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## The Columbus Convention

We are publishing in this issue a report of the proceedings on Wednesday afternoon, Thursday and Friday (Oct. 17-19) of the American Street and Interurban Railway Association, the papers and reports presented at those meetings which were not printed in our last issue, on account of the meetings of the Accountants' Association and the public papers at those meetings, and a complete description of the exhibits conducted by the Manufacturers' Association in connection with the convention. An editorial discussion of some of the main features of the Columbus Convention was printed

in our last issue, and we can only add to the general statement there expressed that the concluding sessions of the convention justified the remark made last week that the convention was the most successful in the history of the association.

Of all the features of the convention probably the exhibits attracted more attention than any other. They constituted without exception the finest display of electric railway apparatus and material ever gathered in one place, and the excellent adaptability of buildings for exhibit purposes, the ample space afforded for the display, the propitious weather of the first three of the convention days, and the large attendance resulted in a combination never to be forgotten. In fact, the exhibits were so attractive that the attendance at some of the meetings, especially of the American Association, was small. This fact elicited a suggestion from President-elect Beggs, who was chairman of the meeting on Friday, that in future meetings of the association it might be advisable to call a roll and place on record the names of the attendants at the different meetings.

There is no doubt that the technical value of the Columbus meetings was impaired by the small attendance and lack of discussion at some meetings. Of the reports on Wednesday afternoon, for instance, only one, that on insurance, was followed by any discussion. The report presented Thursday morning by the committee on heavy electric traction, with subsequent remarks by the chairman, and four out of the five papers taken up at the same meeting were passed over in silence. Little more was accomplished on Thursday afternoon, in spite of the excellence of the subject matter and the urgent pleas of the presiding officer. When, however, a discussion was started, as in the case of Mr. Spring's paper on freight and express and of Mr. Stanley's paper on leaks between passenger and treasurer which led up to a debate on the subject of the best method of collecting fares and a description by Mr. McDonald of the advantages of the Montreal pay-as-you-enter car, a great deal of valuable information was brought forth.

We believe that if the personal advantages of speaking at conventions of this kind were more thoroughly understood, especially by the representatives of the smaller roads and the younger men at the meetings, there would be much more discussion. Electric railway representatives are more used to action than to words, but looking at it from a purely selfish standpoint, we know of no simpler way of becoming known and rising in his profession than for a young man to engage in association work, either on the floor of the convention or in committee. We also believe that it would be advisable to publish all papers and reports at least thirty days before the date of meeting, which would mean that they should be in the hands of the secretary at least sixty days before the meeting. We realize that those who write association papers are among the busiest men in the industry and that it is an almost invariable rule to postpone the work until the demands of the secretary for the article are so insistent that it is dictated practically at the last moment. Nevertheless a considerable number of

papers at Columbus were of such a character that they could not adequately be discussed without a careful reading, and this would be assured if the copies had been in the hands of the members thirty days before the meeting. Something might also be accomplished by arranging with different individuals to lead the discussion. This would insure at least the attendance in their places at the time of the meeting of those delegates who were appointed to lead the discussion, and after their remarks had been presented sufficient interest would be aroused to carry on the debate. These remarks are not to be interpreted as a reflection on the convention as a whole, but simply as pointing the way to one direction in which the value of the meetings could be increased and which received the attention of the presiding officer. In this as in all other respects the 1906 convention was a marked improvement over previous meetings, and we believe that as greater thought was spent upon the papers as a whole this year than ever before there will be a corresponding improvement in the conditions under which these papers will be presented at future conventions.

The space at our disposal this week, even increased as it is by three additional pages, will not permit us to comment on all of the papers and reports at Columbus, but we have selected certain of them for discussion, and in an early issue will consider those which we do not take up this week.

### The Retirement of President Ely

If any one man should be more than proud of the sessions of the affiliated and American Associations at Columbus and of the convention as a whole, that man is President Ely. To no other individual is due half of the credit of taking the old American Street Railway Association as it existed in 1903 and placing it on the business basis which it occupies to-day. Mr. Ely, with the characteristic courtesy which has endeared him to all of his associates in association and other lines of work, paid the highest tribute to the members of his own executive committee, the officers of the affiliated associations and others whom he called to his assistance in the reorganization of the association. Undoubtedly Mr. Ely received the most cordial co-operation of all in the work which he has undertaken during the past three years. It was freely given to him, not only on account of the cause in which he was laboring, but also on account of the friendship and admiration which they bore for the man who was conducting the work. Nevertheless, this condition cannot blind anyone to the fact that the Columbus meeting was a personal triumph for the retiring president—a triumph which was recognized and typified by the gift presented Mr. Ely at the close of his presidential address on Wednesday morning.

The main features in connection with the reorganization of the association are too well known to be repeated here. We need only say that in 1903, when Mr. Ely, then vice-president of the association, was called upon to preside over the sessions of the Saratoga convention, he found the organization representing the street railway interests of the country in a practically disorganized and discredited condition. With a brilliant history, it had outlived its original plan of organization and the methods by which it had conducted its affairs in the past. It had, it is true, many friends prominent in the street railway industry who were held to it more by loyalty than by real affection, but there were many others who either had no sympathy at all with the purposes of the association

or were gradually becoming estranged through the impossibility of being in accord with its policies. It seemed almost hopeless to change the condition of affairs, but the task was accepted and the friends of the association soon found that the lot had fallen to the right man, that he was a Moses who was to lead the association out of the wilderness. The work extended over three years, and this period has called for the exercise of every quality of discernment, diplomacy, courage, persistency and optimism with which the retiring president is endowed. At great personal discomfort and loss Mr. Ely has ever been ready during these years to give his time and advice to the association, and had the pleasure at Columbus, not only of seeing the reorganized association conducting a most splendid meeting, but the gratification of realizing that his work had been appreciated. The remarks of Mr. Beggs at the close of Mr. Ely's presidential address summed up the situation and found an echo in every heart.

The association has wisely selected to succeed Mr. Ely in his presidential office its first vice-president during this period of trial. The tremendous mastery of detail and logical sequence of thought possessed by Mr. Beggs have been amply proved during the construction of the constitutions of the association and its affiliated bodies, and in the other preliminary work required by the association during the last three years, and he may be amply relied upon to carry on its future work during the coming year. There are still many questions to be solved, but Mr. Beggs, like Mr. Ely, has always been an ardent friend of the association, and always ready to sacrifice his comfort and pecuniary interests in its behalf, and the association is to be congratulated upon securing for its head a master-mind, who is so enthusiastic and believes so fully in the work and possibilities of the American Street and Inter-urban Railway Association.

### Reports of Committees

The convention work of the American Association was done to a considerable extent this year by committees, even where the subject was of such a character that it did not necessarily represent work during the year and could possibly thus have been considered as a paper. There were eleven committees altogether which reported at the convention. Of these two, those on municipal ownership and public relations, were considered in executive session on Friday morning. It is understood that the committee on municipal ownership made a most exhaustive and valuable report, part of which at least may be available for publication later. The committee on public relations did not present any detailed recommendations in view of the elaborate investigation now being conducted by the National Civic Federation. The work of the committees on membership and on subjects was exhibited in a very practical way in the report of the secretary and in the program followed at Columbus. Of the other reports of committees, those which were the longest and gave rise to the greatest amount of discussion were those on promotion of traffic and insurance.

The report of the committee on promotion of traffic presented by Mr. Harrington was of a most valuable character. Although it touched upon a number of methods of increasing the traffic of electric railway companies, such as time-tables, illustrated circulars and other methods of advertising, the report was devoted principally to a discussion of parks, picnic grounds and amusement resorts and the relative advantages

of the different attractions which are used by railway companies at places of this character. The data sheet sent to the railway companies upon which this information was secured, was most elaborate, and the classified returns, which we have taken the liberty of changing in form and presenting in this issue in the form of an inset, is the most complete investigation of this complex subject which has ever been attempted. The authors also added a bibliography of the principal articles on parks which should prove of value to those who are investigating this subject. The chairman of the committee adopted a method of calling attention to the main conclusions reached during his study of this subject which did not seem to be thoroughly understood. It is a plan, however, which has been used with great success in other technical bodies, and has been found to be desirable in stimulating the discussion and in concentrating attention on the principal findings in an investigation of this kind. The plan was followed, in the report under consideration, by printing a series of nine resolutions in the body of the report. Each of the resolutions was based either upon returns shown by the replies from the different companies, or else, like the recommendation that a standard system of accounting for parks be prepared, or that a committee be appointed to report on the desirability of street and interurban railways engaging in freight and express business, upon conclusions derived by the committee in its examination of the subject. In addition to the tabulated statistics already mentioned, and which are published on the inset in this issue, the committee summarized the actual replies in the latter part of the report under different headings, so as to indicate the consensus of opinion in each department of the subject considered. The report was hardly published in sufficient time to allow a study of it before the meeting at which it was discussed, and in view of this fact and also of the small attendance at that particular meeting it was wisely decided to postpone any thorough consideration of it. We hope, however, that the merits of this report will bring it to the fore again when there will be an opportunity of taking up in a critical way the resolutions suggested by the chairman.

The report of the committee on insurance was followed by a more animated discussion than accompanied any other paper or report with the possible exceptions of that by Mr. Spring on Thursday morning and that by Mr. Stanley on Friday morning. Briefly, it was a debate as to the relative merits of mutual insurance and insurance by the old line or stock companies, and in the meeting both interests were represented. Some doubts were expressed by several of the delegates present as to whether mutual insurance was practicable. Independently of this question the two points most strongly indicated by the discussion were that the old line companies have greatly improved their methods of caring for the interests of the insured, and that in the opinion of those present a mutual company might prove desirable in stimulating the existing companies to still further action and act as a possible check on increasing premiums. This is the first time that representatives of the stock insurance companies have been heard at a convention, although they have been working with committees of the American Association for a number of years, and they made a strong plea for the co-operation of the railway companies in securing proper methods of construction in new work and in introducing such changes in old buildings as will reduce the fire risk and hence the amount of premium.

The committee on compensation for carrying mail and that on rules reported excellent progress. The former, by an active campaign which was led by Mr. Beggs, seems evidently to be in the way of effecting some amelioration in a condition which has long been deplorable. The platform upon which Mr. Beggs stood in his debates with the postal authorities, that his companies were not prepared to do business at less than cost, is one which should bring the matter to a focus if generally followed. The rules committee added to its previous excellent work by the submission of a set of rules on interurban railroading which is intended to occupy the same place in this branch of work as is now possessed by the code of rules drawn up by the committee for city service. These rules, like the original set of rules for interurban work suggested at the 1904 convention, are based on the standard rules for steam railroads of the American Railway Association, but are modified so far as necessary to make them suitable for electric service.

### The Heavy Traction Question

The Columbus Convention was the first at which any report or paper has been presented on the subject which may be included in the term of heavy electric traction. The report upon this subject was brief, but the chairman in his subsequent remarks amplified the report by offering interesting suggestions as to the possibilities of a more extensive interworking of the tramway and heavy traction lines than has been attempted up to this time. We hoped, owing to the presence of several prominent electrical engineers as well as representatives of manufacturing interests in the convention hall, that further light would be thrown on the work now being accomplished in this direction on some of the important steam roads. Perhaps last year or two years ago there might have been such a debate, but at present there seems to be a strong disposition on the part of most leading engineers to deal modestly with the concrete issue until some of the experiments now in progress are farther advanced. It is proverbially a difficult matter to prophesy which way the cat is going to jump, even if everyone awaits the saltatory feat with bated breath. The fact is that the subject of heavy electric traction is one fraught with serious consequences. Gradually, year after year for a decade or so, electric traction has been growing into the "heavy" class, not with deliberate intent so much as by process of almost unconscious evolution. Save for special work like that in the Baltimore & Ohio tunnel, the growth has been mainly in heavier and faster interurban work, now practically reaching the magnitude of ordinary railway service somewhat specialized for passenger traffic. Now with the beginning of such work as that of the New York Central, and the New York, New Haven & Hartford, electric traction is passing into a new phase of existence which no one cares to define with respect to its possibilities. With the coming of the alternating motor there are very serious changes looming up, not yet to be seen in their full proportions. If a. c. traction on a large scale meets the hopes of its friends, an enormous amount of equipment still comparatively new will become obsolescent and will be replaced long before the natural termination of its usefulness. If, on the other hand, the a. c. equipment does not "make good" and higher d. c. voltage is not available, it means that the difficulties of distribution for large and heavy work will still remain so formidable that another period of inaction will ensue.

The large question involved is distribution over big systems for both freight and passenger service,—not necessarily to the exclusion of steam locomotives for special service,—but to such extent that electric traction will be the general method. Electric service in a terminal division is an important introduction to the new situation, but it is not by any means the whole thing. Nor is the electrification of a branch road doing excursion traffic what should count as heavy traction in the larger sense of the term, since it is merely following standard interurban precedents. The question of heavy electric traction for the future means the use of motors as a general method of haulage, dealing with normal railroad traffic. Experience has already clearly shown the value of motors in large suburban and interurban work, and as our readers well know, there is the particular advantage gained in more pleasant traveling conditions, quicker acceleration and hence better speed. These considerations do not weigh heavily in freight service, and as was well shown in some of the discussions at the convention, comparatively few of even the larger interurban systems are properly equipped for it. The electrification of even a steam road does not necessarily imply heavy electric traction. Nevertheless it is through such work as is being done in the New York terminals that the necessary data must be obtained. The feeling of the committee as expressed in the report on heavy traction that caution is the proper watchword, and that efforts at standardization are at present rather hazardous, is fully justified. We are now at the very beginning of the larger work of electric railroading, to which the previous experiments with locomotives and the establishment of light interurban lines is merely the prelude. In much interurban work there is need still of taking heed of general railroad experience in methods. It does not follow that such methods cannot be improved in using electric traction upon a large scale. Yet as a rule the heavier existing electric lines have much to learn from the older railroads in the way of handling safely and expeditiously a large passenger traffic. In many cases the looser methods of street car service have been followed with unsatisfactory results. In extending the functions of electric roads to include freight traffic there is renewed danger of forgetting the general trend of railway practice, and much stress should be laid on the necessity of learning from the experience dearly bought by old-time railroads. The taking up of electric service by important trunk lines, even in a tentative way, is very important as bringing this experience to bear. It is only by such applications that heavy electric traction can actually come to pass.

### The Road With Scant Traffic

The admirable paper by Mr. Roberts is a sort of study in finesse as applied to railway location. No line calls for more shrewd and careful planning than that in what is sometimes called the "sparsely settled" community. We think that Mr. Roberts did well to plan a definite line of action from the kind of roving commission implied in the title, and we think that his conception of the kind of road intended was the correct one. A road through a scantily settled country is foredoomed unless the conditions are such as to encourage travel. The interurban road can, and generally does, live on its through traffic plus a certain amount of suburban travel. Its local traffic seldom would justify anything but the most modest equipment, if indeed it would justify the existence of

the road at all. The typical line considered in the paper is essentially a rural line having an urban terminal and consequently suburban traffic, but practically none of the through riding characteristics of the interurban road. If the line is a long one the purely suburban business affects only a small part of the mileage. One very important thing pointed out by the author in connection with such a case is that the extent of passenger traffic bears little relation to the numerical size of the terminal city but is mainly determined by the population directly tributary to the road along its route. For as a rule the traffic originating in the city is no large factor in the earnings beyond a narrow suburban limit, and the effect of the city in stimulating traffic originating in the country depends on the fact that it is the chief center of the district rather than upon its absolute size.

This fact goes far to explain the futility of any estimate of traffic based purely on statistics as to population. The instances given by Mr. Roberts show very plainly that nothing but the most cautious and thorough examination of the conditions will give any information of value to the promoter. Even this sometimes leads to erroneous results, owing to unconsidered factors which affect the traffic. In any case the foremost fact is that with a known investment per mile a certain minimum traffic is absolutely necessary to getting the necessary returns. Of course some roads have been constructed as subsidiary to real estate operations and have eventually built up traffic, but such kind are purely speculative and must be judged upon just that basis. We fully agree that if the traffic will not justify at least hourly service the road is not worth building upon its merits. It seems, too, that Mr. Roberts has been over-cautious in the matter of the importance of freight traffic. We should lay even more stress upon it as a practical necessity in roads of the class under consideration. It undoubtedly somewhat increases the operating costs, but in a community which is clearly tributary to the terminal city the annual freight traffic is often of much consequence, and there are sometimes manufacturing interests sufficient to insure a fair income from freight alone. We have seen cases in which it appeared to be a very important part of the program.

As to the physical design of the road considered, the paper gives some very useful hints. More than this it cannot well accomplish, since local conditions vary so much with respect to probable or possible increase of traffic and interconnection with other lines. A road started on a very modest basis as to track and rolling stock may find itself part of a system on which the construction ought to be fairly uniform. This same contingency should be considered in the location of the power station and car houses. One rarely finds a system in which operation as a whole can be efficiently carried out without very great and often costly changes in the component parts. The use of a c. traction motors is in this particular a most indeterminate matter, although Mr. Roberts thinks highly of the system for the purposes under discussion. There is a distinction between these roads and light railways in the ordinary sense, the latter being essentially for local use and not likely to fall into larger systems within a time short compared with the life of the equipment. Mr. Roberts takes up the matters of location and design in a way that gives a very clear view of the considerations involved, and his paper should prove a useful guide in considering cases near the border line that separates the practicable from the

undesirable. The appendix contains some very convenient tables for trial calculations upon the purely electrical part of the equipment problem.

