees, as in the combination the pinion and gear transmit the power of the motor to the traction wheel. In the latter case each member must be in perfect working order, each one must be fully equipped and efficient in itself; any defect in one shows a defect in the whole. This is also true of the organization. If the president lacks in ability, sound judgment and common sense, he will interfere with the operation of the organization, and above all he must not reach over beyond the pinion, the superintendent, in carrying out his ideas and policies as illustrated in the case of the motor, pinion and gear; if the leads of the motor extend beyond the pinion and come in contact with the gear wheel, a damage is caused which results in the breaking down of the whole combination. It is not meant by this statement that the president must not come in contact with the employees of the road, but that he must not interfere with the operation of the road when it is in operation, except through the proper channel, the general manager or superintendent. When the machinery is at rest after the day's work is done, or when employees are off duty, the more he comes in contact with them, the better it is for everyone interested in the welfare of the road; but in the regular routine of business the president's duties consist in outlining policies and plans for the benefit of the road; the details of the execution of these plans and policies devolve upon the superintendent. The superintendent of a railroad should be a man of ample experience and capacity, qualified to take charge of the operation of the road in all its branches, carrying out the views and ideas of the president, but to all intents and purposes he should be the czar of everything pertaining to the direct operation of the system. The heads of the different departments, motormen and conductors, as represented by the gear of the combination, must mesh into the different apertures between the cogs of the pinion, and if one of the cogs of the gear becomes rusted and will not readily absorb the lubrication, which in the case of the organization is represented by the book of rules and special instructions, it weakens the whole structure, and if not removed will cause a breakdown. When a cog becomes worn out it must be removed from the system. In the case of the organization, when a motorman becomes too old for service, he must be removed from that position, and usually there are places on an electric road into which an old, faithful motorman can be put, where he will not be a detriment to the service. If a motorman becomes too large for his position, as in the case of the cog, he will not mesh into the aperture assigned to him, but will interfere with the smooth running, and must also be removed. This illustration might be showing that perfect organization carried further, essential thing to the welfare of an electric railroad. But the illustration clearly sets forth one point which to my mind is essential to the safe operation of any road; that is, the duties of the superintendent or general manager should be confined to carrying out the instructions received from the president in reference to the operation-and nothing but the operation-of the railroad. He should not be burdened with any additional duties, such as the supervision of construction of extensions, or the negotiation of stocks or bonds; his whole duty should be trying to earn dividends, not to negotiate the securities of the road.

#### The Manhattan Elevated Company's Report and Grand Balance Sheet

The report of the Manhattan Elevated Railway Company, of New York for the year ended June 30, 1902, as filed with the Railroad Commissioners, shows:

Commissioners, shows		
	1902	1901
Gross receipts	\$10,665,911	\$9,416,888
Operating expenses	5,518,585	5,253,229
Earnings from operation	\$5,147,326	\$4,163,659
Receipts from other sources	\$625,800	836,383
Gross income	\$5,773,126	\$5,000,042
Interest and taxes	2,699,670	2,677,706
Net earnings	\$3,073,456	\$2,322,336
Dividend (4 per cent)	1,920,000	1,920,000
Surplus	\$1,153,456	\$402,336
Passengers carried		190,045,741
The general balance sheet of the comp	pany, as of J	June 30, 1902,
shows:		
ASSETS		

ASSETS		
	1902	1901
Cost of road and equipment	\$76,826,427	\$68,432,898
Cost of leases	14,014,000	14,014,000
Real estate	3,239,864	3,268,348
Sundries	26,613	240,557
Supplies on hand	556,273	347,908
Due by agents, traffic	. 753	392
Kulın, Loeb & Company redeemable		
second mortgage Metropolitan bonds		9,000
Due by others, traffic	14,835	9,361
Due by companies and individuals	44,208	203,207
Cash on hand	221,847	150,697
Loaned on collateral	3,763,522	9,604,416
Prepaid insurance	13,646	17,214
Central Trust Company, trustee, etc	4,593	4,593
Estate J. Gould suretyship		300,000
Total LIABILITIES	\$98,726,580	\$96,602,594
Consolidated capital stock	\$47,999,700	\$47,999,700
Subject to income on capital stock	300	300
Funded debt	39,545,000	39,554,000
Convertible bonds and certificates	42,035	42,035
Interest on funded debt due and		
accrued	292,709	362,709
Manhattan 4 per cent bonds, special		300,000
Taxes in litigation	3,377,301	2,663,911
Dividends unpaid	7,358	27,358
Sundries	56,351	36,038
Coupons due, not presented	60	60
Due for wages	114,559	80,288
Due for supplies, taxes, &c	963,219	376,804
Open accounts	68,960	53,118
Profit and loss (surplus)	6,259,728	5,106,273
Total	\$98,726,580	\$96,602,594

#### An Electric Railway Between Rochester and Syracuse

The granting by the Railroad Commissioners of New York of the application of the Rochester, Syracuse & Eastern Electric Railway Company's application to build an electric railway between Rochester and Syracuse marks the close of a long and stubborn fight which the company has waged with the New York Central, the Rochester & Eastern Railway and the Monroe County Belt Line. The new road, when completed, will run through the villages of Brighton, Penfield, Fairport, Egypt, Macedon, Palmyra, Port Gibson, Newark, Lyons, Lock Berlin, Clyde, Savannah, Port Byron, Weedsport, Jordan, Peru, Memphis, Warner's, Amboy, Belle Isle and Solvay, and it will cross the New York Central five times. The capital stock of the company is \$3,500,000, but this is to be increased to \$5,000,000, it is said. The officers of the company are: Lyman C. Smith, of Syracuse, president; F. W. Roebling, of Trenton, vice-president; Charles A. Lux, of Clyde, secretary; A. K. Hiscock, of Syracuse, treasurer; Clifford D. Beebe, of Syracuse, general manager; Thomas H. Mather, of Syracuse, chief engineer.