### The Accountants' Convention

The attendance at the Accountants' Convention was good, and it was the general sentiment among those who participated that as much had been accomplished as at any previous meeting of the association. This was the first year of the association under its new name and organization, and to many delegates the practical results of the change were undoubtedly of great interest. In his annual address, however, President Brockway expressed himself as being thoroughly satisfied with the experience of last year so far as this feature was concerned. Many of the association problems, such as that of collection of dues, have disappeared, as a result of the affiliation of the body with the American Association, but, as was pertinently remarked, the obligation to work for membership is still present. The presidential address contained the recommendation of a separate date of meeting for the Accountants' Association, and makes many other suggestions which are food for thought. Of these, however, we shall allude to only two. One is in connection with the future work of the body and whether its field during the next ten years will be as broad as that of the decade which has just passed. To us it appears as if there could be no question upon this point. Without disregarding in any way the results accomplished during the past ten years, it seems to us as if the problems now pressing for solution are certainly as great as those in any other period of the association's history. They include not only the subject of depreciation, which was considered at the Thursday meeting of the association, the questions of shop accounts, freight and express accounts and park accounts, but those problems as well which will be introduced by the change in motive power on sections of the large steam railroads of the country which sooner or later will have to come before the Accountants' Association in one form or another for adjustment. The other point to which we wish to refer is in the concluding portion of Mr. Brockway's address, in which he refers to the qualifications of the modern accountant. There is no doubt that the responsibilities of this department are growing and that errors in judgment in this branch of the service will usually be as disastrous as those in other departments, the engineering branch, for instance, and in most cases even more difficult to rectify. Not only this, but every indication of future events during the next few years points to the accounting office as one of the most critical in a street railway organization and one whose administration will call for the exercise of the highest skill and judgment. Whether we agree with its propriety or not, there is no question that the tendency of the times is toward greater publicity in the accounts of corporations, especially those doing a quasi-public business. The evidences of this movement are to be seen in the rate bill and other recent national legislative events, the insurance investigation, judicial interpretations of the trust laws, the increasing number of States which have established boards of railroad commissioners, the extensions of their powers, and the general demands for publicity as regards affairs of public service corporations. Experience has shown that probity alone in both the officers themselves and in the

affairs of the corporation as well does not afford immunity from attack, and that during the inquisitorial examinations of corporate affairs which are now so popular, methods which are entirely proper in themselves may be wrongly interpreted unless the explanation can be so easily understood that those who run may read. Under these circumstances the last three lines contained in Polonius's advice to his son, which was quoted by President Brockway in closing his speech, seem most apropos.

The rules of the Accountants' Association prevent us from publishing an extended abstract of the proceedings of that body, but we are very glad to announce that the association adopted the recommendation of the executive committee to authorize the secretary of the association to sell copies of the standard classification of accounts and standard form of report. There have been a great many demands in the past for copies of this classification and form from chartered accountants and others in whose hands it would be of value to the association to have them placed, but hitherto there has been no way by which these individuals could secure copies. Moreover, many financial houses and others interested financially in electric railway companies as stockholders, but who are not connected with a railway company in an official capacity, honestly desire and require copies of these forms to understand the financial reports which they are called upon to examine. These and other reasons, including possibly the extension of electric service on steam railroad branches, undoubtedly had considerable to do with the decision of the association to adopt, so far as its own standards are concerned, the publicity to which we have already referred as one of the characteristics of the present day.

The number of published papers at the Accountants' meeting was limited this year to a thoughtful consideration of "Capital Expenditures," by P. S. Young, comptroller of the Public Service Corporation of New Jersey, and the discussion of the "Use of Curves and Statistics," by A. Stuart Pratt, general auditor and treasurer of the Stone & Webster organization. One reason for this small number was the reservation of an entire day to a discussion in executive session of the subject of depreciation. This discussion was initiated by a paper by Mr. Wallis, of the Fitchburg & Leominster Street Railway, and while no attempt was made to settle the problem in its entirety, it may fairly be said that an excellent start was made. The question of printing some portion of both the discussion and conclusions reached at the meeting was left with the executive committees of the Accountants' and American Associations.

### Maintenance of Way and Structures

The Engineering Association is to be congratulated in that it made provision in its program at this year's convention for taking up in detail various subjects pertaining to the maintenance of way and line structures. As compared with the wealth of discussion we have had on rolling stock, there has been somewhat of a dearth of information and data on road-bed, ties and poles, yet there are no more important subjects that could be brought before the association. The two papers at the Columbus meeting, one on "Ballast," by C. H. Clark, engineer maintenance of way of the Cleveland Electric Railway Company, and one on "Ties, Poles and Posts," by C. A. Alderman, chief engineer of the Cincinnati & Northern

Traction Company, are valuable additions to the literature of the association, and the ensuing discussions, which were abstracted in our last issue, are well worth reading. Neither the papers nor the discussions perhaps lead to decisive conclusions, but they do point out lines of investigation along which the association can well afford to work.

Mr. Clark's paper is a plea for more substantial standards of track construction, both for urban and for interurban conditions. For city track, either when the track is to be used both for interurban and local cars or for local cars only, he recommends a solid foundation of concrete mixed in the proportion of at least 1-3-6 with best Portland cement, but on this proposition the convention split. Mr. Simmons, of Milwaukee, coincided in the opinion expressed by Mr. Clark that too good a track cannot be laid and the best is none too good. But Pittsburg, the Schoepf interests and the Public Service Corporation of New Jersey have yet to be shown that concrete is the proper thing. The reluctance to come out in the open and make a stand for concrete track foundation may be due to the fact that the evidence presented at the meeting did not indicate that concrete had been down in any place in this country long enough to determine whether the resulting life of the track would be sufficiently prolonged to justify the larger initial cost. Mr. Larned, of Pittsburg, explained his opinion by saying that track which has had as much money spent on it as is necessary to build one of concrete should last five years without attention, and this period seemed to be the limit that has yet been offered in evidence in favor of concrete. Our own judgment is that this is one of the matters which will continue to be handled according to the individual preferences of the engineer in charge and, incidentally, according to the appropriation for track work at his disposal—at least until such time as the advocates of concrete can point to records of track life which, in the equation of initial cost plus maintenance, will throw the balance undeniably in favor of concrete.

The paper on ties, poles and posts, and the discussion developed the fact that the increasing scarcity of timber and the advancing prices of wood of all kinds are developing what will before long prove a really serious situation. The steam roads are yet in a position to protect themselves because they, as a rule, still have considerable timber land at their disposal, so the electric roads will be the ones to feel the pinch first. This is a matter that might better be faced first than last. The thing boils down in its initial stage to finding preservative treatments for timber, but in its ultimate stage to developing commercial substitutes for ties, poles, posts and other wooden structures in electric railway work. As far as treatment of ties and poles is concerned, some progress is being made. The practice of imbedding wooden structures of this nature in concrete is gaining favor, although the various impregnating and coating processes are also gaining friends.

For poles, the remedy by which the advancing price of wood can be met lies either in the use of metal or concrete; for fence posts on private right of way the question is not so serious, for wood of sufficiently good quality is still available, but for ties the problem is troublesome. Steel or concrete ties have not yet established their economical values, but in this matter unfortunately the electric roads are not in a position to take the stand assumed by the steam roads who have manifested a strong desire to "let the other fellow do

the experimenting." It is none too early for the Engineering Association to start investigations along the line of finding substitutes for ties. And the fact that several of the steel companies this year showed steel ties in their exhibits is one indication that the subject is up in earnest.

It has been claimed that a concrete tie at \$1.50 can be economically used as compared with an oak tie at 70 cents, provided it will have a life of twenty-eight years, but as Mr. Alderman says, "we know nothing about the life of concrete ties," and his suggestion that it is worth while to experiment with them in yards and on sidings is one that should be acted upon. He might have gone further and said that trials should also be made on main line tracks, because there the service is more severe and the probable life of concrete will be more quickly determined. By the time of the next convention we hope there will be available considerable more information on concrete and steel both for poles and for ties.

### The Question Box of the Engineering Association

The replies in the Question Box of the Engineering Association this year, though comparatively brief, present more than the usual multiplicity of opinions on many of the subjects discussed. In many cases this variety can be explained by difference in local conditions. The suggestions as to the proper spacing of tracks in car houses vary from 10 ft. 6 in. to 15 ft., probably because the men advocating the two extremes look at the matter in different ways. One uses his car house for repairs and the other does not, or one is located in the country where land is cheap, while the other is a city man where space is calculated by the fraction of an inch. But why should one say that 20 per cent of car-house track-age should be fitted with pits while another asks for 50 per cent unless because of a variation in the work done in the car houses? The explanation undoubtedly is partly individual preference, or the personal equation, but also partly in the still comparative newness of the art, and it will be some time before these minor differences of practice will disappear. The same reasons can be advanced for the diversity of opinion as to the best type of splice-bar, the tension of the overhead wire, the height of the pole, and the proper formula for rabbitt metal.

At the same time it should be noted that there is a tendency to get together in certain items upon which there has been the most discussion. For example, we find that there is a virtual agreement on the mileage to be obtained with trolley wheels dependent upon the bushing and also probably dependent upon its pressure against the wire, as to which we still differ by a range of from 16 lbs. to 40 lbs. The matter of oil lubrication on motor bearings is another example of the value of discussion. It is not very long ago that this matter was being debated on the floor of the meetings, but the unanimity of opinion on the subject as shown in the replies now practically removes it from debatable ground. There are few parts of the proceedings of the association that will admit of a more profitable consideration than the Question Box, both from the standpoint of learning the variations of detail practice, and that of ascertaining the lines along which committee investigations can be carried. We are glad this subject was on the program this year, and trust it will be continued in the future.

# PROCEEDINGS OF THE AMERICAN STREET AND INTERURBAN RAILWAY ASSOCIATION AT THE COLUMBUS CONVENTION

## WEDNESDAY AFTERNOON SESSION\*

President Ely called the association of the American Street and Interurban Railways to order after the noon recess. Secretary Swenson announced a cordial invitation from Frank A. Davis, president of the Scioto Valley Traction Company, to all members of the four allied associations to take special trips on the system of the Scioto Valley Traction Company, from or to any points they might desire. Upon presentation of badges at the office of the company in Columbus, Ohio, tickets would be furnished as requested. Another invitation had been received from President Wm. M. Thompson, of the Ohio State University, to visit the buildings of that university and to inspect the equipment of the various departments and the work being done in them. Another had been received from the Central Union Telephone Company and the American Telephone & Telegraph Company, extending to the delegates attending the convention the courtesy of the use of their lines after 6 p. m. daily during the sessions of the convention. Secretary Swenson also read a copy of a resolution adopted by the City Council of Columbus, Ohio, extending to all a hearty welcome and expressing the sincere desire of contributing in any way possible to make their stay in the city pleasant and profitable. He also read a letter of invitation from the Columbus, Delaware & Marion Electric Railway Company, extending to the members of the association free transportation over the lines of its road during convention week, the association badge being accepted as evidence of membership, also a letter from Mr. George Westinghouse, of Pittsburg, regretting his inability to be present at this meeting, also one from the American Society of Mechanical Engineers, sending greetings and announcing the appointment of representatives of that society to attend this meeting. It was then moved, seconded and carried that all communications of this nature be referred to the committee on resolutions, when appointed, for appropriate action by that committee.

President Ely then read the following telegram, which had just been received by him:

The city of Boston sends greetings and extends a cordial invitation to your association to hold its next annual meeting in Boston, the ideal convention city of America. Mr. Chairman, a hearty welcome if you come.

JOHN F. FITZGERALD, Mayor.

Mr. Ely was then called out of the room, and Hon. John I. Beggs, first vice-president, assumed the chair. Mr. Beggs then called for the report of the committee on subjects. It was read by Mr. Connette, and is published below:

### REPORT OF THE COMMITTEE ON SUBJECTS

The report of the committee on subjects consists of the program which is presented to the association at this meeting, and any formal report is almost unnecessary.

In preparing the program, it was assumed by your committee that there is a great deal of work to be done within a short period of time, and that this time should be utilized to the greatest advantage. Hence, it was desirable that all unnecessary or irrelevant reports, resolutions, speeches, discussions, etc., should be eliminated as far as possible.

It was decided that the papers and discussions should be of a general, and not of a local, interest; that the papers should be on live subjects, short and pithy, requiring not more than fifteen minutes to read, and of a character to draw out discussion. Where it is possible to procure the papers sufficiently in advance of the meeting, the papers should be printed and distributed in advance. The writer should be requested to be at the meeting when his paper is called up, and should be given five minutes to abstract it, and a limited time allowed for discussion.

It was furthermore decided that the papers should be grouped, so that the topics of a similar nature might be discussed at the same session, so that anyone particularly interested in a certain subject could hear all the papers relating to that subject at one session. For instance, at this meeting we have an opening session, a report session, an interurban session, an employees' session, an executive session and a closing session.

The committee is extremely desirous that this meeting of the association be run on schedule time, papers and reports being called up and discussed exactly as outlined in the program. This has never been done at any previous meeting, and your committee is of the opinion that such a procedure would greatly increase the attendance and stimulate interest in the discussions.

The meetings of the main association and the subsidiary associations are

\* The report of the first, or Wednesday morning session, will be found on page 766 of the Oct. 20 issue.

so arranged that several meetings may be held at the same time. It is arranged, however, that no other meetings are held during the opening and closing sessions of the association, so that all may attend those meetings.

This committee on subjects was appointed too late in the year to confer with the subsidiary organizations regarding their programs. If a new committee on subjects is appointed for next year, it is suggested that this committee confer with the proper representatives of the subsidiary organizations, so that there may be some degree of uniformity in the work of the various organizations, and so that none of the work undertaken may overlap.

As railway officials are busy men, and have little time to devote to literary pursuits, it is always difficult to get writers for papers, and the program for the meetings should be arranged as far in advance as possible so as to allow plenty of time for the preparation of papers. The writers this year were not selected until the month of June, and the thanks of the association are due the gentlemen who, upon such short notice, furnished the papers for this meeting.

RICHARD McCULLOCH (Chairman),  
E. G. CONNETTE,  
THEODORE STEBBINS,  
Committee.

The chairman said that if there was no contrary order, the report would be received and spread upon the minutes of the association and published in the proceedings. He added that the length—or rather the brevity—of the report was not to be taken as an indication of the amount of work that this committee did. They gave a very large amount of time and work, and it was necessary to conduct considerable correspondence to obtain gentlemen who were willing to prepare papers to be read before the association, and the association is under obligations to the committee for the conscientious manner in which their work was performed and the valuable suggestions embodied in their report.

The next order of business was the report of the committee on car wiring. This report was read by the secretary, and is published below:

### REPORT OF THE COMMITTEE ON CAR WIRING

The committee appointed by you to confer with a committee from the Underwriters' National Electric Association for the consideration of Rule 32, National Electric Code Car Wiring and Equipment of Cars, begs to report as follows:

Your committee has not found it necessary to meet during the year, such questions as have been brought up for consideration having been satisfactorily handled by correspondence. No changes have been made in Rule 32, National Electric Code Car Wiring and Equipment of Cars, and such changes as have been proposed by the electrical committee have been reported adversely by the joint committee of the Underwriters' Association and of your association. The joint committee recommended one change in the rule as follows:

Rule 32, paragraph g, section 2:

"b—Heaters to be constructed with a protecting ventilated metal casing, providing an air space of not less than 2 ins. on all sides of the resistance. Heaters to be so located that the resistances will be not less than 4 ins. below the under side of the seats, or from any woodwork unless the under side of the seat, or such woodwork, is protected by not less than 1/4-in. fire-resisting, insulating material, or 1/4 sheet metal with 1-in. air space between the sheet metal and the seats or woodwork."

This recommendation of the joint committee, however, was not adopted by the electrical committee of the Underwriters' National Electric Association, and the rule remains unchanged.

M. G. STARRETT (Chairman),  
E. W. OLDS,  
C. B. KING,  
JOHN LINDALL,  
Committee.

The chairman again announced that if there was no contrary order desired by the association this report would be received and spread upon the minutes of the association. He also said, on behalf of this committee, that a great amount of work has been done by them and must be continued to be done by them in the future, and which cannot appear in any published report. They stand as a kind of "bumper" between the underwriters and the operators of the roads, and are keeping in touch constantly with what is proposed to be exacted on the part of the fire underwriters, and likewise to give them suggestions as to what might be desirable and what would be of no value, although it might be very expensive.

The next paper on the program was the report of the committee on standardization of equipment, of which H. C. Page, of Springfield, Mass., was chairman. Mr. Page then presented the following report:

## REPORT OF COMMITTEE ON STANDARDIZATION

Your committee, during the last twelve months, has got together a large amount of data. This information has been interesting, and we feel that during the next twelve months much can be accomplished. This committee has worked through and with the engineering committee on standardization, and its report expresses our ideas on the subject. The chairman of the engineering committee deserves a large amount of praise, and this association is indebted to him for his untiring energy and work accomplished. His work would be much easier if the different companies belonging to this association would fill out the data sheets sent them and return them to our secretary. The secretary of the association has worked hard and faithfully on this matter, and, if we as members will do our part as well as he, much will be accomplished the coming year.