#### Yellow Journalism and Railway Statistics

When the imaginative mind of the daily newspaper man is focused on the preparation of an article that relates to electricity in any of its various applications, one who knows is generally treated to a good laugh when the article finally makes its appearance. Of the many, many instances of the ludicrous in these cases the description, some time since, of a wattmeter by an enterprising newsgatherer of Philadelphia is far in advance of any other. But it is not only in trying to describe knowingly some technical point that the daily newspaper man causes those who know to laugh, for when he begins to juggle statistics he is equally as funny. Of late there has been a tendency to show, by comparison, the magnitude of the money returned to street railways through their conductors, and from a recent article in a paper in one of our Western cities, which is, by no means, as interesting as some we have seen, we quote:

"It is estimated that when the twelve months of the present year are at an end, Dec. 31, the street railway company's cars will have carried between 13,000,000 and 14,000,000 passengers. Last year, however, the 11,000,000 passengers are vouched for by the company's books and reports, and, taking this for a basis, some interesting comparisons may be drawn. Supposing that each of the 11,000,000 passengers had paid his fare with a nickel and the little coins carefully were hoarded. Put together in a giant scales, for nothing in the weighing machinery in the city or in the State could be found big enough to weigh them, it would be found that the coins aggregated a weight of nearly 160,000 lbs., The limitation of the weight to be carried on the or 80 tons. biggest freight car is placed at 40 tons carrying power, and it would, therefore, be seen that two freight cars of the ordinary design and strength could not safely transport the coins taken in by the company for the year 1901. Aggregating the nickels, as to value, the amount would reach more than a half a million, or, in exact figures, \$350,000. This amount means that should it be distributed among the inhabitants of the city, every man, woman and child could take 122 rides on the local street cars. The total weight of 11,000,000 passengers, taking 130 lbs. as the average weight, would mean that the cars of the company carried no less than 1,430,000,000 lbs. of live weight, or, to make the figure more impressive, 715,000 tons. The building at the corner of (here intersecting streets are named) lifted bodily on to scales would probably weigh but a small portion of 715,000 tons. The weight is just about 715 times the total weight of all the electric cars in the city. It represents more tonnage than the combined tonnage of the United States Navy and the steamers of the trans-Atlantic liners sailing under the American flag. Place the passengers carried by the local cars in a line and allowing each passenger I ft. of ground upon which to stand, the line would reach from Grand Rapids to Denver, or, in miles, the line would stretch out unbroken for nearly 2000 miles. In handling this vast business each car of the local company would carry some 183,333% passengers during the year, double the entire population of the city in which it runs, and would have to carry loads filling it to the platforms 3666 times, counting 50 passengers to a load.

#### Value of Texas Oil for Fuel

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It is promised that reliable data upon the value of Texas oil for fuel will be forthcoming in a paper now being prepared by Charles W. Hayes, of the Geological Survey, for publication in the official records of the department. The paper will give the relative fuel value of Texas and various other oils compared with both bituminous and anthracite coal. A practical monopoly exists in anthracite coal, for the reason that its presence is confined to a few square miles in Pennsylvania, which are owned and controlled by a comparatively few persons through corporations. Small quantities of anthracite are found in Colorado and New Mexico, and some anthracite is found in Arkansas, but those fields are so small that they are not regarded as factors in the supply of hard coal. About 4,000,000 barrels of Texas oil were sold last year for fuel purposes. It was sold from 25 cents to 30 cents per barrel. No economical method has been discovered for refining this Texas oil for illuminating purposes, and its use is likely to be confined to purposes of fuel. Many attempts have been made to secure its adoption in large power plants, but thus far the cost of transportation and the lack of confidence in the supply has prevented the general use throughout the North.

#### Topics of the Week

# Stimulated by recent deplorable accidents, the Massachusetts Railroad Commission has intimated to the street-car companies of the State that the time has come for them to equip all their cars with power brakes. It is said the companies are endeavoring to comply with the suggestion.

Electric roads centering at Columbus are agitating the question of asking the Legislature of Ohio to appoint a "State Inspector of Electric Railways" to regulate traction lines in the same manner in which steam roads are regulated. The idea is to have an officer supervise the care of tracks, cars, overhead wiring and other matters pertaining to the operation of the lines. The matter will probably be brought up at the coming special session of the Legislature.

A newspaper report from Toledo declares that a car on the Toledo & Monroe Railway covered the 17.4 miles from Monroe to Alexis, Mich., in exactly seventeen minutes. The car used for the trial was the No. 18 of the Lake Shore Electric Railway. It is equipped with four 125-hp motors. Mention of trials by this car have been made in the Street Railway Journal. Its latest performance is claimed to have been the fastest run ever made by an electric car in this country.

An official notification has been issued by Commissioner of Health Lederle, of New York, directed to the Rapid Transit Subway Commissioners, advising them that the subway exeavation must be cleaned of offensive matter, stagnant water and sewage; that steps must be taken to prevent the dumping of refuse into the excavation and to arrest any offenders in this respect; that in place of the present open sewers properly covered ones must be used and that provision must be made for the disinfection of the subway.

Two important facts about the World's Fair at St. Louis are related in an official bulletin recently issued by the publicity department, namely, that "the price paid for the Louisana Territory was \$15,000,000," and that the "total funds for the World's Fair to date, including the State and Government appropriations, aggregate \$20,000,000," or \$5,000,000 more for the celebration of the event than the original eost. Evidently, the importance of the acquisition and the value of the territory is more fully appreciated to-day than at the time of the purchase.

There has been considerable speculation as to the meaning of the work that is now being done by the Pennsylvania Railroad Company in Jersey. A shaft has been sunk in the North River on the line of the proposed tunnel from Long Island City to the Jersey shore for the purpose of ascertaining the supporting strength of the material in the bed of the river and the conditions with which the engineers must cope when the construction of the tunnel is undertaken. The shaft is in the North River opposite the Erie freight pier in Weehawken, about 700 ft. out from the wharf. It runs 100 ft. below the wharf level and 130 ft. into the bed of the river. Below that depth a screw pile has been sunk. The engineers for the Pennsylvania Railroad Company explained that this shaft was not part of the tunnel construction, but was put down as a test to supply them with information necessary before the building of the tunnel.

The Commissioner of Public Works, of Rochester, N. Y., has publiely commended the street railway company for its liberality and public spirit in meeting the requests of the eity for paying the expense entailed in keeping the streets upon which the company's lines are operated clear of snow. "In view of the struggle we have in keeping up the street and sewer work," said the commissioner, "I am much encouraged by the attitude of the Roehester Railway Company. Some time ago I made an argument to the officials of the company that it would be proper for them to pay something toward the extra cost of removing snow from the streets accumulated through the cleaning of the tracks. Such a thing had not been done before, but it seemed proper that the eompany should meet us part way and help out somewhat. After mature deliberation on the part of the officials, they finally decided to give us \$2,000. This is encouraging not only in the amount of money but as showing the spirit of the management of the company in liberality and being up-to-date."

#### An Old Accident Fakir Caught

In the arrest a few days ago in New York of William J. Doran the police of New York and Philadelphia believe they have eaptured the clever aceident fakir, who, about a year ago, was run down by the claim department of the Union Traction Company, of Philadelphia, and who even now is wanted in the latter eity to answer charges of fraud in connection with an accident that happened there a few weeks ago. Doran is well educated, and when he desires to enact the role of a gentleman he ean deceive all who are not acquainted with him. He is an athlete of ability, and to his ability as a contortionist is credited his success in mulcting street railway companies. He is said to have first begun operations in 1900, and has had associated with him in his work accompliees equally as clever as himself. Even his wife did a turn for him in Philadelphia. It is said that in his latest exploit Doran threw himself from a car into the gutter, where he laid motionless until assistance reached him. In reality he was not injured in the least, but when he was picked up one of his ankles was out of joint—the result of a trick—and he said he was suffering great pain internally. The unsuspecting street railway officials are said to have settled this claim, paying Doran a liberal sum.

#### ENGINEERING SOCIETY

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.—The next meeting of the Institute will be held at 12 West Thirty-First Street, New York, on Friday, Sept. 26. A paper will be presented by B. G. Lamme, of Pittsburgh, on "The Washington, Baltimore & Annapolis Single-Phase Railway." The following meeting will be held at the same place on Friday, Oct. 24, and a paper will be presented by Prof. Charles P. Matthews, of Lafayette, Ind., on "An Integrating Photometer for Glow Lamps and Sources of Like Intensity."

#### Street Railway Patents

[This department is conducted by W. A. Rosenbaum, patent attorney, Room No. 1203-7 Nassau-Beekman Building, New York.]

#### UNITED STATES PATENTS ISSUED AUG. 26, 1902

707,591. Underground Trolley System; F. A. Howarth, Johnstown, N. Y. App. filed Nov. 22, 1901. The conductor is mounted independently in a flexible conduit, which is distorted by the trolley to carry the walls of the conduit into contact with the conductor.

707,606. Trolley for Use in Electric Traction; J. G. Lister, Sheffield, England. App. âled Dec. 14, 1901. The trolley wheel is pivoted to the upper end of a pole and controlled by a spring independent of that which acts on the pole.

707,640. Tramway Switch; A. B. Robinson, Diekinson, N. D. App. filed Oct. 1, 1901. A spear-headed lever is moved by a projection from the ear to throw the switch point in any direction.

707,656. Truck Bolster; C. Vanderbilt, New York, N. Y. App. filed Feb. 17, 1902. The invention is a form of truck bolster built up of rolled metal beams, securely united and braced at their ends by the spring seat, which is of a form peeuliarly serviceable for the purpose.

707,663. Rail-Bond; M. F. Whiton, Hingham, Mass. App. filed Feb. 3, 1902. The feet of a laminated bond are held solid by being dipped into solder and a rivet which passes through all of the laminations.

707,692. Brake Handle; H. W. Gibbs, Boston, Mass. App. filed June 20, 1902. The inner end of the crank handle has a eylindrical chamber provided with vertical ratchet teeth, and the upper end of the brake staff inclosed in said chamber is provided with a transverse slot in which is a horizontally sliding pawl adapted to be moved in opposite directions by the alternate contact of its ends with the ratchet teeth, whereby an end of the pawl will always be projected into a position to engage the ratchet tooth next in advance of the same when the handle is moved to set the brakes.

707,844. Electric Railway System; J. C. Henry, Denver, Col. App. filed April 9, 1901. The positive and negative conductors are housed and protected by the flanges of an I-beam arranged between the rails.

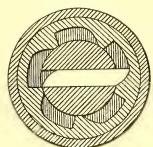
707,929. Switch Operating Device; F. S. Jones, Export, Pa. App. filed Dec. 14, 1901. The switch points are operated by projecting a shoe from the platform of the car to engage with levers in the roadbed.

#### UNITED STATES PATENTS ISSUED SEPT. 2, 1902

708,024. Coupling for Electric Motors; F. E. Case, Schenectady, N. Y. App. filed Fcb. 15, 1901. A coupling for conductors between cars, one member having a pair of brushes which bears against a head carried by the other member.

708,036. Mounting for Electric Heaters; E. E. Gold, New York, N. Y. App. filed Oct. 16, 1901. A heater adapted for twin movable car seats, it being placed in the frame beneath the seats and adapted to move with the latter.

708,048. Trolley Harp or Fork; O. P. Johnson and F. P. Crockett, Kalamazoo, Mich. App. filed April 28, 1900. An improvement in the shape of the spring contact between the roller and the harp.

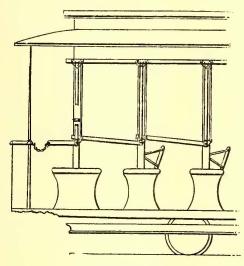


PATENT NO. 707,692

708,151. Step for Street Cars or Other Vehicles; C. W. Keyler and A. Matz, Cincinnati, Ohio. App. filed April 1, 1901. Details. 708,131. Attachment for Car Steps; J. H. Fassell, Nashua, and J. E. Warren, Greenfield, N. H. App. filed Jan. 25, 1902. The bottom step is carried on the end of a rod adapted to be moved in a diagonal direction to open and fold the step by gearing.

in a diagonal direction to open and fold the step by gearing. 708,157. Controller for Electric Motors; F. A. Merrick and E. W. Stull, Johnstown, Pa. App. filed Jan. 2, 1902. A locking device whereby the series-parallel switch, normally held at its series position, can not be operated to connect the motors in multiple until the latter have been brought to a sufficient degree of speed by the operation of the rheostat switch.