H. C. PAGE, Chairman,  
JOHN MURPHY,  
H. A. NICHOLL,  
T. W. WILSON,  
H. WALLERSTEDT,  
Committee.

Vice-President Beggs explained that the work of the standardization committee had to be of necessity limited, because it was not possible to do a great amount of work until the basic work had been accomplished by the similar committee from the Engineering branch of the association. It might be desirable in the future to have some arrangements made by which the reports of the co-ordinate associations may be brought before this association for discussion by the members of this association who might not have the opportunity of participating in the discussion of the co-ordinate association.

The next order of business upon the regular program was the report of the committee on promotion of traffic. W. E. Harrington, of New York City, chairman, then presented the report, which is published elsewhere in this issue.

Vice-President Beggs asked what action the association desired to take on the report, and whether it was the desire of the committee to have the resolutions taken up and acted on by the association.

Mr. Harrington said that the committee submitted the resolutions with the thought of obtaining an expression of the opinion of the members regarding this work.

The vice-president suggested that it would hardly be proper for the association to adopt the report without segregating the various resolutions and passing on them independently, because there might be a difference of opinion as to some of the suggestions and recommendations.

E. G. Connette, of Worcester, said that it might possibly be appropriate to refer the report to the executive committee, so that the various suggestions contained therein could be properly referred to sub-committees or special committees for consideration and recommendation.

The vice-president said, however, that this would simply postpone action on the matter, to which the committee had already given a great deal of consideration.

Mr. Connette asked what would be the effect if the association, as an association, should adopt the resolutions. The recommendations could not be made mandatory. He, therefore, suggested that the report be received and spread upon the minutes, and allow the recommendations to be accepted or rejected by the members of the association as they may see fit.

The vice-president suggested, in order to bring the matter before the association in proper form, that the resolutions be considered seriatim, and that an expression of opinion concerning them to be had from the members. He personally would oppose some of the resolutions, but would agree to others. As the committee had presented these resolutions in concrete form, the proper way would be to get an expression of what the opinion of the members was concerning them. Recommendations such as were embodied in the report could not bind the members of the association. The association might choose to express the opinion that it is proper for a railway company to own and operate a park, but the speaker would not do it for any company in which he was interested. In the same way, no one is committed to any of the standards which the standardization committee may recommend and this or one of the co-ordinate associations may approve, but it might be the judgment of a large number of the members of the association to whose opinion respect should be paid. Considering the amount of attention given to this report, the chairman suggested that the association should get an expression of opinion on the individual resolutions. (Mr. Connette withdrew his motion.)

Mr. Connette then moved that the resolutions be taken up seriatim and considered. (Motion carried.)

The vice-president read the first resolution as follows:

Resolved, That the American Street and Interurban Railway Association believes that parks operated in connection with railways are profitable and desirable as a means of promoting traffic.

Mr. Harrington said that this recommendation was based upon the analysis of the data sheets in his report. This analysis shows that 74 per cent of the replies were in favor of that proposition, and that was the reason for embodying it in the resolution as an expression of approval. The idea of presenting the resolutions was to bring out the discussion that would naturally ensue from putting the matter coldly before the association and saying that the association is or is not in favor of a certain proposition. Mr. Harrington said that he had no particular arguments to present either for or against the resolutions, except the expression which was secured from the replies of the members of the association who filled out the sheets.

The vice-president said that he did not believe, except in rare cases, in railway companies going into the matter of entertainment such as is contemplated, possibly in a general sense, in this resolution. A large amount of money has been lost by railroads going into a business they did not understand and should not be interested in at all. He believed in railroads giving assistance in some indirect manner to the promoters of these enterprises. Some of them are very profitable, but he would deplore it if the association should pass the resolution in the manner in which it was set forth in the report. He thought a great many companies which years ago went into the park business had lost large amounts of money. There are some railroad companies to-day who would pay a bonus to someone who would take the parks off their hands. He threw this out as a cautionary signal to the new interurban lines coming along, and the association should be careful what advice it gave which might be taken by new companies, and he thought before any company embarks upon the proposition of maintaining a park, it should very carefully study into what other companies have done.

Robert McCulloch, of St. Louis, said that there did not seem to be any disposition to discuss this question. The report was very elaborate and complete; it had so much information in it that all the members could take it home and digest it at their leisure. He thought it would be better to accept the report and thank the committee for the trouble and pains they had taken to provide so much information, so thoroughly presented in such form that it can be referred to and made use of as might be necessary, and not consume any further time in attempting to get a discussion that did not seem to materialize. He suggested, therefore, that the association pass a vote of sincere thanks to the committee for the thoroughness with which it had done its work, without committing the association to the views expressed in the report. (The motion was seconded and carried.)

The vice-president then called upon the committee on insurance. H. J. Davis, of Cleveland, chairman of the committee, read the report, which will be found on page 764 of the issue of Oct. 20.

C. H. Harvie, of Knoxville, asked if the committee had struck any snags in the State laws against forming these mutual companies.

Mr. Davies replied that the committee had not formed any insurance company, but that companies have been organized on a plan approved by the committee under the laws of Ohio, and have been approved by the Insurance Commissioner of Ohio.

H. A. Robinson, of New York, thought that it would be difficult, as far as New York is concerned, to introduce this character of insurance. The New York properties are covered by large mortgages, in each of which the company making the mortgage has agreed to procure insurance satisfactory to the trustee of the mortgage. Moreover, in a number of the leases, where his company had taken over the properties of other companies composed of wholly independent stockholders, the leasing company was obliged to provide insurance which is satisfactory to their boards of directors. He did not think it possible to get attorneys or officers of trust companies in the city of New York to agree to take insurance for the benefit of fifteen or twenty millions of dollars of bonds in the policies of mutual insurance companies organized under the laws of Ohio. The difficulty of accepting insurance of this kind in the State of New York had already been encountered, owing to the peculiar insurance laws in New York State, which provide against outside insurance except by going through certain formalities taken before the Commission of Insurance at Albany. It did not seem to him to be exact protection to the bondholders to give them insurance of this character, when it is necessary for the bondholders to go to the State of Ohio to get the bills paid in case of a loss.



B. E. Loomis, of New York, said that he represented twenty-six fire insurance companies which for six years had been carrying on inspection of street railway and power stations throughout the United States. They had made it a point to recommend improvements which would reduce the rate, and had carried on the sprinkler tests in Newark. The insurance companies had co-operated in every way with the car wiring committee of the association, and a committee of the association was invited to attend the various tests held by the insurance companies at Newark. As a result of all this work undertaken by the insurance companies, the reduction in the rates of insurance on the various street railway properties throughout the United States has been very material, in some instances as much as 75 per cent. The insurance companies are more than willing to co-operate with the street railway companies, and he believed that the companies would be glad to make an appointment with a representative committee of the street railway association which would be mutually satisfactory to both parties concerned. He had the assurance from the officers of a number of insurance companies that a committee would be appointed to meet with a committee of the Street and Interurban Railway Association to develop some system of insurance which would be mutually satisfactory to both. He believed that to be the only system of co-operation which could possibly be successful, because with any one company it is hard to assume a line of insurance, but with the stock companies, which have been in business for years and have been able to withstand three or four conflagrations like that in San Francisco, it is a different matter. He thought it very easy to secure thorough co-operation from the insurance companies. They will give the members a reason for the former rates, and will tell them that instead of only one-third of the premium having been paid back, the loss ratio has been over 80 per cent. This is the loss ratio of forty companies in the East and West.

Henry A. Staats, of Cleveland, said that he represented twenty-four traction companies in the matter of insurance. He first wished to reply to the gentlemen from New York, Mr. Robinson. The kind of insurance he had in mind and the kind the speaker wished to present for consideration were different in character. The speaker represented the American Street Railway Insurance Company, which is to have a capital stock of \$500,000 and a surplus of \$500,000 before a single policy is issued. That will enable the company to enter any State in the Union, and its policies will be made acceptable at any bank or any trust institution. The capital of the company will be subscribed by individuals of the various railway companies representing this association. Twenty-four companies have already subscribed to the American Street Railway Insurance Company, and it has been organized under the laws of the State of Ohio. Mr. Loomis says he represents twenty-six stock companies which are willing to appoint a committee to treat with the members of the American Street and Interurban Railway Association, but they are not in business for their health, but for the money they can make out of the insurance business. They do not give the railway companies the best possible rates of insurance. Some of the manufacturers of the United States have banded together for the past seventy years to carry their own insurance, and some of the better classes of manufacturing properties to-day are carried by the Factory Mutual Companies of New England at a rate of 8½ to 15 cents on each \$100 of insurance carried. A co-operation of the traction companies for the purpose of carrying their own insurance would be better than to attempt to co-operate with the old line companies and permit them to make their own rules and regulations, and low rates temporarily, and after competition has ceased to put the rates on again. That is the old story. They will give temporarily a low rate of insurance, and that rate will afterwards be raised when the competition ceases. The only way to maintain competition is through co-operation in an insurance organization that can be called your own; then it is possible to say to the old line companies, "Now, gentlemen, if you wish to carry a part of our insurance you can carry it at such a rate." The position now taken by the old line insurance companies is: if you install automatic sprinklers, fire extinguishers here and a hose there, have a watchman to make a tour with a watchman's clock, we will write your insurance for \$1.15, or if we have competition we will write it for 15 cents. That was the position taken in Cleveland, Ohio, on one rate with which the speaker had been working. They formerly paid a rate of \$1.50, and when a little competition was brought to bear on the old line companies they said: we must not let that business get away, we must kill this little organization in its incipency; if we do not it will get to be a big thing, and

we will not be able to control the insurance of traction properties and electric light and power stations. So they made a flat rate of 15 cents, which has been increased to 18 cents on about four millions of business. This insurance subject is a perplexing problem and could be argued indefinitely. The \$80,000,000 paid in California came out of the pockets of the insured. There is no where else it could come from. Why not get together, form your own insurance company, divide the profits among yourselves and simply pay the actual loss and expenses that accrue in your particular class of business. Why pay for these conflagration losses? The street railway risks are isolated. They are not subject to total loss. A company like the Columbus Railway & Light Company has risks located at different parts of the city. To make a total loss it would be necessary to have the city entirely destroyed. Through the establishment of this insurance organization there should be connected with it an inspection bureau, and competent inspectors and engineers would be employed to look after the interests of the insured. The old line companies, and possibly the mutual companies, are permitted to make their inspections and suggestions, and they are making them for their own good as well as those of the members of this association. Money will buy brains, and it is possible to get just as good brains to follow up the interests represented here as can be found in the old line companies. If fifty or sixty or one hundred traction companies should get together and deposit in an insurance fund 1 per cent of the earning power of their roads annually, a fund would be created which would reach perhaps \$3,000,000 of \$4,000,000, and out of that fund the losses could be paid. The business would be looked after scientifically, inspected regularly and taken care of just as the roads would take care of any other business. At present that particular part of the traction business is being taken care of by strangers, and they have no particular love for the companies but for their dollars. They will reduce the rates of insurance on traction properties very low in order to kill this little organization which has been started. The question is whether the members of the association will co-operate to a point where they can carry their own insurance at cost, and that cost, even in unprotected properties, will be brought down to about three-tenths of 1 per cent. These are the figures which were obtained after very careful investigation made by the chairman of the committee on insurance, H. J. Davies. He received from 420 railways replies to his letters, giving the actual figures showing the amount of premium they had paid and the amount of losses they had sustained, and the actual fire loss amounted to only 27.66 per cent of the premiums paid. The speaker said he took issue with Mr. Loomis when he says it costs 80 per cent of the premiums to cover power house losses and electric light and power stations. The speaker represented the interests of the traction companies and not the interests of any particular insurance organizations. With co-operation he can enable the railway companies to obtain their insurance at actual cost, and that cost will be less than can be gotten from the old line companies, who have got to make large profits to satisfy the stockholders.

E. R. Townsend, of Chicago, said he represented the stock companies of the Middle West in the traction work. A few electric light and traction companies combined cannot take care of their losses as well as the insurance companies having a capitalization of \$80,000,000. They spread their losses over all the country, and their eggs are not all in one basket. These companies have followed this traction business from time to time, its cost, and the factors necessary to produce good business, and they have concluded from their research that stock companies can carry the liability at a very low figure. The old line companies have been making insurance rates of late subject to conditions that the insured shall put in certain improvements which shall warrant a reduction in the rates. The elimination of such small defects, corrections in the electrical equipments, physical hazards, etc., will give a better class of properties, and the stock companies stand ready and willing to offer any suggestions for correcting any such defects, and when this is done will give insurance at a lower cost. For some years the stock companies have maintained a department and request the insured to invite inspection. The properties are visited and suggestions are made as to what the insured can do to lower his rate. He determines the cost himself. The companies would like all the members of the association who are interested in this matter to make a request of their secretary for inspection, and he will forward it to the companies and it will receive best attention. The quality of this business of late years has improved. Properties are becoming consolidated under one management, and some one is delegated to take care of the properties. The moral hazard is improved, and that enters into

stock insurance rates. The companies believe they can give the roads insurance at cost. They have never made any specially low rates to meet competition, but have studied to improve conditions so that they can make these rates.

Mr. Staats asked when the insurance companies commenced to give these marked reductions in rates.

Mr. Loomis said that the department had been started some five years ago, to educate the people along the lines of improving their property from an insurance standpoint. The managers of the properties have not had time to look over the properties and put them in the condition that the underwriters desired. As a result the insurance inspectors have made special efforts to visit the risks and point out such little factors of danger as could be eliminated and allow certain deductions in their insurance.

A. H. Ford, of New York, manager of the American Cities Railway & Light Companies, said he was very much interested in this question, because he had had some experience with it in the past, and especially during the last year. The speaker said he was primarily a mutual insurance man. He had tried in every way to take a little combination of properties owned by his company and organize a mutual insurance company among them, and thought he had accomplished his purpose. He started in with \$150,000 of an insurance fund and intended to build that up to \$500,000. He thought that would be a respectable insurance fund for the properties to be protected. He got the inspiration from Mr. Krueger, of Philadelphia, who told him that the Philadelphia Rapid Transit Company had \$1,200,000 in insurance bonds for the protection of the property of that company, and it operated very successfully. The speaker, however, found State laws against the scheme. In the first place the corporations themselves could not go into that fund. In the next place the State laws prevented one company from being responsible for the losses of another, and there were other difficulties. About that time he had a number of conversations with Mr. Staats and a number of letters from Mr. Davies about these companies in which they were interested. The speaker, however, was not prepared to subscribe to the capital stock in the name of the companies he represented. He was prepared, however, to give them a certain line of insurance in each one of the properties; but he saw that he could not handle the insurance proposition through that insurance company at that time. Since then the company has been organized with a capital stock of \$500,000 and a surplus of equal amount, and it should be able to carry a very fair line of insurance. He first took up the consideration of the lighting properties. His companies were paying a little over 1 per cent to the old line companies, and they were insured in the New England Factory Mutual. During the past two years his companies had improved the character of all of their risks, so that they were in better shape to secure lower rates than they were previous to that time. When he found the power houses were constructed on the lines laid down by the factory mutual companies, he told the old line companies that his companies would insure their power houses in the factory mutuals unless they were given a better rate than they had been heretofore able to secure on their whole line. This property was fully inspected, and a better condition of affairs was found than when it was last inspected. As a result, three of the properties were written at greatly reduced rates, partly on account of the improved condition of the property and partly for other reasons. The speaker believed the managers of railway companies usually pay less attention to the insurance conditions in their property than to any other single question with which they have to deal. He also thought that if they will put their properties in proper shape, not to get a lower rate of insurance, but to protect themselves against the destruction of cars and machinery, which is necessary to the conduct of their business, they will have no difficulty in dealing with the insurance question. He believed that the old line companies would then come to them and propose lower rates, or if the railway companies had insurance contracts that were only three months old, and the managers can show the insurance companies that the conditions had been improved, they could undoubtedly secure the benefit of reduced rates and be willing to make a new contract for the remainder of the period. Mr. Staats is working in the right direction, but what he gives is not adequate. Mr. Robinson hit the nail on the head. The trustees of the mortgages will not accept that insurance. He was told by them during the organization of his mutual insurance company that the trustees might come in and object. In some of the mortgages of his company the trustees are the custodians of the insurance and can do what they please with it, cancel it, or place it elsewhere. If Mr. Staats will organize a company with \$20,000,000 of capital, it will then be possible to talk with

him about going into his insurance company. The speaker did not believe a \$1,000,000 company is sufficient. He had about \$700,000 of insurance to place about three months ago, and in view of the impaired condition of some of the stock companies by reason of the recent large fires in several cities he could only get one-half of it in the old line companies, and the balance of it had to be taken in the English Lloyds. The report of the committee recommends that all the traction companies go into this insurance company. That is the way the speaker understood the report. He said he should be sorry to see that recommendation go out from this body, for he did not believe, for the reasons stated, that the association was prepared to make any such recommendation.

Mr. Staats explained that it was not the intention of the American Railway Insurance Company to take the entire insurance on any one property, simply to take a reasonable portion of it, and in so doing to compel the old line companies to lower their rates down to a reasonable point. If competition is done away with the rates will go up again.

Mr. Davies also explained that the insurance committee did not recommend that the members of this association place their insurance with any insurance company. The insurance committee simply expressed the opinion that the traction companies in the country could unite and carry their own insurance in some way. The insurance committee ought not to represent any insurance company. It ought not to recommend any mode of insurance as against any other mode that may be in competition with it. The insurance committee ought to hear suggestions from all sources and advise the association as to the best method; first, to protect their properties against loss by fire by proper equipment and construction, and, secondly, to insure themselves against any money loss that may result from a fire which may occur. The insurance committee is not interested in any insurance company. If the association should appoint another insurance committee to continue this work during the coming year it ought not to be interested in any insurance company or any plan of insurance. The suggestion of Mr. Loomis, as representative of the National Board of Fire Underwriters, to confer with a committee of this association is a good one. The committee does not condemn the stock insurance companies; it should not; it should confer with the representatives of the stock insurance companies, accept recommendations from them and get them to co-operate with it for the benefit of the traction companies.