708,158. Controller for Electric Motors; F. A. Merrick and E. W. Stull, Johnstown, Pa. App. filed Jan. 2, 1902. Electromagnetic devices of improved character for "blowing out" arcs at the controller contacts.



PATENT NO. 708,209

708,175. Suspended Railway Vehicle; W. Schmitz, Elberfield, Germany. App. filed Nov. 5, 1901. A peculiar arrangement of the masses of the structure to have the lines of gravity passing through the center of the rail-head.

708,198. Trolley; J. W. Brooks, Indianapolis, Ind. App. filed Jan. 16, 1901. An anti-friction knuckle joint in the harp to allow the wheel to follow irregularities in the wire.

708,209. Side Guard for Cars; J. H. Donnelly, Philadelphia, Pa. App. filed May 15, 1902. A bell crank is pivoted to the post at the end of each cross-seat and has a long arm adapted to close the exit opening. All levers are connected by a single mechanism to be moved at once.

708,462. Vehicle to Be Used in Electric Traction on Railways; G. Cawley, Westminster, England. App. filed June 3, 1902. A vehicle especially constructed to carry boilers, engine, dynamo and motors for electric traction.

#### PERSONAL MENTION

MR. H. H. WILLIAMS, master mechanic of the Brooklyn Rapid Transit Company, has handed his resignation to President Greatsinger, of the company.

MR. GEORGE F. McCULLOCH, president and general manager of the Union Traction Company, of Indiana, and his wife have sailed for Europe, where they will spend about two months.

MR. P. L. GRIFFIN, prominently identified with the Pennsylvania & Mahoning Valley Railway, at Niles, Ohio, has resigned from that company to become superintendent of a new road at Louisville, Ky.

MR. HARRY G. FOLTS, a well-known promotor of electric railways, died at his home in Salem, Ohio, a few days ago. At the time of his death Mr. Folts was promoting an electric railway from Salem to East Liverpool.

MR. GEORGE C. RICHARDS has resigned as manager of Reeves' Park, owned by the Toledo, Fostoria & Findlay Railway. Under Mr. Richards' able management the park has become one of the most successful of its kind in the country.

MR. CHARLES VADAKIN, formerly division superintendent of the Baltimore & Ohio Railroad, has been placed in charge of the work of rebuilding the Newark-Granville division of the Columbus, Buckeye Lake & Newark Traction Company's lines.

MR. MATHEW M. ROBEY, superintendent of the Tiffin Electric Railway & Power Company, died a few days ago at his home in Tiffin, Ohio. Mr. Robey superintended the building of the street railway lines in Tiffin, in 1892, and had been connected with the company ever since.

MR. E. L. JEWETT has been appointed general foreman of the surface shops of the Brooklyn Rapid Transit Company. Mr. Jewett has had valuable experience in the mechanical departments of the Twin City Rapid Transit Company and the Chicago City Railway Company, and he is exceptionally well equipped for his new duties.

MR. B. S. JOSSELYN, general manager of the Kentucky & Indiana Bridge & Railroad Company, has resigned from that company to become general manager of the Hudson Valley Railroad, of Glens Falls, N. Y. Mr. Josselyn has been general manager of the Kentucky & Indiana Bridge & Railroad Company for three years. He obtained his railroad training in the far West, and is well fitted for the position to which he has been appointed.

MR. W. G. WAGENHALS, at present general manager of the Millcreek Valley Railway Company, of Cincinnati, Ohio, which has been leased to the Cincinnati Interurban Company, will retire from the company on Oct. 1, when the lease becomes operative. Mr. Wagenhals, after retiring from the Millcreek Company, will devote his entire attention to supervising the building of an electric railway out of Cincinnati that is to be built by Cincinnati interests.

MR. HENRY L. CLEVERDON, chief deputy county engineer of Cuyahoga County, Ohio, who lives near Dover, was seriously injured a few days ago by being forced to jump from a bridge on the Lorain & Cleveland Railway, into a ravine, a distance of over fifty feet. Mr. Cleverdon was crossing the bridge on foot when a car backed towards him unexpectedly. Mr. Cleverdon was formerly engineer for the Lorain & Cleveland road, and superintended the building of the bridge on which he was injured.

MR. W. B. BROCKWAY, secretary of the Street Railway Accountants' Association of America, has severed his connection with the New Orleans & Carrollton Railroad, Light & Power Company, of New Orleans, La., and has accepted a position to represent Messrs. Isidore Newman & Sons, of 25 Broad Street, New York City, in their accounting departments of street railway and electric light companies. Mr. J. K. Newman, of the firm, was president of the New Orleans & Carrollton Railroad, Light & Power Company before the consolidation of that company with the New Orleans Railway Company. He has now decided to take up his residence in New York City to look after the many street railway and lighting properties in which he is interested.

MR. THOMAS B. WHITTED, manager sales department, Denver office of the General Electric Company, has resigned to become consulting engineer for the electric and gas properties controlled by Mr. Joseph J. Henry. Mr. Whitted is one of the best-known men in the electric business in the West. Starting nearly ten years ago in the shops of the General Electric Company at Schenectady, N. Y., he worked his way, step by step, until three years ago he became engineer of the Denver office, and a year later manager of the sales department. His success, both as salesman and engineer, and his agrecable personality have endeared him to the business men of the community, all of whom extend their best wishes and congratulate Mr. Henry in securing such an able man.

### FINANCIAL INTELLIGENCE

#### THE MARKETS

The Money Market WALL STREET, Sept. 10, 1902. The money market during the last fortnight has rapidly approached the situation which has been foreseen for some time past. Currency has begun to move in quantity to the West to supply the usual autumn requirements in the harvest sections, the Treasury has continued to withdraw large sums, chiefly on account of heavy customs collections, surplus bank reserves have declined sharply, and money rates have advanced. About half the New York institutions find themselves already below the legal limit of reserve, while the \$4,000,000 remaining to the Clearing House Association in the aggregate is considerably the lowest for this period in recent years. The rise in money rates has been about what is to be expected under these circumstances. Time loans have been marked up generally from 5 per cent to 5¾ per cent, with lenders disposed to hold off for 6 per cent. Call money, meanwhile, commands an average 8 per cent on the Stock Exchange, with an extreme 10 per cent recorded in some instances. As yet the stringency has not grown acute enough to compel any general curtailment of loans. The Clearing House banks during the last few days have withdrawn their credits freely, but the deficiency has been supplied by trust companies and out-of-town banks, who, as usual, are the ones to reap the most benefit from the high-money premiums. It is evident that relief must be forthcoming very shortly for this rather critical situation. Such relief will probably be derived from at least three distinct sources-first, through decrease of local loans, either by the process of shifting already witnessed, or by direct recall; second, through expansion of banknote issue, and third, through imports of gold from abroad. The first of these movements has been going on quite extensively for several weeks, and undoubtedly will continue. The second has also begun to some extent. Through the energetic co-operation of the intelligent head of the Treasury Department everything is in readiness to expand note issue as fast as the banks are able and willing to deposit the necessary security. It is unofficially stated that some \$15,000,000 government bonds have been collected and will be turned in against new circulation, as the banks see fit. As for the third and most important source of relief, the recent sharp fall in sterling exchange is sufficient indication that the time for gold imports is not far distant. A further decline of 11/2 cents in the pound sterling would bring rates to the point where gold could be profitably brought from abroad. As the foreign banks are unusually well off this season, and as Europe's own demands are comparatively light, it would not be surprising if we were to get between twenty and thirty millions from Europe during the next month or six weeks. This, with the expansion in note issues, and such natural loan contraction as there may be, will go far towards meeting the fall requirements. It is hoped that the assistance will be large enough to render any forced disturbance of credits unnecessary. But as a requisite to obtain this aid, it is obvious that money rates for some time must be maintained at their present

#### The Stock Market

high level.

The uncertainty regarding money conditions is the absorbing point of interest in the current stock market. Cautious people see in this sufficient reason for refraining from taking any fresh risks, either in investment or speculation. But their attitude is not shared by the restless spirits on the Stock Exchange who have made vast fortunes by the rise in values during the last few years. The prevailing idea among this class of operators is that a money market stringency cannot last, and that a temporary stringency is not a serious matter. With a boldness and confidence which rivals anything in Wall Street history, they have kept on aggressively with their campaign for higher prices, and up to the present their efforts have met with conspicuous success. The average price level stands now at the very highest of the great upward movement, yet neither this nor the fact that the rise has been in progress almost without interruption for over three months, seems to be any deterrent. Oldtime observers who see all former rules and precedents rudely overturned, are utterly at a loss to comprehend the present operations. The majority are inclined to analyze them as an exhibition of the gambling spirit running rampant. Yet whether or not this is the truth, it is certainly plain that real investment holders and the important financial interests, are in no hurry to dispose of their holdings. It is easy to account for the great buying power in the market, but it is less easy to account for the absence of selling,

except on the often-expressed theory that the financiers who control the various railroad properties are afraid to sell lest they lose their controlling interest. Mr. Morgan's recent circular to the Southern Railway stockholders, asking leave to extend the voting-trust, and the reduction of the Reading dividend in order to prolong the voting-trust in that company, are calculated to confirm this view. If relief should come soon to the monetary tension, it would leave no check upon the present campaign for the rise.

The local traction stocks have been governed mainly by the general speculative conditions prevailing. Brooklyn Rapid '1 ransit appears to be in the hands of the pool which has figured most prominently in every recent advance in the book. Its operations have been noticeably more confident since the publication of the latest and relatively favorable monthly statement of the company's earnings. In Manhattan the late advance has reflected chiefly the quiet accumulation of the stock which has been noted for some time, with the addition of some forcing of the price by a number of the large professional operators. Metropolitan has merely moved up sympathetically with the others, not showing any special activity. Nothing has been done in Metropolitan Securities.

#### Philadelphia

It has been a period of generally advancing prices during the last two weeks in the Philadelphia traction stocks. American Railways again made a new high record, selling up to 53 on heavy trading. Discussion of an increase in dividends continues to be the main incentive in the movement. A new high level has also been reached by Philadelphia Rapid Transit, the stock selling as high as 15% on Monday, with indications of fresh operations for a rise. Union Traction has not been affected yet by the latest move, and the shares have dragged around 4734. There is nothing new in connection with the property and to all appearances the rise in Rapid Transit is merely part of a speculative campaign which has as its object to make a more attractive market for the stock. Railways General has shown fair activity at an advance to 63%. The deal in Fairmount Park Transportation is still on, but the public knows nothing more than that an offer has been made for the property, which has not yet been accepted. The stock rallied sharply from 31 to 34, and later reacted to 33. The only other sales in stocks were Easton Electric at 19½, Philadelphia Traction at 100¼, Consolidated of New Jersey at 6934, and Union Traction of Indiana at 51. The feature of the bond dealings has been heavy trading in American Railways 5s, which sold up from 1033/4 to 1071/4, the advance being sympathetic with the rise in the stock. Electric People's Traction 4s have also been strong and active, selling "ex" the semiannual interest of 2 per cent from 98 up to 983%. Other bond sales include Union Traction of Indiana 5s at 1011/2, United Railways 4s at 871/2, Citizens' Passenger of Indianapolis 5s at III, Indianapolis Railway 4s at 8734, and Newark Passenger 5s at 11578.

#### Chicago

The influence of the general speculative revival has been felt in a sharp advance in Chicago Union Traction, the common gaining 2 points to 181/2, and the preferred the same to 511/2. It is said, however, that the gross receipts on the road for August were some 15 per cent over a year ago. The City Railway earnings are reported to be more than 16 per cent on the capital stock for the year, or enough to leave a surplus of \$1,500,000 after payment of dividends. Elevated securities have been fairly firm and active, but with no pronounced change in prices. Metropolitan common is higher at 391/2, and the preferred is strong at 90. Northwestern common has sold at 36½, and Lake Street at 10¾. Plans for the financial readjustment of the last-named company will not be announced until after the 15th, and possibly not until October, President Knight is now in New York, presumably in connection with this matter. Another new survey to Ravenswood, making four routes now under consideration, has been made by the Northwestern Elevated. It is officially stated that the company fully intends to build the extension, although it will be late in the fall, perhaps, before a decision is reached as to which route will be taken. The new Aurora-Wheaton line is contributing a daily increase of about 4000 passengers to the Metropolitan Elevated.