Mr. Loomis said he wished to add a word for the stock companies so far as the co-operation of the stock companies with the association is concerned. It is said that they have not come forward. The stock companies are perfectly willing to co-operate with the committees of this association at any time, to meet with them and satisfy them they are willing to do anything in their power on a co-operative basis with the street railway companies. The insurance companies are willing to co-operate if the railway companies will co-operate.

The vice-president said he had given a great deal of attention to this matter, and desired to say a word or two in connection with it, having for some years been in the fire insurance business and now being required to place many millions of fire insurance. The justification for the appointment of this committee, he thought, was evident to-day. This is the first time he had seen one of the old line fire insurance companies send representatives to this meeting to say anything to indicate that they care about the electric railway business. A few years ago the electric railway properties were on the prohibited scale, and, as Mr. Ford said, it is difficult now in certain sections of the country to cover large lines of insurance. It is apparent the old line companies have awakened to the fact that if they treat the railway companies as they have too often treated them in the past, that perhaps the latter will be put in a position to help themselves. The suggestion of Mr. Ford met the speaker's hearty approval; in fact, he said that this proposition to raise a million dollars of capital for this company was largely his own. Mr. Staats and those in Cleveland who are interested in this proposition, sought to interest the speaker in the company for which it was proposed to arrange for \$500,000, half capital and half surplus. He took the position that this sum was too small to be of any moment whatever, even as a balance wheel to the old line companies. One of the difficulties under which the old line companies labor is the 25 per cent commission which is one of the first charges against fire insurance and from which they cannot get away, and this money can never come back to the insured. The speaker said that he had recently had some policies cancelled by some of the companies, and others are likely to be cancelled in the future, and, therefore, he thought it is highly important that this association should continue this

work. As Mr. Staats has well said, if this association had among its members a good, strong stock company, complying with the laws of the most stringent State in the Union, be that New York, and having within its own ranks the best ability to inspect these risks and know what are proper precautions to put upon them, the roads could make a success of the undertaking. They can employ as good men as can any fire insurance company in the United States to conduct this business. They would know what the insurance is costing, and would have some guide, when the insurance companies say the roads should pay so much money, whether that was right or not. It might not be possible to organize a company that would be large enough to carry all these properties, but there is enough ability in this association to organize a company as to give a guide as to what are the proper charges.

The meeting then adjourned until Thursday morning at 10:00 o'clock.

#### THURSDAY MORNING SESSION.

The American Street and Interurban Railway Association met pursuant to adjournment at 10 o'clock a. m. It was called to order by President W. Caryl Ely, who announced as the first order of business the report of the committee on heavy electric traction. This report was presented by the chairman of the committee, Calvert Townley, of the New York, New Haven & Hartford Railroad Company.

#### REPORT OF THE COMMITTEE ON HEAVY ELECTRIC TRACTION

The committee on heavy electric traction respectfully reports as follows: As a starting point it seems necessary that the term "heavy electric traction" should be given a specific definition. It is presumed that the definition will include steam railroads or branches thereof which have been electrified. There are, however, many roads which have adopted electric traction from the start, the weight of the rolling stock of which the capacity of the electric equipment adopted and the operating speeds established are as great as or greater than those obtaining on many ex-steam lines. These electric lines include both the elevated and subway roads in our large cities and many interurban roads as well. Your committee is of the opinion, therefore, in the absence of any other definition, that all such roads would come within the scope of the term "heavy electric traction."

The committee would be glad to have from the association a clear definition of what is intended to be included by the term "heavy electric traction."

In the absence of any device as to the scope and duties of this committee we have been reluctant to ourselves to define our scope of duties and to undertake any particular line of work based on such definition. It is the opinion of the committee, which is herewith offered as a suggestion to form a basis of discussion, that we can best serve the interests of the association by investigating and recommending for standardization such matters pertaining to heavy electric railroading as may from time to time be referred to us.

The mileage of the railroads previously operated by steam and now operated by electricity is as yet comparatively small, but the electrification of several roads entering New York is well under way, and the projected electrification of other roads there and in other sections of the country gives promise that a very large amount of this kind of work may be expected in the near future. It is naturally desirable that the interchange of traffic between such roads should be facilitated, this being perhaps more essential than is the case with the ordinary trolley roads, whose sphere of operations is naturally more localized. On the other hand, the engineering questions involved in the electrification of steam roads present many new features, about which engineers and operating men are by no means agreed. It would, therefore, be quite as dangerous to at this time undertake too rapid a standardization as it would be to neglect the subject, and your committee, therefore, feels that the questions should be approached with caution and treated with prudence.

CALVERT TOWNLEY (Chairman),  
LOUIS B. STILLWELL,  
EDWIN B. KATTE,

Committee.

At the conclusion of the reading of the report of the committee, as published above, Mr. Townley said that he was associated with interests which operate trolley roads of different types, and also who are electrifying roads that are now operating by steam, and that he had been impressed with the fact that electric railroading and steam railroading are closely akin. He had had steam railroad men tell him that the trolley was an insignificant and unimportant kind of railroading, and trolley men had said that steam railroad men did not know anything about the trolley business and there were no points of similarity. Both of these extreme opinions are wrong. It seemed to him that both the steam and the trolley roads have so many points in common that it is much safer to class them together, and he was impressed with the possibility of development in electric traction methods whereby the trolley roads, instead of primarily competing with, can become feeders to, the steam roads, so that the two classes of transportation will be friendly and will assist one another. There is no reason why this cannot be done if the arbitrary conditions of ownership and competition can be re-

moved. It also seemed to him, if the committee should be continued as a standing committee, that as electric interurban practice is approaching so near to steam conditions, it would be desirable to take advantage of the experience of steam roads in dealing with the problem more than has been done in the past. It would be difficult to draw a dividing line between the ordinary trolley road and what may be called heavy electric traction, and it could not be drawn rigidly; but it is certain that the interests of heavy interurban service and electrified steam service are going to be so closely identified with each other that it would be profitable to take cognizance of the fact and give careful attention to it.

It was then moved by H. C. Page, of Springfield, Mass., and seconded by Mr. Grant, that a vote of thanks be extended to the committee for the able and instructive manner in which they handled this subject. The motion was unanimously adopted and referred to the committee on resolutions.

As there was no discussion of the report, the president announced that the next order of business was the paper, "Elevated Railways and Their Bearing on Heavy Electric Traction," by H. M. Brinckerhoff, consulting engineer, New York City. Mr. Brinckerhoff then read the paper, which was published on page 737 of the Oct. 20 issue. There was no discussion.

The next paper was on "Electric Railways in Sparsely Settled Communities," by E. P. Roberts, of Cleveland. This paper was printed on page 742 of the Oct. 20 issue.

Mr. Roberts, in presenting an abstract of the paper, said: "The value of the promoters' or 'speculative' interest in a proposed electric railway is generally in stock, and as the margin of profit is nearly always quite small, even though the gross income may be quite large, a small percentage difference in the amount of the gross and net receipts may, and frequently will, make such a difference in the amount available for dividends on stock as practically to determine whether the stock will have any value, or often may be just the difference between paying interest on the bonds or not quite meeting such interest, in which latter case the original speculative interests may be entirely wiped out by the process of reorganization. It is therefore very evident that, practically speaking, it is impossible to give too much time and expense to the preliminary investigations in order to insure that the location and design of the road are such as will give maximum dividends, considering the effect of variations of route on first cost, operating expenses and gross income, and the net income resulting from the foregoing considerations. It is very easy to affect the gross income from 5 to 15 per cent by changes in route, or by the character of terminal facilities, and such changes may be accompanied by a greater or less first cost, or greater or less operating expense, or both. The above thought is based on a statement by A. M. Wellington, in his classic book relative to 'Railway Location.' The speaker believed that it would be of value to all interested in electric railways to read the 'Introduction' in this book, and also the general statements in Chapter I, relative to 'Economic Premises.' As an introduction to this chapter, Mr. Wellington gives the following quotation of D. H. Ainsworth: 'The location of a railroad is giving it its constitution. It may be sick, even unto death, with accidents of construction and management, but, with a good constitution it will ultimately recover.'"

At the conclusion of the reading of Mr. Roberts' abstract, the Chair complimented the author. As there were no remarks, the president announced the paper, "Interurban Freight and Express," by E. C. Spring, general manager Dayton, Covington & Piqua Traction Company, West Milton, Ohio. This paper was printed on page 740 of the Oct. 20 number.

George W. Parker, general passenger, freight and express agent of the Detroit United Railway Company, said that an ordinance had recently been passed in Detroit requiring a payment of \$1 per car per round trip for all freight cars operated in and out of the city. This now amounts to \$5,000 per car. In addition, the company is also compelled by ordinance not to operate express cars oftener than every two hours. He then asked Mr. Spring for his opinion as to the future attitude of municipalities toward interurban freight and express traffic.

Mr. Spring said there was such a diversity of opinion among the various municipalities in the State of Ohio upon this point that he could not formulate a definite opinion on the subject.

Ernest Gonczbach, of Sheboygan, Mich., said that he represented only a very small road which, up to two years ago, had been doing a small amount of freight and express business with one car, whose earnings amounted perhaps to 20 cents per car-mile. Since that time the company has been pushing the freight business, and has succeeded to the extent that that car to-day is earning about 30 or 40 cents per car-mile, and in some months

earn 45 cents per car-mile, whereas the regular passenger interurban cars earn about 25 cents per car-mile. It seems to him that earnings of that magnitude are not to be sneered at. The company has only one car, but it handles very heavy shipments. That region produces a great deal of cheese, and during the month of September last that one car took in \$727 gross in freight, at an operating cost of \$254. This is decidedly better than can be obtained from the passenger service. The company is hauling part of the output of a large factory, with receipts of about 45 cents per car-mile.

G. B. Hippee, of Des Moines, Ia., said his road was handling carload freight. It has a joint traffic arrangement with roads running to Chicago by which the steam company furnishes the cars, and the electric road gets 33 $\frac{1}{4}$  per cent of the long haul. Thus, the company receives \$25 for hauling a 60,000-lb. car an average of 15 miles. The company

is striving for heavy business, and has been for the past three years. Its freight earnings started out, at first, at about 13 per cent, and now are about 40 per cent of the gross receipts. The company hauls all the coal burned in the electric light station in Des Moines, and all the material that has gone into the building of the army post. During the last three years that has represented about 8000 cars. The company has a regular freight department and men who solicit business, because it has felt that there is money in it, especially in the long-haul business.

H. M. Brinckerhoff, of New York, referred to the necessity of having a high gear ratio, that is, slow-speed gearing, on the interurban freight cars. This will reduce the consumption of current in starting and on grades. He also called attention to the practice on some electric roads of hauling of stock from cross-roads. The farmers drive the stock to these roads, and the electric roads then take the cattle to the steam roads instead of having the cattle driven for considerable distances. A stock loading platform can be erected for a small amount of money, and the farmer can then be accommodated near his barnyard, while the electric railroad gets the haulage of the cattle to the connecting steam railroad. He asked Mr. Spring whether the steam railroads in Ohio and Indiana manifest a willingness to cooperate with the electric roads so as to develop a business along these lines, that is, loads gathered by the electric roads at the cross-ways.

"TRIUMPH"—BRONZE PRESENTED TO W. CARVELLY BY THE FOUR ASSOCIATIONS

Mr. Spring thought that arrangements could be made with the steam roads, in some cases at least, to interchange carload lots, but it has been almost impossible up to the present time to get the steam roads to recognize or work with the electric roads in any way or manner.

Mr. Gonzenbach agreed with this sentiment.

P. P. Crafts, of Clinton, Ia., said that his company operates an interurban railroad between Clinton and Davenport, and went into the business of hauling freight and express about a year ago in a rather tentative manner. Anything is taken which will go into the cars, from a 1-lb. package to a 1900-lb. reaper. The rates are based on the distance carried, and while the company has severe steam railroad competition from three lines, the Burlington, the Rock Island and the Milwaukee, it has succeeded in running up its freight-car earnings to nearly 45 cents per car-mile. To exceed that point the equipment must be increased. The company recently made a contract on a tonnage basis with the American Express Company, but only for through business.

President Ely then announced as the next order of business the paper on "Tickets and Rates," by F. W. Coen, secretary and

treasurer, Lake Shore Electric Railway Company, Cleveland. This paper was published on page 754 of the Oct. 20 issue. Mr. Coen presented the paper. The next paper, entitled "Some Notes on the Evolution of Electric Transportation," by Theodore Stebbins, was read by title only, as he was absent. There was no discussion on either paper.

The president then appointed the following committees:

On Nominations: C. D. Wyman, chairman, Massachusetts; G. Tracy Rogers, New York; H. A. Nicholl, Indiana; John A. Beeler, Colorado; E. K. Stewart, Ohio.

On Resolutions: R. E. Danforth, New York; L. D. Mathes, Iowa; D. A. Hegarty, Arkansas.

The meeting then adjourned until 2 o'clock.

#### THURSDAY AFTERNOON SESSION

The association met pursuant to recess at 2:30 p. m., with Vice-President James F. Shaw, of Boston, Mass., in the chair. The first paper presented was that on "Electric Railway Employees and the Young Men's Christian Association," by E. M. Willis, railroad secretary, international committee of Y. M. C. A., New York City. This paper will be found on page 761 of the Oct. 20 issue. At the conclusion of the reading of this paper, Mr. Willis said:

"President Shaw has suggested that I may supplement this paper. I will conclude by saying that I would refer you to any of the gentlemen who are connected with properties where there are now street railway associations to verify what I have said to you here. Mr. Ford, of Ford, Bacon & Davis; Mr. Brockway, Mr. Danforth, Mr. Wilcoxon and Mr. Hicks, all of whom are here at this convention, and Mr. Huff, of Richmond, and the managers of the Memphis and Birmingham street railway companies. We are very desirous of co-operation in every possible way with all street railway companies, and I believe that the officers who are here and who have the interests of the men at heart, are in sympathy with this work, and if you will communicate with us at any time we shall be glad to co-operate as you desire."

Upon motion, duly made and seconded, a vote of thanks was tendered to Mr. Willis for his paper.

The following papers were then read without discussion: "Selection of Trainmen," by C. E. Learned, superintendent of inspection, Boston Elevated Railway Company, Boston, Mass.; "Discipline of Trainmen," by F. W. Brooks, assistant general manager, Detroit United Railway, Detroit, Mich.; "Uniforms and Badges," by John R. McGivney, purchasing agent, New Orleans Railway & Light Company, New Orleans, La. These papers, in the order named, were printed in the Oct. 20 issue, on pages 758, 763 and 762.

Vice-President Shaw then called for the report of the committee on rules, of which E. G. Connette is chairman.

Mr. Connette presented the following report:

#### REPORT OF THE COMMITTEE ON RULES

The committee is pleased to report that the replies received from data sheet No. 11, which was sent to the members of the association, show that a large number of street railway companies have adopted the standard code of rules as approved by the association at its annual convention in St. Louis in 1904.

Owing to local conditions, some of the companies have added new paragraphs to some of the rules. Such additions were designated by using the same rule number to which the addition was made, together with an affixed letter, as for example: 17A-17B, etc. In some cases where the local conditions would not permit of the use of certain rules, they have been omitted; the number left vacant, thus preserving the integrity of each standard rule under its own number.

The general rules are numbered from 1 to 100, inclusive; rules for conductors, from 101 to 200, inclusive; and rules for motormen, from 201 to 300, inclusive; interurban rules, commencing with No. 1 and using the prefix letter "I."

From the replies received, the committee has deemed it advisable to revise the interurban rules, which were submitted to the St. Louis convention, so as to conform to the practice of moderate-speed interurban service. All companies operating high-speed electric railroads expressed a desire that the committee formulate a code of rules for high-speed interurban service, and we beg to submit, therefore, for the consideration of the convention a set of rules in pamphlet form for the operation of trains on high-speed electric railroads. These rules conform, as far as practical, to the rules of the American Railway Association for the operation of steam trains, as the operating conditions of high-speed electric railroads is so nearly identical with the operation of steam railroads that the committee do not believe it is wise to depart from the steam railroad practice any further than changed conditions necessary for the operation of electric railroads may require. Respectfully submitted,

E. G. CONNETTE,  
E. C. FABER,  
E. J. RYON,

Committee

After reading this report, Mr. Connette said:

"The committee has not made any alterations in the standard code of rules as adopted by the association at its meeting in St. Louis in 1904, except in the case of the interurban rules. The interurban rules for moderate speed lines have been changed so as to conform, as far as possible, with the rules of high-speed electric railroads, especially so far as signals are concerned. You will find that the signals for moderate-speed roads conform almost identically with the signals provided in the rules for high-speed electric railroads. Owing to the requests of practically all of these lines, the high-speed rules have been made to conform, as far as the conditions would permit, with the rules of the American Railway Association. These latter rules govern the movement of trains on steam railroads, and combine the wisdom and experience of years, and we do not believe that any committee appointed by this association could improve to any great extent upon them. Some five years ago, the Street Railway Association of the State of New York appointed a committee to arrange a standard code of rules for the government of street car lines. I had the honor to be the chairman of that committee. The committee was confronted with the condition that the State includes cities of the largest and of the smallest size, and it seemed at first as if it would almost be impossible to arrange a joint set of rules which would be applicable to all the lines alike, but after working on the matter for three years we finally arranged a code which was submitted to the association and approved. The State Board of Railroad Commissioners, after carefully examining the rules, also approved them. That is the code that the committee submitted to the St. Louis convention in 1904, and which was adopted by the convention. The rules are simple, they have no superfluous words or sentences, and are compiled with a view to covering the general conditions. Of course, we realize that local conditions may require some additions to the rules, but wherever this has been necessary, the additions have been made without changing any of the rule numbers—a letter has been added to the number so as to maintain the integrity of the numbering of the rules as contained in the standard code. Some roads found that some of the rules contained in the book were not applicable to their lines, and in such a case the rule was simply omitted. The number was placed in the book, with a line of stars opposite it, but the rule was left out, so that the integrity of the numbering of the rules was maintained. The object of that is this—that in the course of time the rules governing street railroads should be absolutely uniform, as on steam roads, so that a motorman who is operating a car in the city of Columbus and goes to the city of San Francisco will know when he is employed there what rule No. 17 is. He is thoroughly familiar with it and there is no chance for confusion. I would suggest, if the Chair will permit me, that any alterations or additions to the rules that may occur to any of the members of this association should be submitted to the standard rules committee for its consideration. I believe that the association has appointed this committee as a standing committee that will be continued from year to year until we reach a standard code of rules which will be entirely satisfactory."