#### Other Traction Securities

Boston Elevated has been considerably more active during the late dealings than in some time past. The stock sold down to 152 a week ago, but rallied sharply to 157. Dealings were begun in the subscription rights to the new stock issue, with quotations ranging between 25 and 70 cents a share. Massachusetts Electric common has also been firmer, recovering from 38 to 39 on moderate dealings. The preferred is unchanged, at 97. No change of consequence is to be noted in the leading Baltimore securities. United Railways stock holds steady around 16, the income bonds around 70%, and the general 4s around 95½. Other recent sales include City and Suburban 5s at 115. Nashville Railway certificates at 75½, Anacostia & Potomac 5s at 102½, and Nashville Railway stock at 6¼. The New York curb sales of traction stocks during the last fortnight comprise New Orleans Railway common (6000 shares) at 18¼ to 17¾, American Light & Traction at 44¾, San Francisco common at 22¾, and the preferred at 61½ to 61. Toledo Railways (5000 shares) between 38¾ and 40, Washington Electric 4s at 84 and interest, and New Orleans Railway 4½s at 87½.

Last week was another record breaker on the Cleveland Stock Traction sales numbered 12,763 shares. Cincinnati, Toledo led with 5070 shares. The demand at Cin-Exchange. Dayton & Toledo led with 5070 shares. cinnati was very strong and many Clevelanders unloaded. The stock opened at 26 and advanced to 33 during the week. Monday it dropped to 30. The bull interests which have been booming Detroit United and other stocks have taken hold of this issue, and this was sufficient in itself to assist in the rise. Toledo Railways & Light was also very active, attributed to the fact that the stock has been listed on the New York Stock Exchange and that it was active there last weck. Sales numbered 2180 shares. The first sale last week was 34½, and it advanced rapidly to 40, holding between 39 and 40 several days. Northern Ohio Traction common is again soaring. It opened at 533/4 and advanced during the week to 571/2. Monday there was a phenomenal jump, and small lots sold as high as 601/4, with 631/4 asked. Only a few months ago this stock was offered at around 25. The new Aurora, Elgin & Chicago was a strong seller, about 1600 shares changing hands, opening at 33 and advancing to 371/2. The prospects of this new line are so promising that few holders are willing to sell. Western Ohio moved in sympathy with Cincinnati, Dayton & Toledo. Sales numbered 900 shares, between 25 and 283/4, the latter the closing sale. Detroit United followed New York quotations, advancing from 95 to 951/2. Only 200 shares sold in Cleveland, and as it is believed holders there have pretty well sold out. Cleveland City Railway made a new high mark of 115 on a sale of 100 shares. Lake Shore Electric preferred sold at 48, an advance of 3 points over last sale. A small block of the old Southern Ohio Traction was taken in 83½, an advance from 75½, the last

#### Security Quotations

The following table shows the present bid quotations for the leading traction stocks, and the active bonds, as compared with last week:

Closin	g Bid
Aug. 26	Sept. 9
American Railways Company 50½	521/2
Aurora, Elgin & Chicago	36
Boston Elevated	156
Brooklyn R. T	71
Chicago City	220
Chicago Union Tr. (common)	183%
Chicago Union Tr. (preferred)	51
Cleveland Electric	91
Columbus (common)	57
Columbus (preferred) 108	108
Consolidated Traction of N. J	693/4
Consolidated Traction of N. J. 5s	111
Detroit United	a96
Electric People's Traction (Philadelphia) 4s	*981/4
Elgin, Aurora & Southern	445%
Indianapolis Street Railway 4s	873/4
Lake Street Elcvated	103/4
Manhattan Railway	1371/4
Massachusetts Elec. Cos. (common)	381/2
Massachusetts Elec. Cos. (preferred)	97
Metropolitan Elevated, Chicago (common)	391/4
Metropolitan Elevated, Chicago	891/2
Metropolitan Street	147%
New Orleans Railways (common)	18
New Orleans Railways (preferred) 563/4	57
North American	128
Northern Ohio Traction (common)	611/8
Northern Chio Traction (preferred)	93%
North Jersey	37
Northwestern Elevated, Chicago (common) 36½	361/2
Philadelphia Rapid Transit	151/4
Philadelphia Traction 993/4	100
St. Louis Transit Co. (common)	301/2
South Side Elevated (Chicago)	110
Syracuse Rapid Transit	281/8
Syracuse Rapid Transit (preferred)	711/4
Third Avenue 131	131
Toledo Railway & Light	351/2
Twin City, Minneapolis (common)	1261/2
	, 2

	Closin	g Bid
	Aug. 26	Sept. 9
United Railways, St. Louis (preferred)	. 841/2	84
United Railways, St. Louis, 4s	. 87	87
Union Traction (Philadelphia)	. 473/4	48
Western Ohio Railway	. 24	27%

<sup>\*</sup> Ex-dividend. † Last sale. (a) Asked. (b) Ex-rights.

#### Iron and Steel

Increasing imports of foreign raw material continue to be the main feature in the iron trade. So brisk is the American demand that prices have hardened on the other side, and foreign makers are not letting go as easily as they were. Still there is no trouble in securing abroad round lots of both foundry and Bessemer pig, and these importations have produced an easier tendency in our markets. Domestic quotations are still kept at the recent high level, but buyers are no longer so urgent in their demands for immediate delivery. Steel is easier under increased offerings, but sheets, bar and wire are firmer under an improving fall demand. Production of rails is being taxed, as usual, to the utmost. Quotations are \$21.75 to \$22 for Bessemer pig, \$31.50 to \$32 for steel billets, and \$28 for steel rails.

#### Metals

Quotations for the leading metals are as follows: Copper, 113/4 cents; tin, 28.10 cents; lead, 41/8 cents. and spelter, 51/2 cents.

SAN JOSE, CAL.—The San Jose & Santa Clara Railway has been purchased by the Standard Electric Company, of San Francisco, and is now being operated by that company under the title of the United Gas & Electric Company.