Mr. Page, of Springfield, moved that the report of the committee on rules be accepted and the suggestions of Mr. Connette approved. (Motion carried).

The meeting then adjourned until 10 o'clock on Friday morning.

#### FRIDAY MORNING SESSION

Vice-President Beggs called the meeting to order at 10:30 a. m., in executive session. The report of the committee on municipal ownership was presented by C. D. Wyman, chairman. The report of the committee on public relations was then presented by Henry A. Robinson, of New York City. Mr. Beggs, as chairman of the committee on compensation for carrying United States mail, made a report.

The paper on "Handling Public Complaints," by John A. Beeler, vice-president and general manager Denver City Tramway Company, was then read by the secretary. This paper is published on page 798 of this issue. On motion, it was received and ordered to be spread on the minutes.

The paper on "Leaks Between Passenger and Treasurer," by A. H. Stanley, general superintendent Public Service Corporation of New Jersey, was read by Mr. Stanley. This paper is published on page 799 of this issue. On motion, the paper was received and ordered to be spread on the minutes. Permission was subsequently given for the publication of these papers.

Vice-President Beggs asked if there was any discussion on the paper presented by Mr. Stanley.

W. G. Ross, of Montreal, said that the association was very much indebted to Mr. Stanley for his very able paper. Two parts of it interested him very much, and he had no doubt they also interested others of the members. The first part was in relation to fare collections, and the other part referred to the daily car record. In the speaker's opinion, the important part of the street railway business which relates to fare collections is the most unsystematic part of it all. If anything is wrong with the trucks or the rails or the power houses, it can be put right. Many railway managers have the opinion that the method of collecting fares on their cars is wrong, and it is time it was put right. Mr. Stanley made mention of the "pay-as-you-enter" car which is being operated in Montreal. One of these cars was brought to the convention to illustrate how it operates. This car gets over all leakages. There is no question about that. The Montreal company has been troubled only in one direction, that of the conductors missing fares. It has not been troubled with dishonest conductors, because they cannot be dishonest if they want to, owing to the use of the fare box. The "pay-as-you-enter" car is in successful operation. There are fifty of them running to-day in Montreal, and the company will have 100 more inside of the next four months. It seemed to the speaker that if it were possible to effect a saving in the revenue alone of from 10 per cent to 15 per cent, where a company suffers only from a missing of fares, it is much more important to the roads in the United States to adopt some similar system. The car is also a great preventative of accidents on the rear platform. The speaker thought that all would acknowledge that accidents happening on the rear platform are the most troublesome ones, because the conductor is generally in the front of his car collecting fares when these accidents happen, and this leaves the road open for some unscrupulous person to make absurd claims against the company. The other matter to which the speaker referred is that of the daily car record. The Montreal company does not use the record, because it has no registers, but it seemed to the speaker that too much of an effort was being made to make bookkeepers out of the conductors, taking up their time on the car attending to these records when they should be attending to other duties. The "pay-as-you-enter" car does away with the accounting between the conductor and the company. The advantages to the public in the use of this car is that once the passengers are inside of the car there is no further trouble; they have two separate exits, and they can leave the car without any interruption by the incoming passengers. There is no conductor going through the car every time a passenger boards it. That is quite a point in favor of the car, especially during the time when the cars are very crowded, when the conductor has frequently to move through the car, pushing against the passengers, which is very objectionable. This car keeps the conductor where he ought to be, on the rear platform, to look after his business.

Vice-President Beggs said that, on behalf of the association, he thought a resolution might properly be offered, expressing the debt which the association owes to the Montreal company for the trouble and expense to which it had been subjected in sending this car to Columbus for inspection and for the information and instruction of the delegates. He suggested that a motion for a vote of thanks to the Montreal Street Railway Company would be appropriate.

Mr. Wyman, of Boston, said that he joined with the rest of the members of the association in this expression of appreciation to the Montreal Street Railway Company and its managers, because this car has really presented what in the opinion of a good many of those present, is a decided innovation, and holds at least the possibilities of some very great advantages. He said he would be glad to be the mover of a vote of thanks to the Montreal Street Railway Company for its action in this matter. (Motion carried.)

Vice-President Beggs then asked Mr. Ross in regard to the transfer point, where a large number of people crowd onto the car. He said that, of course, it is highly important that the car be gotten into motion with the least possible delay, and at many transfer points almost the entire occupancy of the car is changed, when thirty to forty people get on and off. He wanted to know what method was pursued in issuing transfers.

Mr. Ross said that the conductor issued the transfers at the time the passenger enters the car.

Vice-President Beggs asked if this plan did not have a tendency to choke the entrance of the car and delay it greatly, when the conductor is busy delivering a large number of transfers to different points to the passengers. In Milwaukee the issuance of transfers has been a matter that has received a great

deal of attention and a good deal of criticism. Nearly all the roads in the different parts of the country have found it necessary, in order to reduce the abuse of transfers, to require them to be demanded immediately upon the payment of fares, and in Milwaukee, unless they are so demanded, the transfer is not issued. In that city the company has taken away from its conductors all discretionary powers as to the issuance of transfers, and has made the regulation that they must be called for at the time of the payment of fare. It seemed to the speaker, in looking over the Montreal car, with its very many good features, that a mass of people crowding on the car, among whom might be some of the rougher element, would block up that passage way. Of course, he understood that in Canada the companies have a little better control over such matters than in the United States. He made a trip to Montreal a few years ago to see the operation of the fare box which is used there. He would like very much to adopt it, but never felt he had quite the nerve necessary to be the first one in the United States to introduce the presentation of that fare box to the passengers on his line.

Mr. D. McDonald, of Montreal, in answer to the question of taking in a large crowd on the platform and issuing transfers at the same time, explained that the platform of the Montreal car is sufficiently large to accommodate about forty passengers, if they should have to stand on the platform, although they might be a little crowded. The average number of passengers that may be picked up during the day's work will not exceed five or six at a time. In exceptional cases, the maximum cases, thirty-five or forty will usually be the limit of any picked up at any transfer corner. The speaker said that he had made a special study of this point and found it was an extraordinary thing in a crowded city—in Montreal, as well as other cities—for this number to be exceeded. Montreal has a population of 500,000 people, who are concentrated into an area of about 12 square miles, which conditions, he thought, were almost unparalleled in any American city with which he was acquainted. Montreal is one of the most congested cities on the American continent. Now if the maximum number of passengers that may be taken on a car at a time during the rush hour is set at thirty-five or forty persons, they can be taken care of as follows: The "pay-as-you-enter" car is not a pay-before-you-enter car. The rear platform of the car, as may be seen from the exhibit, is very large, and has been made the pay office of the car. When there are thirty-five or forty passengers to deal with, the pay office is sufficient to accommodate them, and while these thirty-five or forty persons are getting on, there will be at least ten or fifteen that will have already passed through and paid their fares, and there will probably remain some twenty-five or thirty that must be attended to. The conductors carry four different kinds of tickets, and must furnish tickets of each of the series to passengers who request them and issue transfers at the same time; but the issue of transfers and the giving of change and tickets is done while the car is under way, those who have still to be attended to remaining on the platform. The practical operation is to get the passengers into the pay office and then start up and collect the fares, and before the car reaches the next corner it will be found that thirty-five or forty persons will have paid their fares, and the company will have the satisfaction of knowing that it has received its proper dues. As to the transfer question, in all up-to-date systems the conductor issuing transfers during the rush hours has only the direction to punch on the transfers. The provident and thoughtful conductor will punch the time on his transfers before he starts on his trip, so that when the passenger gets on the car during the rush hour and asks for a transfer all the conductor has to do is to punch the direction. If the line on which the conductor is operating is running east or west, all he has to do is to punch north or south, and if he is provident, as already explained, he can punch a sufficient number of transfers north and south, which he merely has to hand out to his passengers. In Montreal the issuing of transfers has practically resulted in this—that all a conductor has to do in issuing transfers is to hand them to the passengers. The speaker said he had been in the street railway business for the last twenty-five years and had not seen any radical innovation in the system of collection of fares. In every other properly managed business the first step is to get up proper methods and forms for the delivery of goods and the receipt of money. That is the first consideration of any business which is properly managed. That is what is required in the street railway business; that is what all the companies have been aiming at, and the speaker thought that at present they have very good proof that it can be done in the new type of car which has been introduced on the

Montreal line. The object which the company had in mind is that which was so ably stated by the worthy president of the association the other day—that is, to cut out the guess-work. So far, the speaker said that he must admit the tendency had been to instruct the conductors to search for their fares. The conductors often do this in a searching, suspicious manner which is very disagreeable to the patrons. The "pay-as-you-enter" car cuts that out. The car, in the first place, is conducive to the safety of the passengers—the security of the passengers is assured to a greater extent on such a car than on any other. That is the first claim made for it before the municipalities. The different municipalities are getting after many of the companies on account of the number of accidents which occur, but if the conductor is at his post where he can have control of his car, accidents will be reduced and satisfaction will be given to those who have a right to expect the railway companies will do their duty in the best manner that it can be done. The conductor also is benefited by the new arrangement. The speaker said that he spoke from knowledge on the subject. He had served as a conductor and had missed fares. In fact, the speaker said, there was present in the room a superintendent before whom he had been called for missing fares; but he had a good man to deal with, who accepted his statements. The speaker said that he thought that all present had felt, as superintendent and managers, the awkward position in which they are placed when they call before them conductors for missing fares and transfers. When a man is called in who has missed two or three fares a day or two before, he does not remember having missed them, and, in fact, does not know anything about it. The manager, on his side, is not positive, and he has to stand and lecture the man. Conductors have a right to demand from the companies a system whereby they can do their work properly and completely, and the managers have no right to impose a duty upon them which they cannot do themselves. The speaker said that he wished to thank the mover and the seconder of the motion just passed and the vice-president of the association for his kind suggestion in suggesting a vote of thanks to the Montreal Street Railway Company.

Mr. Stanley asked Mr. McDonald how the car was received by the public when it was first introduced, and the method the company used in introducing the car in regular operation.

Mr. McDonald replied that the "pay-as-you-enter" car was first introduced by the operation of a single car. The first car had a 7-ft. platform, and the car on exhibition in Columbus has a 9-ft. platform. This 9-ft. platform was especially designed to accommodate smokers, who are a class of riders that cannot be neglected. The car has a space of 2 ft. for smokers. The first car was taken out with a number of the Montreal aldermen and representatives of the press. They all expressed themselves as greatly pleased with the car, and said it was a decided improvement. After this trip had been made with the representatives of the press they naturally advertised the car with a report of this tour and with the announcement that the second day after the car would be put in actual service. The car had a large red number on the front dash-board, to make it distinct from the others, and to give notice that it was a "pay-as-you-enter" car. There was no opposition to it for a long time. When the company began to increase the number of cars and began to reach the more considerable number of that part of the public which does not care about paying carfare, it began to get letters about the car, and many others were sent to the newspapers. The matter was debated in the papers to some extent. The management discussed the matter with the editors of the different papers, who became thoroughly convinced that the company was making a reasonable proposition to the public, and the speaker thought that all those present would agree that when any corporation makes a reasonable proposition to the public, the majority of the public will accept that proposition. Altogether, there was not as much trouble in introducing the "pay-as-you-enter" car as there was in the first place in introducing electric traction in Montreal. The opposition to the car died away in a short time, and instead of having any objection to the car now, the passengers like to wait for it. It is a more comfortable car in every way, and the passengers are not subjected to annoyance of any kind after they have once paid their fare and entered the car.

Vice-President Beggs announced that it had been the original intention to have a recess after the program of the morning was completed, but it was later decided to continue the business of the convention until it was completed. The next business, therefore, was the report of the nominating committee, of which Mr. Wymen, of Boston, was chairman.

Mr. Wyman presented the report, which was as follows:

For president, John I. Beggs, of Milwaukee.

For first vice-president, Calvin G. Goodrich, of Minneapolis.

For second vice-president, James F. Shaw, of Boston.

For third vice-president, Arthur W. Brady, of Anderson, Ind.

For members of the executive committee, the president, vice-presidents, and C. L. S. Tingley, of Philadelphia, president of the Accountants' Association; H. H. Adams, of Baltimore, president of the Engineering Association; S. L. Rhoades, of Philadelphia, president of the Claim Agents' Association.

Upon motion of Mr. H. A. Robinson, of New York, the secretary was instructed to cast one ballot for the officers named by the committee.

Vice-President Beggs then expressed his appreciation of the action of the association in elevating him to this very responsible and somewhat onerous position. He announced that he would perform the duties devolving upon him as president of the association to the best of his ability, and give the office such time as it may require. He earnestly asked the co-operation, sympathy and assistance of the members. He said that the association was dependent upon the members of the association for its success, and particularly upon those members who have had experience in years gone by. There were many things still to do to render this association as effective as all hoped to make it. One of the things upon which he thought all the members should bend their energies was to increase the membership, and he urged all those in the various sections of the country as they came in contact with those who are connected with companies which are not now members to exert their best effort to secure such companies as members of the association. The secretary will try to prevail upon certain members who come from sections where there are companies which have dropped out of the association during the past year to use their influence with those companies to come into the association again. The officers of the association will bend their energies to bring in some of the large companies in the East before the next annual convention. Mr. Beggs also said that the members should devise some method of improving the attendance at the open sessions of the association, after the opening session. The association had had at this session some of the most important matters that could come before the body, yet there had been present only a very small percentage of those who should have been there. He felt that when a company sends representatives, these representatives owe it, not only to the association, but to the companies they represent, to attend the business sessions. Another year he might suggest to the executive committee that a roll should be taken at each meeting to show who were in attendance, and that a copy of that roll should be sent to all members of the association, that they may know whether those who were in attendance at the convention had performed the duty which they owed to the companies and to the association. The speaker did not think that there had been a session of this association when some business had not been transacted which would be of advantage for the delegates to carry back to their companies. The paper of Mr. Stanley was a most valuable one. The subject treated could be taken up by the chief executive officer of every company in this country and discussed with his superintendent of transportation or traffic manager, as the case may be, with very great advantage. They may not agree with all that is contained in the paper, but there is a vast amount of meat in it. The same remark applies to the suggestions made by Mr. McDonald and Mr. Ross. These matters are highly important. Therefore, the speaker suggested that earnest thought be given to these things. His belief was that a better attendance could be secured with less loss of time if the association held one session only of four hours, say from ten to one o'clock, or to two o'clock, as might be determined, and have the convention called to order promptly. Then it would accomplish much more. That would leave both ends of the day open for the inspection of the exhibits and other matters. It was discouraging for the presiding officer to look on a mere handful. In conclusion, he again thanked the association for the honor conferred upon him, and said he knew the work incumbent upon the office of president. The work exceeds the honor, great as that is, because no man can perform the duties of the office without giving a great deal of time to them, particularly when he followed a president who had held that position for three years. He added that he thought it would be easier for his successor to follow him than it was for him to follow Mr. Ely.

Mr. Ross then offered the following resolution:

"Resolved, That the president and executive committee be au-

thorized to revise, add to, or take from the various standing and special committees, or to create new committees." (Adopted.)

President Beggs then called for the report of the committee on resolutions. It was as follows:

#### REPORT OF THE COMMITTEE ON RESOLUTIONS

To the American Street and Interurban Railway Association:

Gentlemen—Your committee on resolutions begs to offer the following report:

Resolution of thanks to the Manufacturers' Association:

Whereas, The American Street and Interurban Railway Manufacturers' Association has assembled and placed for examination the most complete, excellent and interesting exhibit of railway appliances ever shown at any convention, and,

Whereas, The arrangement of the exhibits, with respect to artistic effects, as well as with regard to convenience and facility for examining them, gives evidence of the most careful and painstaking thought, and,

Whereas, The social and entertainment features provided by the American Street and Interurban Railway Manufacturers' Association have been most carefully planned and carried out; now, therefore, be it

Resolved, That the American Street and Interurban Railway Association place on record its appreciation and thanks to the American Street and Interurban Railway Manufacturers' Association, its officers, executive committee, and its members, collectively and individually, for their energetic and tireless efforts in producing these most successful results.