COLORADO SPRINGS, COL.—The consolidation of the Colorado Springs & Suburban Railway Company and the Colorado Springs Rapid Transit Company as the Colorado Springs & Interurban Railway Company has been arranged. The announcement of the organization of the Colorado Springs & Interurban Railway Company several days ago created considerable discussion, for at that time the purpose of the company was not clearly defined.

MACON, GA.—The application for permission to consolidate the Macon Consolidated Street Railroad Company and the Macon Electric Light & Railway Company under the title of the Macon Consolidated Street Railroad is now pending before the City Council. It is said that the Macon Consolidated Railway, also included in the purchase of the street railways of Macon by the Williams syndicate, will be kept independent, in view of an alleged contract requiring it to buy the North & South Macon Street Railroad, a short line of about 2½ miles.

WAUKON, IA.—The Iowa Hematite Railway Company, which was organized a few weeks ago for the purpose of constructing an electric railway from this city to Lansing, has filed a trust deed with the county recorder of Allamakee County to secure \$1,500,000 bonds of \$1,000 each at 5 per cent, payable in twenty years. The road will also be extended from Lansing to Decorah, but the main object of its construction is to develop on a larger scale the iron mines in the vicinity of Waukon, where millions of tons of ore are easily accessible near the surface of the ground.

NEW YORK, N. Y.—The Interborough Rapid Transit Company has filed with the Secretary of State at Albany a certificate of an increase of its capital stock from \$25,000,000 to \$35,000,000. The proposed increase of stock, it is stated in the papers that accompany the certificate, is to be devoted to equipment of the Rapid Transit Railroad, to be operated in the subways now under construction in New York City.

NEW YORK, N. Y.—The directors of the Manhattan Elevated Railway Company have declared the regular quarterly dividend of 1 per cent, payable

BROOKLYN, N. Y.—The Brooklyn Rapid Transit Company reports earnings as follows:

July	1902	1901
Gross receipts	\$1,236,400	\$1,203,760
Expenses, including taxes	708,136	758,494
Not receipts	9599 969	\$44E 900

AKRON, OHIO.—The capital stock of the Akron-Alliance Connecting Railway Company is to be increased from \$100,000 to \$2,000,000.

YOUNGSTOWN, OHIO.—Stockholders of the Mill Creek Valley Railway Company and the Hamilton, Glendale & Cincinnati Traction Company have voted unanimously to merge with the Cincinnati & Hamilton Traction Company, preparatory to a lease to the Cincinnati Interurban Company. The new company, although its preliminary capital stock is only \$100,000, will eventually be capitalized at \$2,200,000, divided equally into preferred and common stock. It is announced that the officers will be: H. H. Hoffman, president; Bayard Kilgour, vice-president; Henry Burhold, secretary-treasurer; A. C. Becht, assistant secretary-treasurer; C. H. Kilgour, O. B. Brown, F. T. Homer and the officers, directors.

PORTLAND, ORE.—It is said that negotiations are being conducted for the consolidation of the Portland Railway Company and the City & Suburban Railway Company.

PETERSBURG, VA.—It was rumored that the Virginia Passenger & Power Company, which controls the street car lines in Richmond, Manchester and Petersburg, had offered \$1,000,000 for the Richmond & Petersburg Electric Railway, which is operated between Richmond and Petersburg.

### TABLE OF OPERATING STATISTICS

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 'n 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.