Resolution of thanks to the Columbus Railway and Light Company, the Common Council of the city of Columbus, Board of Agriculture of the State of Ohio, Columbus Board of Trade, the local committees, the Scioto Valley Traction Company, the Columbus, Delaware & Marion Railway Company, the Ohio State University and the Central Union Telephone Company.

Whereas, The members and guests of the American Street and Interurban Railway Association are under very great obligations to the Columbus Railway & Light Company, the Common Council of the city of Columbus, the Board of Agriculture of the State of Ohio, the Columbus Board of Trade, the local committees, the Scioto Valley Traction Company, the Columbus, Delaware & Marion Railway Company, the Ohio State University and the Central Union Telephone Company, the officials and members of staff of these bodies, for numberless courtesies and attentions, including facilities for exhibiting street railway materials and appliances, complimentary transportation on street and interurban lines, free telephone service, and other privileges and attentions; therefore, be it

Resolved, That this association extends to the companies and bodies just named its sincere thanks and appreciation for the many courtesies which have been given to the association and its members.

Resolution of thanks to convention and banquet speakers:

Whereas, The Honorable Lewis C. Laylin, Secretary of the State of Ohio; the Hon. DeWitt C. Badger, Mayor of the city of Columbus; Robert E. Sheldon, president of the Columbus Electric Railway & Light Company; John Y. Bassell, secretary of the Columbus Board of Trade; the Hon. H. J. Booth; the Hon. H. M. Daugherty; the Hon. D. J. Ryan and R. G. Hutchins, of the city of Columbus, have greatly honored the association by delivering addresses of welcome and speeches at the banquet of the association; therefore, be it

Resolved, That this association extends to these gentlemen its sincere thanks and appreciation of their kindness in preparing and presenting these addresses.

Respectfully submitted,

R. E. DANFORTH,  
D. A. HEGARTY,  
L. D. MATHES.

Mr. Robinson, of New York, then offered a resolution of thanks to the retiring officers and members of the executive committee of the association for the conscientiousness and fidelity with which they had transacted the affairs of the association during the past year. He said that this confidence had been shown by the re-election of a large number of them. To say anything about Mr. Ely at this time would be to paint the lily; that was unnecessary.

Mr. Tingley, of Philadelphia, offered the following resolution: "Resolved, That the thanks of the association are due to the members of the standing and special committees of this association and of the affiliated associations for the valuable services which they have rendered the association during the past year and the reports which they have submitted."

All of the above resolutions were unanimously adopted.

Ernest Gonzenbach, of Sheboygan, offered a suggestion in behalf of the smaller companies, and which was in line with what President Beggs had just said in regard to the interests in the work of the association. He said that he represented a small company, and had taken pains to talk with a number of managers who are operating properties not very much larger than his own road, and sometimes smaller. He found that there was a sort of feeling that the smaller companies were not properly recognized. It has been pointed out to him that among all the officers and members of committees, whose names filled two pages, were

the names of only three gentlemen who represent companies with a revenue less than \$500,000 per annum and not one representing companies with a revenue of less than \$200,000 per annum. He believed that the interests of the association would be advanced if some method is made to get the co-operation of the men who manage the small properties, with a revenue below \$200,000 per annum. Many of the men connected with these companies have shown marked ability, and they should be encouraged to exert themselves in the work of this association. What the smaller companies want is encouragement and not patronizing.

President Beggs said that the matter which Mr. Gonzenbach had suggested was within the power of the companies themselves. It was not so often a question of who shall be advanced to these positions, as it is—who has shown sufficient interest to warrant the association in putting them in official positions. If the men representing the smaller companies would attend these meetings and take an active interest in the proceedings, they would have no cause to think that they are not receiving a proper amount of consideration. To a great extent it has been the men charged with the responsibility of administering the larger properties in the country who have given that time and attention to the work of this association, and that was the reason why they had been so often selected. It is the men who show activity in the various organizations who are advanced to positions of responsibility. It was impossible, in his judgment, to advance the interests of this association simply by selecting some men from these smaller companies. The association must put into positions in the association men who have known reputations for their knowledge of the business and their activity in behalf of the association. That is a question which the committee on nominations has to consider every time the nominations are acted upon. He said that if the representatives of the smaller companies should take a more lively interest in the matters which come up on the floor of the convention, as they are urged to do, they would have no reason to feel that they are not properly considered in the selection of men to do the work of the association. There is no attempt to patronize these small companies within his knowledge. In fact, the association has tried to draw them to it and draw out the work they might be able to do.

Mr. Sloan, of Chicago, said that his experience had been a refutation of what Mr. Gonzenbach had stated. He represented a small company and was once a vice-president of the association and was lately appointed on a very important committee.

President Beggs said that to claim that he did not esteem the congratulations of his friends would be to state something contrary to his nature, but he accepted this office with a full realization of what it means. He had labored in this organization for many years, without any official recognition, but that did not make any difference. He not only had labored personally for this organization, but had a corps of men in the companies he represented attend these meetings, perform work on committees, and in many cases travel nearly across the continent to advance the interests of the association and its affiliated organizations. In order that this should not seem to be a Milwaukee or St. Louis organization, he explained that the gentleman in line for the presidency of the Engineering Association was the superintendent of construction and maintenance of way of the Milwaukee Electric Railway & Light Company, F. G. Simmons, who had been the first vice-president of the Engineering Association for the past term. The speaker said that he had gone to Mr. Adams and Mr. Simmons and those interested in the Engineering Association and had asked them to continue Mr. Simmons as first vice-president. The only way out was to prevail upon Mr. Adams to serve another year. Mr. Simmons had done a great deal of work for the Engineering Association, had made two or three trips to New York and had gathered much valuable data for the work of that association. In the Accountants' Association, Frank Henry, among the able men of that organization, was in line for the presidency. He is the auditor of the United Railways of St. Louis, of which the speaker was the president. Mr. Henry, of his own motion, suggested that he should not be considered for the presidency of the Accountants' Association this year. Mr. Harding, the claim agent of the United Railways Company, of St. Louis, was being proposed for the presidency of the Claim Agents' Association, but Mr. Rhoades was prevailed upon to continue for another year. The president said that he mentioned this matter simply to show how active the men representing these companies had been in the work of the different organizations. He desired that these representatives of the companies with which he was connected should not be elected as

presidents of any of the affiliated associations, in order that an embarrassing position might not be created.

Mr. Gonzenbach said that he believed with some effort it would be possible to get the representatives of the smaller companies to take an interest in the work of this association.

President Beggs then said that he would announce one member of one committee in advance. He intended to make Mr. Gonzenbach the chairman of the committee to select gentlemen to prepare papers for the next meeting. He thought the members of the association would be surprised at the amount of effort it requires to obtain men to present the papers at the convention. Very many men are willing to act on the floor of the convention, but it is difficult to get them to take the time necessary to make proper research and secure material for the presentation of a paper. He asked the secretary to make a note that Mr. Gonzenbach would be the chairman of the committee on papers for the next annual convention. The speaker said in explanation that he had been personally acquainted with Mr. Gonzenbach for a long time, as he was a neighbor of his, knew that he would fulfil the task in a satisfactory manner and was much obliged to him for providing the material for the chairman of the committee on subjects.

Mr. Gonzenbach said that he did not know whether the appointment just announced was an honor or a punishment, but he assured the president that he would be happy to take it up.

Mr. Rogers, of Binghamton, endorsed most heartily all the president had said in regard to the difficulty of obtaining competent persons to write papers for the different meetings. Mr. Rogers said that for a number of years he was president of the New York State Association, and had to travel the State over personally in order to secure some one to write the papers.

Mr. Stanley asked the attention of the association for a moment to a matter in which he believed the public is interested, and which the railways of the United States seem to neglect to a considerable extent; that is having a system whereby the public will know in all the different communities at which point the cars stop; in other words, the arrangement of some standard sign. In Boston a pole is painted with a white circle; in another city a sign will be tacked on a post, and that means the cars stop there, and so on all through the country. There is no standard. People traveling from one part of the country to another are subjected to a great deal of inconvenience because of lack of familiarity as to the methods used. If in order, Mr. Stanley said that he would like to make a motion that a committee be appointed to take up that question and report to the association at the next convention. Motion carried.

On motion, the meeting adjourned.



## THE STREET RAILWAY JOURNAL AT THE CONVENTION

The McGraw Publishing Company had space in Building I, just at the right of the Manufacturers' registration booth, and the force of twelve representatives from the editorial and advertising departments from the home and branch offices was kept busy greeting delegates and attendants and answering questions pertaining to the convention. The space was tastefully decorated and contained several comfortable chairs, writing facilities, etc. The exhibit consisted of technical books and bound volumes of the various publications issued by the McGraw Publishing Company, including the STREET RAILWAY JOURNAL, "Electrical World" and "Engineering Record." The Souvenir Edition of the STREET RAILWAY JOURNAL, which is believed to be the largest single issue of a technical publication ever published, was in great demand, and the publishers received many cordial words of appreciation in reference to this number.

In reply to many inquiries, it might be stated that the cover of the Souvenir this year is a three-color design reproduced from an unusually striking photograph taken near the Black Hand, on the interurban line of the Columbus, Newark & Zanesville Traction Company, about 40 miles from Columbus. Reproductions of the cover were used to good advantage in the decorative scheme of the booth.



The Spokane & Inland Railway Company, controlled by the Inland Empire Electric Railway Company, of which Jay P. Graves, of Spokane, is president, has installed a four-train service between Spokane and Waverly, 35 miles south of Spokane. The equipment is the latest approved pattern and the roadbed is one of the best in the Pacific Northwest.



## PROCEEDINGS OF THE ACCOUNTANTS' ASSOCIATION

The tenth annual meeting of the American Street and Interurban Railway Accountants' Association was held at the Fair Grounds, Columbus, Ohio, Oct. 16-18, 1906.

President W. B. Brockway called the convention to order at 10:20 o'clock on Tuesday morning. He stated that the executive committee had hoped to have this convention called to order by the same gentleman who called to order the first meeting of the association at Cleveland ten years ago, H. H. Windsor, then editor of the "Street Railway Review," but a telegram received from Mr. Windsor stated that he would be unable to be present.

The minutes of the last convention were approved as published. P. V. Burington, secretary of the Columbus Railway & Light Company, then welcomed the accountants to Columbus, and made a pleasing and interesting address touching on the convention history of the association.

The Hon. W. Caryl Ely, president of the American Street and Interurban Railway Association, the parent organization, then addressed the convention at some length. He dwelt particularly on the subject of depreciation, endorsing unqualifiedly the action of the executive committee of the Accountants' Association in placing this subject upon the program, and he hoped for much practical benefit to be derived through its discussion.

President Brockway explained that Prof. B. V. Swenson, the secretary of the parent organization, who was upon the program for an address at this juncture, was unavoidably absent owing to other engagements, but had signified his desire to attend a later session to address the convention.

President Brockway then read his annual address. This was published on page 769 of the STREET RAILWAY JOURNAL for Oct. 20.

On motion of Frank R. Henry, of St. Louis, seconded by Fred. E. Smith, of Chicago, H. C. Mackay, one of the ex-presidents of the association, was then elected an honorary member, in recognition of his long and faithful service to the interest of the association, preceding his retirement from the street railway field for the purpose of entering that of the steam railway business.

C. L. S. Tingley, of Philadelphia, then read the annual report of the executive committee.

Pursuant to the recommendation of the executive committee it was voted, on motion of W. F. Ham, of Washington, that the secretary be authorized to sell, at a price to be fixed by the executive committee, copies of the standard classification of accounts and form of report.

Secretary Elmer M. White read the report of the secretary-treasurer, which showed a present membership of 263, as compared with 152 at the last annual report, and showing also the following financial condition:

Receipts .....	\$3,476.40
Expenses .....	2,590.60
Balance .....	\$485.80

The president announced the appointment of the following committees:

Credentials for Thursday's Meeting.—E. M. White, S. G. Boyle, W. G. McDole.

Resolutions.—Frank R. Henry, C. L. S. Tingley, C. M. Corey, J. B. Hogarth, Charles Wight.

Nominations.—F. E. Smith, H. S. Swift, P. S. Young, J. H. Neal, H. T. Bunn.

The secretary read a communication from Frederick A. Davis, president of the Scioto Valley Traction Company, extending the courtesies of its lines to the members.

At the afternoon session, which was called to order by President Brockway at 2:20 p. m., H. M. Edwards, auditor of the New York Edison Company, and chairman of the committee of electric light accounting of the National Electric Light Association, stated that he came to the convention representing that association in search of information in view of the reorganization which was now pending in connection with that association.

The president then introduced C. L. Judson, of the New York State Board of Railroad Commissioners, who also spoke briefly and expressed the pleasure it afforded him to be present at the meeting for the sixth consecutive time.

P. S. Young, the comptroller of the Public Service Corporation of New Jersey, read his paper on "The Accounting of Capital Expenditures," which appears on page 809 of this issue. This paper and the subject in general were discussed at some length. Arrangements were made to have a photograph of the members taken at 12:50 p. m. on Thursday.

H. H. Adams, president of the Engineering Association, addressed the convention briefly, and said he desired to acknowledge the valuable assistance rendered by President Brockway in bringing about the co-operation of the engineering branch in the recent reorganization of the different associations. The Question Box was then taken up, and the nineteen questions therein contained were disposed of.

President Brockway then brought up the question of the advisability of continuing the Question Box in its present form, stating that certain inquiries made by him as to the experience of other associations seemed to show that this feature in the form in which it was generally maintained was proving unsatisfactory, in that it took from the convention proper the consideration of the questions propounded, thereby detracting from the interest of an oral discussion. He suggested that the questions might be sent out to members two months in advance of the convention, the answers to be given orally at the convention.

C. N. Duffy said he thought the matter could be safely left to the incoming administration to be handled, and no further action was taken on the subject.

The convention then adjourned till 10 o'clock Wednesday morning, in joint session with the other associations.

### WEDNESDAY AFTERNOON SESSION

President Brockway called the meeting to order at 2:45 o'clock, and introduced A. Stuart Pratt, general auditor and treasurer of the Stone & Webster Company, of Boston, who read the paper, "The Use of Curves in Statistics," which is published on page 810 in this issue. This paper was discussed with great interest by the members.

A recess was then declared, and the members assembled upon the grounds for the purpose of being photographed in a group. On reconvening, W. F. Ham, of Washington, chairman of the committee on standard classification of accounts, read the report of that committee and also of the committee appointed to attend the convention of the National Association of Railroad Commissioners, held at Washington, D. C., April 2-5, 1906.

On motion these reports were received and the matter discussed, whereupon it was moved by C. N. Duffy, of Milwaukee, "That it be the sense of this association that a car is a car and a mile is a mile," and that the question as to what constitutes a trailer car mile and what constitutes a car mile be referred to the existing committee on standard classification of accounts, to report next year. The reference was ordered.

Fred. E. Smith, for the committee on nominations, presented the following report, which, on motion, was adopted, and the several nominees duly elected for the ensuing term:

President—C. L. S. Tingley, of Philadelphia.  
 First Vice-President—J. H. Neal, of Boston.  
 Second Vice-President—E. F. Bryant, of Bridgeport, Conn.  
 Third Vice-President—C. L. Wight, of Des Moines.  
 Secretary and Treasurer—Elmer M. White, of Birmingham, Ala.

Executive Committee—W. B. Brockway, of Yonkers, N. Y.; H. T. Bunn, of Knoxville, Tenn.; A. Stuart Pratt, of Boston; H. S. Swift, of Toledo.

### THURSDAY'S SESSION.

The meeting on Thursday was called to order at 10:40 a. m., and the paper by Robert N. Walles, treasurer of the Fitchburg & Leominster Street Railway, of Fitchburg, Mass., entitled "Depreciation as Applicable to Electric Railways," was read. This paper was followed by a discussion. At its close President-Elect Tingley, second vice-president of the American Railways Company, was installed in office. The convention then adjourned *sine die*.

### THE REVIEW DAILY

A feature of the Columbus convention was the daily issues of the "Electric Railway Review," published by the Wilson Company, of Chicago. These dailies made their appearance regularly each morning, commencing on Monday, Oct. 15, and continuing through Saturday, Oct. 20, making six issues in all. They contained not only a report of the proceedings of the different conventions for each day, but also considerable other matter pertinent to the meetings and of interest to the delegates. They were well illustrated and printed and reflected great credit on the publishers and their editorial staff.

# PAPERS PRESENTED AT THE COLUMBUS CONVENTION OF THE AMERICAN STREET AND INTERURBAN RAILWAY ASSOCIATION

## HANDLING PUBLIC COMPLAINTS

BY JOHN A. BEELER,

General Manager Denver City Tramway Company

To deal with the traveling public without developing undue friction is one of the most perplexing problems which daily confront a street railway manager. While ninety-nine out of every one hundred persons who patronize the street cars will do so, month after month, without the slightest trouble, the other individual, who "doesn't like corporations anyhow," often boards the car with the hope that something may occur which will ruffle his feathers and afford him the much-longed-for opportunity of giving the company or its employees a piece of his mind.