† Dencit.													
Company	Period	Total Gross Earnings	Operating Expenses	Net Earnings	Deductions From Income	Net Income, Amount Avail- able for Dividends	Company	Period	Total Gross Earnings	Operating Expenses	Net Earnings	Deductions From Income	Net Income, Amount Avail- able for Dividends
AKRON, O. Northern Ohio Tr. Co.	1 m., July '02 1 " '01 6 " June '02 6 " '01	81,130 66,898 318,937	40,588 33,484 185,362	40,542 33,414 133,575	77,556	56,018	Detroit and Port Haron Shore Line (Rapld Ry. System)	1 m., Apl. '02	29,611 28,877	18,392 18,062	11,219 10,816	10,568 9,692	651 1,124
	12 " Dec. '91 12 " Dec. '90	617,011	164,458 * 350,845 * 317,475	104,510 266,166 196,249	63,494 136,162 141,133	41,016 130,004 55,117	DULUTH, MINN. Duluth-Superior Tr	1 m., July '02	52,632	24,985	27,647	9,685	17,963
ALBANY, N. Y. United Traction Co	1 m., July '02	140,209 134,370	89,013 79,638	51,197 54,732	23,866	27,331	ELGIN, ILL.	7 " " '01 7 " " '02 7 " " '01	45,983 298,038 254,322	22,117 157,398 141,720	23,866 140,640 112,602	9,218 67,529 63,984	14,647 73,111 48,618
BINGHAMTON, N. Y. Binghamton St. Ry. Co	1 m., July '02	23,269 22,480	11,198 10,152	12,071 12,3.8			Elgin, Aurora & Sonthern Tr	1 m., July '02 1 ''' '01 7 '' '' '02 7 '' '' '01	40,472 36,454 226,929	21,197 16,218 136,723	19,275 20,236 90,206	8,333 8,333 58,333 58,333	10,941 11,903 31,873
BOSTON, MASS. Boston Elev. Ry. Co.	12 m., Sept. '01	10,869,496 10,236,994	7,336,597 6,828,110	3,532,899 3,408,884	2,896,359 2,932,839	636,539 476,044	FINDLAY, 0. Toledo, Bowl'g Green & Southern Traction		24,340	119,142	12,307	05,000	26,627
Massachusetts Elec. Cos	12 m., Sept. '01 12 " '00	5,778,133 5,518,837	3,915,486 3,659,337	1,862,648 1,859,500	937,206 994,294	925,442 865,206		1 " June '02 6 " June '02	16,849 111,972 80,340	9,025 60,838 51,464	7,821 51,134 28,876		
BROOKLYN, N. Y. Brooklyn R. T. Co	1 m., July '02 1 " '01 12 " June '02 12 " '01	1,2 6,400 1,203,761 12,789,705 12,101,198	* 708,136 * 758,495 *8952214 *7970635	528,264 445,:66 3,837,490 4,150,563				i m., July '02 1 " '01 7 " " '02 7 " " '02	16,337 15,803 81,401 75,416	9,297 8,767 52,464 48,718	7,040 6,537 28,937 26,698	2,311 2,144 15,904 14,076	4,730 4.393 13,033 12,622
CHARLESTON, S. C.	3 " " '00	218,738 786,280 952,792	192,265	112,565	272,864	26,589 122,842 47,217 60,303 194,030 75,601	MILWAUKEE, WIS. Milwaukee El. Ry. & Lt. Co	7 " " '02 7 " " '01 12" Dec., '01	1,512,005	723,232	126,448 136,948 788,773 674,249 1,256,808 1,090,911	67,989 67,992 457,543 433,315 755,139 824,665	58,459 68,956 331,230 240,934 501,669 266,247
Charleston Consol'ted Ry, Gas & El. Co	1 m., July '02 1 ''' '01 5 '' '' '02 5 '' '' '01	48,569 46,067 313,767 200,964	30,509 27,021 172,009 184,849	18,059 19,046 141,758 66,115	13,617 13,639 67,707 68,922	4,442 5 407 74.051 † 2,807	MINNEAPOLIS, MINN. Twin City R. T. Co	1 m., July '02 1 ''' '01 7 '' '' '02 7 '' '' '01	337,452 290,648 2,003,892	142,369 135,349 922,740 923,680	195,083 155,298 1,081,152 924,501	58,733 57,820 410,266 387,548	136,349 97,478 670,885 536,953
Chicago & Milwaukee Elec. Ry. Co	1 m., July '02 1 " '01 7 " " '02 7 " " '01	109 531	7,586 7,689 45,638 42,091	16,005 15,770 56,892 46,829			MONTREAL, CAN. Montreal St. Ry. Co	1 m., July '62	198,656 175,180 1,643,837	93,966 90,464 940,860 931,933	104.689 87,7!6 702,977 601,272	19,929 14,142 164,228	84 760 73,575 538,748
Lake Street Elevated	12 m., Dec. '01 12 ". '00	786,462 757,954		397,663 379,293			NEW YORK CITY. Manhattan Ry. Co	3 m., Dec. '01	3,038,435 2,728,598	1,404,971 1,340,696	1,633,465 1,387,902	753,135 749,857	880,329 638,045
Union Traction Co	12 m., June '02 12 '' '01	7,942,468 8,158,809	4,570,719 3,942,194	3,371,749 4,216,615	3,619,277 4,058,040	+ 247,528 158,575		12 " Sept. 01 12 " '00	10,455,872 9,950,735	5,328,649 5,195,312	5,127,223 4,750,423	2,688,132 2,688,644	2 444,091 2,066,779
CLEVELAND, O. Cleveland & Eastern Ohio Traction Co		20,223	10,554 8.303		5,416 5,393 36,474	4,253 3,400	Metropolitan St. Ry	3 m., Dec. '01 3 " '00 12 " June '02 12 " '01	3,887,936 3,786 030 15,866,641 14,720,767	1,723,972 1,699,649 7,385,883 6,755,131	2,143,964 2,086,381 8,480,758 7,965,636	1,151,140 1,138,467 4,815,421 4,534,068	992,824 947,914 3,665,337 3,431,567
Cleveland El. Ry. Co			1,265,953 1,121,037		244,231 258,483		OLEAN, N. Y. Olean St. Ry. Co	1 m, July '02 1 ", July '01 12 m., June '02 12 ", '01	6,569 5,954 56,055 52,018	3,216 2,207 29,118 26,228	3,353 3,747 26,937 25,790	1.771 1,768 16,318 16,755	1,502 1,979 10,619 9,035
Cleveland, Elyria & Western	1 m., July '02 1 '' '' '01 7 '' '' '02 7 '' '' '01 12 '' Dec. '01 12 '' '' '' ''00	156 934 131,255 249 260	11,810 91,603 76,069 136,865	14,667 12,419 65.331 55,187 112,394 77,304	57,023 34,562	55,371 42,742	PHILADELPHIA, PA. American Railways		119,870				
Cleveland, Painesville & Eastern		22,649 19,143	10,435 7,749			5,369		1 m., June '02 1 '' '' '01 6 '' '' '02 6 '' '' '01	89,236 85,227 527,742 495,226	46,809 45,814 288,005 306,966	42,426 39,413 239,737 188,259	24,754 26 704 148,608 147,157	17,672 12,709 91,130 41,102
COVINGTON, KY. Cincinnati, Newport & Covington Ry. Co.		77,888 76,621 500,038	* 42,853 * 46,021 * 290,731 * 281,874		15,968 15,417 108,992	19,066 15,183	SYRACUSE, N. Y. Syracuse R. T. Co	1 m., July '02 1 " '01 12 " '02 12 " '01	62,571 59,433 693,284 621,299	34,365 31,620 384,265 340,830	28,276 27,813 309,019 280,469	19,025 18,971 228,246 223,918	9,181 8,843 80,773 56,550
DENVER, COL. Denver City Tramway Co.	,	124,516	66,533 62,866	57,983 53,490 220,230	32,865 31,304 131,259 125,622 383,180	26,119 22,186 88,972 72,759	TOLEDO, O. Toledo Ry, & Lt. Co	1 m., July '02 1 '' '01 7 '' '02 7 '' '01 12 '' Dec. '01 12 '' '00	802 7761	62,316 53,613 414,697 357,016 * 636,407 * 616,945	69,176 67,399 388,079 362,925 674,677 565,572	24,479	31,322 42,920 123,191 192,821 259,509 156,521
DETROIT, MICH. Detroit United Ry	1 m., July '02	325,898	182,848	143,050			Lake Shore Elec. Ry. Co.	1 m., July '02	49,122 39,447	25,961 21,837	23,161 17,610		
	6 " June '02' 6 " '01 12 " Dec. '01 12 " '00				395,739 345,119 652,277 616,468	263,715 670,129	NEW BRIGHTON, S. I. Staten Island Elec.Ry.	3 m., June '02	56,635 56,936	35,622 35,600	21,013 22,336	25,000 25,000	