On the other hand, it must also be admitted that employees are sometimes overbearing in their conduct toward passengers, surly and impertinent in giving answers to questions, and slow to render assistance and perform acts of kindness which tend to increase their popularity and make friends for the company. The superintendent cannot long remain ignorant of the methods of such men. If not detected by other means, it is certain that many complaints will be recorded against them, and if their habits of action cannot be corrected they must speedily be eliminated from the service. Many a complaint of comparatively trivial nature could easily have been forestalled and the patron satisfied had the employee concerned exercised a little diplomacy in dealing with him. While many conductors and motormen often exhibit this faculty to a remarkable degree, others seem utterly devoid of any power to enforce the company's rules without giving offense, and it is against the latter class that nearly all the complaints are made. A man who has no tact cannot get along with passengers, and such a man is sadly misplaced when he attempts to act as a conductor.

Many and varied are the complaints and grievances. Some of them are sublimely ridiculous, while others are weird, a few highly dramatic, and occasionally we hear one which even borders on the tragic. For an instance of the first, there is a woman who lives out in a suburb; it is not a thickly settled community, and, as is often true of such districts, the residents are strenuous in their efforts to become familiar with each other's doings. The woman comes into the office greatly disturbed and angry. She has a hunted look, and with bated breath informs us that her neighbors are talking about her in a most cruel manner. When she passes by, they look at her out of the corners of their eyes, shake their heads knowingly and make veiled insinuations that she is not just right. They even gossip with the conductors on her line and have enlisted their sympathy, and while none of the car men has actually spoken to her, nearly all have glared unutterable accusations at her. They look at her when she is getting on the car, they stare at her as she sits in her seat minding her own business and speaking to no one. They observe her actions when she is alighting, and actually watch to see where she goes. She cannot endure this treatment any longer, and something must be done at once. She wants the company to correct and discipline its employees. The poor scribe, with patience born of long suffering, assures her that something shall be done to divert these annoying glances, and he hopes she will experience no further trouble, while inwardly he wonders what is wrong at the box-office in her roof garden.

Another pathetic case is that of the forlorn maiden who has handed the conductor a \$5 gold-piece, thinking it was a nickel. It was all the money she had, and the big hot tears are overflowing into briny rivulets as they trickle unchecked toward a bright red spot on the end of her little nose. Her woful countenance would evoke pity from a placid wooden Indian. She can remember on what line she was a passenger, and is sure that it was somewhere between half-past 8 and a quarter after 9 o'clock. Can't the company refund her \$4 and 95 cents, and collect the money from the conductor? The man, in sympathetic tone, assures her that he will cause an immediate inquiry to be made of conductors who passed a given point between half-past 8 and a

quarter after 9, and will make every effort to recover her money. During all this conversation he is harassed by a painful recollection of a time when his sole wealth consisted of a solitary V, and, try as he may, he cannot imagine any combination of circumstances that could have resulted in his even dreaming that it was only a nickel.

Here comes an elderly woman with rotund figure. If you meet her in a hallway you will notice that her features wear a look of savage determination. As she enters the office, it is clearly seen that all her sensibilities of right and justice have been grossly outraged. She is visibly angry. She singles out the young man with the gazelle eyes, and with a commanding frown over her spectacles that brings him to his feet, and says to him louder than words, "Insignificant hireling of a greedy monopoly, approach me!" She begins: "Young man, I want to see the general superintendent personally." "The superintendent is out, madam, and may not return for an hour or two." "Well, I have no time to wait in this office—I want justice, that's what I want." "Madam, the superintendent sometimes errs, but with the taking of complaints. Can I be of any service to you?" "Well, if I can't see him, I suppose you will have to do, but I want you to tell him what I said just as soon as he gets back. I have ridden on your cars for the past fifteen years, and I and the members of my family have paid your company hundreds of dollars. Yesterday I was on a car and handed the conductor a dollar to pay my fare. When he gave me the change, there was a quarter with a hole in it." "Did you call his attention to it, madam?" "No, I did not; in fact, I didn't notice it at the time, but I know your conductor gave it to me, because I hadn't changed a bit of money anywhere else. To-day, I got on a car and handed this quarter to another conductor, and d'ye think he'd take it? Not he! The impudent rascal refused it! I said to him, 'that's a nice way to beat a poor woman! I got the quarter from a street car conductor yesterday, and now, when I offer it to you to pay my fare, you won't take it! Young man, you may think that's clever, but I don't!'" "Madame, can you identify the conductor who gave you the mutilated quarter?" "No, I can't. I didn't pay much attention to what he looked like, but I know he gave it to me, and I think it's a shame that I can't get another quarter for this one. Such robbery ought to be exposed in the newspapers. I am going to see if I can't get justice somewhere!"

Here comes a tall, thin man, who speaks in a high voice. From his appearance it is evident that he is no spendthrift. He holds a transfer in his hand. The issuing conductor punched out the wrong line, and when he boarded the connecting car, the other conductor asked him for an additional fare—manifestly a base imposition for the purpose of securing two fares. He cares nothing about the nickel, mind you, but the principle of the transaction he can't endure, and will not allow it to pass without protest. When he called for the transfer his falsetto effort, no doubt sounded to the conductor, above the rumble of the car and the roar of street traffic, something like the name of the line that he punched, and instead of making inquiry as he should have done, punched the line, as he was in a hurry, taking for granted that it was right. The thrifty one in such case is generally satisfied with a return of his fare and a little "regretting" on the part of the man; but the latter cannot help speculating as to whether in all his past travels there never were any occasions upon which the conductors failed to get his fare, and thus compensated this down-trodden individual many times for his loss.

Then there is a nervous lady who rushes into the office, trying to tell, between gasps for breath, about a horrid mean conductor—she didn't think to take his number, but he is on the car that just passed the office—who gave her only 45 cents in change for the dollar she handed him. She is sure that it was a dollar, because it was every bit of change she had. There was a woman sitting in the seat beside her, and she was sure this woman would swear to the value of the coin, but in her excitement she forgot to ask her name. The conductor insisted that she gave him only 50 cents; but she guesses her reputation in the community is such that if she says it was a dollar, that is sufficient, and the evidence against the conductor is conclusive. After, being assured that an imme-

date investigation shall be ordered, she is somewhat mollified, and is willing to await the turn of events. When balancing his cash, the conductor sometimes finds that he is 50 cents over, and readily admits his error. In other cases the lady has the courtesy to inform us that she found the coin under her powder box on the chiffonier at home—she very much regrets, etc.

And so the daily pantomime continues, and will no doubt continue as long as street cars are operated by human beings. Happy the individual who can, month after month, listen sympathetically to the grievances and lamentations of the traveling public, and yet find enough humor therein to act as a nerve tonic, help to lay the foundation for an angelic temperament, and not disturb his digestion.

In cases similar to that cited in the last instance of complaint, we find that the plan of filing papers pertaining to each employee in a separate folder, which will be described hereafter, is a particularly advantageous one. If a conductor is using the "short change" method for gain, such fact, if not otherwise detected, will soon become evident from the numerous protests of passengers that will accumulate in his file. There is no doubt that tricks of this nature have been perpetrated to some extent in every city. Conductors have been known to boast openly that they took advantage of a certain class of passengers whose sight was poor, who were slightly under the influence of liquor, or whose attention was otherwise taken up. Unprincipled conductors have also been known to carry a supply of Mexican coins, and to work them off when giving change to this same class of patrons.

In Denver all complaints, unless manifestly absurd, are carefully investigated by the management. When a written complaint is received, it is at once acknowledged by a courteous note stating that the matter will be thoroughly investigated. The standing of the party who makes complaint or the evidence of sincerity with which it is written is taken into consideration. The party is thanked for calling the company's attention to the matter, and if the information contained seems insufficient, further information along indicated lines is requested. We find that parties making written complaint usually have had some just provocation, for by the time the party complaining has gotten home or arrived at his office and penned a note, he has generally cooled off to an extent sufficient to either give a clear account of the trouble, or entirely ignore it and not make complaint. Very little attention is paid to anonymous complaints.

A printed form of complaints made in the office has been in use by some street railway companies. It is known as a "Complaint Card." One side of the blank is devoted solely to the statement of the complainant, who is required to write the same over his signature. The other side is reserved for the division superintendent or special investigator, who writes thereon the result of his investigation and his recommendations; and below this there is also a space for the judgment and final action of the superintendent. While this method seems very concise and complete, we find that while many persons who wish to register complaints have rehearsed the incident or accident so fully in their own minds that they can relate all the harrowing details if subjected to a little judicious questioning, yet, in their excitement, when they undertake to write their statement, seem to think they have conveyed all the particulars in a few disjointed sentences. Some persons have the ability to express themselves on paper, while others have not. From our experience we believe that the best plan is to have the complainant make his report to a competent stenographer, who is well enough posted to make proper inquiries and draw out information which may be needed to make it complete. The complainant may be required to sign the type-written record, if thought necessary or advisable. In this manner we may render material aid to those who are required to make the investigation.

After passing out of the stenographer's hands the complaint is laid before the superintendent of transportation, who will, unless immediate action becomes necessary, refer it in turn to the division superintendent. It may be found more prudent to withhold the complaint from the employee against whom it is registered, and require him to write the details of the alleged occurrence from his own viewpoint, giving also the names of any witnesses that may have been secured on the car. After gathering all the information possible, the division superintendent returns to the superintendent of transportation the statement of the employee, together with all the papers in the case, and also adds his findings and recommendations. If the names of any witnesses have been furnished by the employee or complainant, the superintendent of transportation will communicate with them, unless he has already fixed the blame. At the completion of his in-

quiries, he issues such orders for discipline as his judgment may dictate. No matter what other action may have been taken in cases of complaint wherein employees have been found at fault, the details are briefly written in their records, together with the final disposition of the matter.

For filing complaints we use the ordinary vertical cabinet file, with folders of light cardboard, similar to those used for correspondence. The folders are numbered to correspond with the numbers of employees' badges, so that it becomes a simple matter, when reviewing a man's record, to open the cabinet and take out the folder containing the complaints and other papers bearing on his past conduct. Should it become necessary to call an employee into the office for discipline, the superintendent may, in a few moments, examine his record card and folder and quickly form his judgment as to such employee's future value to the company.

Briefly our aim has been, as far as possible, not to antagonize the public in any manner, but to rectify all mistakes and make an apology for all incivilities on the part of our employees; to correct such tendencies, especially those of impudence and impertinence, to pour oil on the troubled waters, and to adopt Denver's motto of "Smile and Push" for the company.

## LEAKS BETWEEN PASSENGER AND TREASURER

BY ALBERT H. STANLEY,

General Superintendent Public Service Corporation of New Jersey, N. J.

No other phase of street railroading has been given so much thought and attention as the question how to get a proper fare from every passenger and then into the hands of the treasurer. From the earliest days every operating man has tried to conceive a scheme whereby this result might be accomplished, but so far without material success. That electric railroads are not receiving their just revenue, and that some method must eventually be devised whereby the large and rapidly growing deficit can be controlled, there can be no possible doubt; and that it must be along lines providing for entirely different methods than are now generally in vogue on most roads must also be admitted. That this is recognized is evident from the frequent experiments which are being made from time to time calling for a new type of car, or some radical change in the method of collecting fares. To-day we have the "pay-as-you-enter" car, which is perhaps the most radical step toward an attempt to solve this problem that has ever been introduced. To what extent this car will prove successful only a thorough trial on several large American roads will demonstrate. Another device which has long passed the experimental stage where it is now used, and which, while primarily intended as a safeguard against certain classes of accidents, still by relieving the conductor of considerable responsibility gives him more time to devote to the collection of fares, is the rear gate or door, controlled either mechanically or automatically by the motorman. These devices are radical and would no doubt cause some confusion when first introduced, but if they, or any other device, will accomplish even in part a curtailment of uncollected or non-receivable revenue, they are at least worthy of consideration.

But while the inventive genius is at work planning some device to solve this problem, we must deal with present conditions of equipment and operation, and do that which will bring the largest earnings, for, no matter how practical any scheme may be which requires a change in the equipment, it will necessarily follow that a long period must elapse before it is in general use, especially on the large properties.

The important revenue leaks on electric railroads to-day are: Fares not collected, either because of overcrowded cars, carelessness of the conductor, or through the successful attempts of passengers to deceive the conductor and avoid paying fare; the abuse of transfers; and fares collected but not properly accounted. Which of these is most important depends largely upon local conditions. That there is an ever increasing number of the public constantly on the *qui vive* to beat the railway out of a fare, either by evading payment or through unfair use of the transfer, is unfortunately beyond dispute, although the extent to which the earnings are thus affected as compared with the losses through irregularities of employees, differs on the various properties. But that this is the most serious phase of the question must be admitted. Irregularities on the part of employees are amenable to discipline, but when it comes to dealing with the public the big

stick is sadly lacking. To eliminate entirely abuses by the public cannot be expected, but they can be reduced to a minimum by good service, a continual, careful check on the transfers, and the prosecution of any passenger caught defrauding the company. Good service is paramount. Where the service is reasonably good you will find the most satisfactory earnings and the most amicable relations between the public and employees. In these days of consolidation there is a tendency toward centralizing the management at one point. While this is desirable, yet it should not be forgotten that street railroads are very susceptible to local conditions, and the organization should be sufficiently flexible, so that the management can always be in close touch with the public on all parts of the property. This is equally important in the relations between the management and employees. Where the management is close to the employees, alive to their welfare, and shows that all interests are common, not only will irregularities on the part of the employees be reduced to a minimum, but there will be less trouble with abuses by the public as well.

To provide a service that is at all times satisfactory is not possible. Cars will become overcrowded despite the most carefully arranged schedule. Conditions which cannot be anticipated are constantly arising, and the car, which under normal conditions is well able to handle its portion of the traffic, becomes badly overloaded and disarranges the schedule. (The impunity with

and number of passengers on the car (which last has to be estimated, but through practice can be ascertained very accurately) are entered on a blank provided for that purpose, and charted by the same men on the day following. The chart is a printed form,



FIG. 2.—TRANSFER USED BY THE PUBLIC SERVICE CORPORATION, OF NEW JERSEY

and the load line, is based on the type of car in service. The basic figures are: For a 28 to 30-ft. closed car, 70; for a 25-ft. car, 50; for a single-truck car, 40, and for a twelve-bench open car, 80. From these charts, with the aid of the man directly in

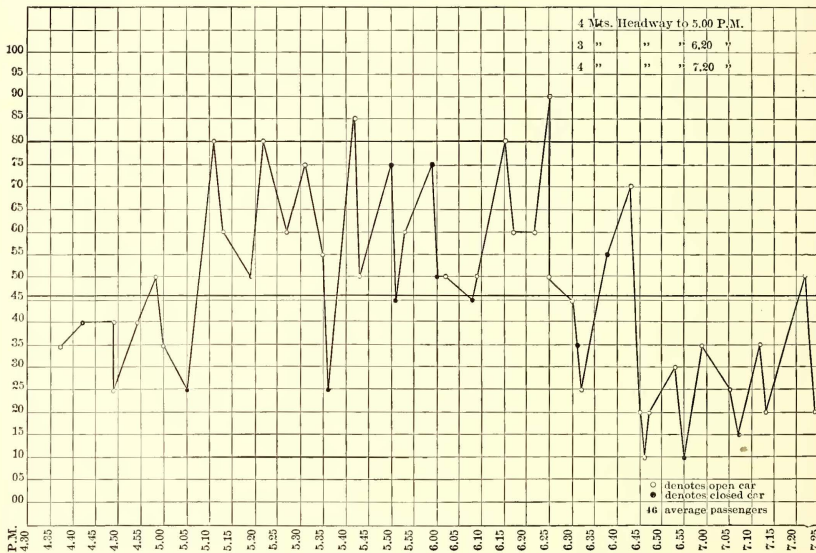


FIG. 1.—CHART SHOWING PASSENGER RECORD

which tracks are occupied by drivers, whose total disregard for trolley cars causes delays to the schedule, a hindrance which becomes very serious when wagons break down, is a rapidly growing and quite unnecessary interference with the regular operation of cars and one that railroads should actively combat in their respective communities.) Unexpectedly large crowds at public entertainments, crippled cars, accidents, storms, etc., are all incidents in the operation of electric roads which make perfect headways impossible. But in order to be certain that there are sufficient cars for the traffic under average conditions, a careful record should be kept of the number of passengers carried on each car, especially during the rush hours of the morning and evening. The following chart shows the number of passengers carried on each car from 4:30 to 7:30 p. m. in the direction of the heaviest traffic; it also shows the headway between cars, and indicates at a glance whether the headway is regular and sufficient:

The data from which this chart is compiled are taken during the rush hours morning and evening on an average of at least twice a month, and for the entire day at such intervals as may be advisable by men stationed at points where the greatest number of passengers are on the car at one time. The car number, time

charge of the line, an absolutely satisfactory schedule can be compiled.

During the off hours of traffic the question of headway is not so much one of overcrowded cars as of policy. The earnings of most lines depend largely upon the service given. There is hardly any limit to the number of cars which can be profitably operated on a line during the hours of heavy traffic, while during the remainder of the day cars operating on a short headway bring the most satisfactory earnings per car day. To-day the public is not satisfied with poorly regulated and inefficient service; it must be regular and sufficient, and the public will, in most instances, pay generous tribute in return.

The use and abuse of transfers is of great importance in its relation to gross earnings. The many opportunities which the public have to profit by an improper use of them, the liberal interpretation placed upon their use by many of the courts, the opportunities which conductors have, both in issuing and receiving, to neglect instructions in regard to their use, and the difficulty of checking them in the accounting department, materially affect the earnings. With from 20 to 30 per cent of the collections on many properties made up of transfers, it forces us to give the

matter serious and careful attention, and to take such action as will keep their abuse down to a minimum. The writer's experience recommends a transfer with the date plainly marked on the face, so that it can be readily seen by the receiving conductor and in the accounting department. A date also greatly facilitates the handling of transfers, and they are not so likely to be manipulated. The waste on this type of transfer is not material, as they can be ordered in quantities to provide for a minimum day's issue, and the excess, if any, taken care of by a perpetual emergency transfer. The transfer with the p. m. coupon attached is also recommended for the same reason. The fear that difficulties might arise through the coupon becoming detached is not borne out in practice.

With this type of transfer the issuing conductor is required to make only two punches, and the receiving conductor can detect at a glance whether or not it is void, which means a big saving in time.

Transfers should be carefully inspected in the accountant's office and conductors brought to account for any irregularities, either in issuing or receiving. In this way conductors will grow careful, and through them the public will be given to understand that transfers are intended for a continuous ride to their destination only and not for a stop-over privilege, and that they are not merely small strips of paper without any value whatever. They

A daily record should be kept of the condition of the totalizer of each register in every car, whether the car has been in service or not, and sent to the accounting department daily. For this purpose a daily car record blank is recommended.

A basket is placed in each car for holding these cards, and the depot master or man in charge of the car house equips each car daily with one of the cards, showing the condition of the registers before the car goes into service. Each conductor who uses the car during the day makes an entry showing the commencing and closing number of the totalizers, and at night the depot master makes the closing entries which are copied on the card for the following day. These cards are then forwarded to the accountant's office and checked against the conductors' day cards. This record is supplemented by entries made in a daily car record book by the depot master, showing the commencing and closing number of each register, which should be done independently of the car record, and is intended as an additional

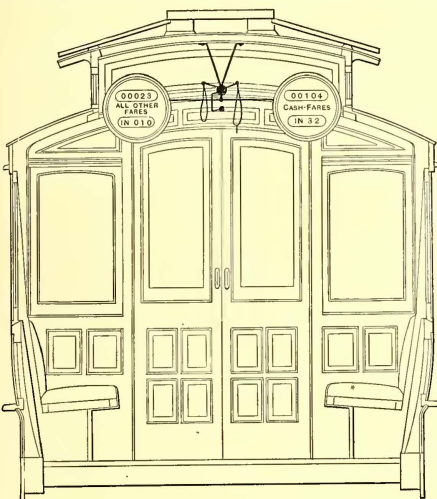


FIG. 3.—DOUBLE REGISTER DEVICE

should be regarded as having a value equivalent to a cash fare, and ought to be so treated in collecting and accounting. For that reason, as well as because it facilitates inspection, the writer recommends the registration of transfers, preferably on an independent register. Registering all fares on one register offers opportunity for substitution, which is reduced to a minimum by the use of separate registers. The following sketch shows two registers, one for cash fares and the other for tickets and transfers, connected to a rod carried from the center of the car, which obviates the use of a double system of rods, and places the ringing device where it is convenient for the conductor and overcomes the objection so frequently made by passengers about conductors leaning over them when making registration or signaling the motorman. This device is particularly desirable on cross-seated cars which are so rapidly becoming a standard on many properties.

Defective registers and register equipment are very important factors in the collection and accounting of fares. The same care which is exercised in the inspection of the electrical equipment of a car should be given to registers and their equipment. Each register should be overhauled periodically, and the inspection of the register equipment made a part of the regular work of the repair man. Any defect in the apparatus should be repaired at once, and no car should be permitted to operate with the slightest defect in the equipment or register.

FORM P. S. 41  
**DAILY CAR RECORD.** Car No.

Date \_\_\_\_\_ Route \_\_\_\_\_  
Register No. \_\_\_\_\_ Register No. \_\_\_\_\_

TIME		TICKETS AND TRANSFERS.		CASH.		Badge No.
A	P	Reg Commencing	Reg Ending	Reg. Commencing	Reg. Ending.	

**Instructions to Conductors.**  
Indicate by filling in the above blank the time and register reading when you take this car, and the time and register reading when you leave this car, and the fare badge number. If there is any difference in your reading of the register and the previous reading, call the attention of the officer in charge. In the absence of any officer, please call the attention of witnesses, giving their names and addresses, and note the same on your report.

**Instructions to Car House Men.**  
Stamp in Route. Record the register reading on this blank when the cars come in the car house at night, and record same reading on the blank for the next day. Mark morning and all car records for your use and those of any other office with the General Auditor. On sending or receiving a car,

note the route from which it was received or to which it goes, and note the register reading, and in the same way note any changes in the register by recording the number of the register.  
In making entries on the car record, use the blank and attach the top of the paper covering the route and register reading, and sign your name at the end of the line.  
**Instructions to Shop Men.**  
You are instructed to record on this blank the register reading when you receive this car, and also the register reading when you dispose of it, and sign your name.  
**General Instructions.**  
Any defect in the register must be reported by any employee at once in writing to the Division Superintendant. Note the name on this blank and sign.

FIG. 4.—DAILY CAR RECORD

check. Both the car number and the number of the registers should show on these reports.

A recording type of register, particularly on lines having more than one 5-cent fare zone, is an effective check against the failure of conductors to reset their registers, and also against manipulation. On suburban lines with many different rates of fare it seems desirable to use a differential recording register which indicates the kind of fare collected and which acts as a check against the tickets issued and collected by the conductor.

The rule requiring conductors to register fares separately as soon as collected and before issuing transfers or making change should be strictly enforced, although it may be advisable to somewhat modify this rule when operating open cars.

Tickets and transfers should be turned in by conductors each trip, either in boxes placed on the car itself, or at some convenient point on the line, in suitably prepared envelopes, and in order that conductors may not carry them over a number of trips they should be inspected at frequent intervals. Cash need not be turned in until the conductor has completed his day's

work, and then turned over to a receiver, who should give either a form of receipt or mark in red ink in plain figures on the conductor's day card the amount of money received, so as to avoid any possibility of dispute. This need not mean that the conductor has turned in the correct amount for his day's work, as that is something to be checked in the accountant's office, and if any errors exist, either over or short, the conductor should be promptly notified and full opportunity given him for noting how the errors occurred. Conductors' day cards, and all other reports having to do with the collection and accounting of fares, should be carefully checked in the accountant's office and an explanation required for any errors or neglect in making up accounts. Conductors should be made to understand the importance of their reports and that they must be made up carefully and accurately.

For the protection of the conductor, each and every passenger riding on the car should be required either to surrender a fare or be uniformed, so that there can be no question as to the passengers' identity and right to ride. Open inspection by uniformed employees, especially at heavy traffic points, is an important factor in preventing irregularities, besides directing the movement of the cars.

Secret service inspection is of course essential to the operation of a property, for under the most careful management there will be some undesirable employees. But a secret service report indicating a shortage on the register does not by any means indicate irregularities on the part of the conductor. Conditions governing at the time the report was made should be thoroughly understood before a record is made against a conductor. He should always be given an opportunity to explain, and should be advised if any entry is made against his record. Dishonesty should be handled quickly and severely. Conductors should be given to understand that irregularities of any kind will not be tolerated, and that the offender will be prosecuted, if possible, by process of law, and not only employees, but the public as well.

The writer does not believe that any considerable percentage of newly appointed conductors enter the service with the thought of being deliberately dishonest. What they develop into, whether it be good or bad, is dependent to a very large extent upon the way they are trained, their relations with their superiors, and the conditions under which they work. Indifferent training, lack of interest, or incompetency on the part of their direct superiors, unsanitary and inadequate terminal stations, or dirty, neglected, broken-down equipment are not conducive to the development of competent, courteous and honest conductors. An applicant should be carefully investigated and every effort made to ascertain whether his record is such as to entitle him to a position of trust. He should then be trained by a regular conductor, who is known to be thoroughly honest and capable in the performance of his duties. After being trained he should be examined by the division superintendent, or whoever may be in authority, and when he is put on a car to operate alone he should be under careful inspection for a reasonable period, so that any irregularities, intentional or otherwise, may be detected in the beginning. To-day, properties are becoming so extensive as to make it impossible for a general manager to be personally acquainted with each and every employee, and so it devolves upon the respective division officers to act for him, and upon them to a very great extent depends the amount of revenue which reaches the hands of the treasurer.

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**REPORT OF COMMITTEE OF THE AMERICAN ASSOCIATION  
 ON "PROMOTION OF TRAFFIC"**

BY W. E. HARRINGTON (Chairman), H. E. REYNOLDS, H. F. GRANT

The committee on "promotion of traffic" respectfully submits this, its first report.

The circular letter and data sheet herewith attached were sent to over 800 companies, and 98 replies were received as follows:

City lines .....	36
Interurban .....	16
City and interurban .....	46
<hr/>	
Total .....	98

Table I. contains a summary of the replies to those questions contained in the data sheet, which permit of a positive or negative answer, and shows the percentage of such replies.

Table II. gives the names of the companies which sent replies to the committee, together with statistics valuable in analyzing this report.

Table III. gives the summary of replies concerning the following matters: Direction signs, car and newspaper advertising; the attitude of the railway companies toward newspapers and carnivals; the data relative to fares (one way and round trip), special cars, excursions, etc.; that relative to picnics, special outings, theater patronage from suburban points, real estate transactions, parks and smoking on cars; that relative to zoological gardens, theaters and bands in parks; that relative to general attractions at parks, such as orchestras, midway, special days and details concerning the manner of leasing and conducting parks.

These three tables are followed by a complete analysis of the replies to the data sheet, and the attention of the association is called to this analysis.

The bibliography which follows the analysis relates to articles which have appeared in the columns of the STREET RAILWAY JOURNAL and the "Electric Railway Review."

SUMMARY

Your committee summarizes its findings as follows:  
 Parks.—That parks are desirable in connection with railway operation, but should not be operated with a license feature.

That parks should be leased, conditions permitting, rather than operated by officials of the company.

That it would be wise for the Accountants' Association to draft a standard system of accounts for park operation.

That it would be wise to have on file in the office of the association applications and data as to park managers, traffic managers and parties seeking park leases.

Picnics.—That it would be desirable to provide small pavilions with stoves and fuel to encourage picnic parties.

Traffic Manager.—That it would be desirable to develop in each company a department for the "promotion of traffic," to be presided over by a traffic manager or passenger agent.

Freight and Express.—That the association appoint a committee especially to investigate and report at the next convention as to the desirability of street and interurban railway companies engaging in freight and express business.

Mail.—That the rates obtained by railway companies for carrying United States mail are too low and should be materially increased. In the event of special cars being employed, the rate should not be less than an amount sufficient to cover operation, interest on investment, depreciation and a reasonable profit.

Irregularities in Fare Collection.—That as the question of fares lost is the converse of the work of the committee on "promotion of traffic," it is found that systematic continuous car inspecting is both desirable and profitable.

Registration of Fares.—That the association appoint a committee especially to investigate and report at the next convention upon the "Registration of Fares" (covering both single and double registers); use of tickets (with and without registration), and systems of checking and inspection in connection therewith.

General.—That interchangeable mileage is desirable.  
 That special cars, picnic and funeral cars are desirable.

That co-operation with theaters in having seats and nights especially assigned for various communities is desirable.

That the welfare of traffic is of sufficient importance to justify the organization of a separate affiliated association to be known as "The American Street and Interurban Railway Traffic Managers' Association."

RESOLUTIONS

Your committee believes it desirable to embody the results of its findings in the form of resolutions for the purpose of permitting the association, as a whole, to express its attitude towards the various questions submitted.

(1) Resolved, That the American Street and Interurban Railway Association believes that parks operated in connection with railroads are profitable and desirable as a means of promoting traffic.

(2) Resolved, That the American Street and Interurban Railway Association believes that a licensed park operated in connection with railroads is not desirable or profitable.

(3) Resolved, That the American Street and Interurban Railway Association believes it better policy to lease parks, if the conditions permit, rather than to have them operated by officials of the company.

(4) Whereas, the American Street and Interurban Railway Association believes it desirable to have on file, in the office of the

secretary of the association, the names of applicants and desirable men capable of properly filling positions as traffic managers and park managers, and also a list of persons seeking park leases.

Therefore, be it resolved, that this association instructs its secretary to keep such files and to take such steps as may be necessary to properly solicit applications and to complete the files by special inquiry, from the references given, to show the standing and qualifications of the respective applicants, and, further, to ascertain in each case, the compensation expected by the various applicants and the general terms under which the various applications are made.

(5) Resolved, That the executive committee of the American Street and Interurban Railway Association advise with the Accountants' Association to the end that a standard system of accounting for parks be prepared.

(6) Resolved, That it is the sense of the American Street and Interurban Railway Association that it is essential for the "promotion of traffic" for railroads to establish a traffic department presided over by a traffic manager.

(7) Resolved, That the "promotion of traffic" is of sufficient importance to justify the organization of a separate affiliated association, to be known as "The American Street and Interurban Railway Traffic Managers' Association."

(8) Resolved, That the president of this association appoint a committee of three especially to investigate and report at the next convention as to the desirability of street and interurban railroads engaging in freight and express business.

(9) Resolved, That the president of this association appoint a committee of three especially to investigate and report at the next convention upon the registration of fares (covering the use of both single and double registers), the use of tickets (with and without registration), and upon systems of checking and inspection in connection therewith.

CONCLUSION

Your committee has prepared a file of the various time-tables, advertising matter, maps and monograms, folders, pamphlets and other descriptive material relating to the "promotion of traffic," which is submitted herewith and which will be open for examination after the convention at the office of the association.

The committee desires to express its appreciation of the co-operation of the various street and interurban railway companies in the collection of the data and other information which form the basis of this report.

The committee wishes to express its appreciation of the valuable assistance and co-operation given by the editors of the STREET RAILWAY JOURNAL and the "Electric Railway Review" in the compilation of the bibliography which forms a part of this report.

The committee desires further to express its appreciation of the co-operation of Messrs. J. G. White & Company in the compilation of the data and statistics embodied in its report and to express its recognition of the personal services of J. Watts, of the operating department of that company.

The data submitted in this report were obtained through the office of your association, and your secretary materially assisted in its preparation.

EXPLANATORY TO TABLES

Table I. contains a summary of those questions in "data sheet No. 7" (copy of which is attached), which permit of a positive or negative answer, and shows the percentage of such replies.

Table II. gives the name of company, city, State, population, miles of track, average number of cars operated in winter, and average number of cars operated in summer. The companies are arranged in order of population, which is given in thousands (i. e., 2000-2,000,000). The replies from some companies as to the number of cars operated, does not appear reasonable, considering the miles of track, etc., and indicate that the answers were not given with as much care as the questions intended should be given. The committee believes that an 18-hour car day was the basis of the returns appearing in doubt.

Table III. appears on the inset herewith.

The first part contains a full description of direction signs, giving style, number on car, location on car, manufacture, extent of advertising on dasher and size of sign, size of bulletin board, also extent of, character of, and cost of newspaper advertising, as requested in questions 6, 7, 8 and 9 on the data sheet. Under the heading "location on car," the abbreviations used are as follows: For side—S; monitor—M; dasher—D; front—F; hood—H; end—E; rear—R; vestibule—V; window—W.

TABLE I.—SHOWING SUMMARY OF REPLIES

	Replies.	No Replies.	Per cent Replies Positive.	Positive.	Negative.	Per cent Replies Positive.
Total Number of Companies.....	100					
Companies responding, city lines.....	36					
" " interurban lines.....	16					
" " city and interurban lines.....	40					
Q. 1. Time Tables. Companies using.....	74	26	74	55	19	.74
(a) Do they show connections plainly.....	55	45	55	41	14	.75
(b) Are they made up so as to be of value to the traveler as well as railroad men.....	41	59	41	31	10	.76
Q. 2. Descriptive Pamphlets. Companies using.....	75	25	75	46	29	.61
(a) Do you advise a wide use of illustrations in your literature.....	38	62	38	36	2	.95
(c) In these pamphlets do you give time-tables or simply running schedules of distances, time and fare.....	26	74	26	13	13	.50
Q. 3. Maps, etc. Companies using.....	55	45	55	22	33	.40
Q. 4. Tourists' Books. Companies using.....	64	36	64	16	46	.25
Q. 5. Sight-seeing Trips.....						
(a) Do you issue descriptive matter.....	70	30	70	18	52	.25
(c) Are conductors urged to keep informed as to connections, points of interest, etc.....	64	36	64	53	11	.83
Q. 6. Direction Signs.....						
(a) Do you use direction signs.....	88	12	88	76	12	.86
(i) Have you a car specially fitted for carrying billboards.....	82	18	82	15	67	.18
Q. 7. Bulletin Boards.....						
(a) Do you use bulletin boards at intersections, etc.....	84	16	84	41	63	.2
Q. 8. Publications.....						
(a) Do you issue publications, etc., to draw the attention of the public to the routes, etc.....	83	17	83	23	60	.28
Q. 9. Newspaper Advertisements.....						
(a) Do you advertise in newspapers.....	89	11	89	70	19	.79
(b) Are newspaper men given excursions.....	77	23	77	13	64	.17
Q. 10. Tourists' Cars.....						
(a) Have you tourists' cars, such as sight seeing cars of Denver, etc.....	84	16	84	10	74	.12
Q. 11. Monograms.....						
(a) Do you use characteristic monograms and symbols.....	81	19	81	16	65	.20
Q. 12. Do you have carnival fares.....	60	40	60	17	43	.28
Q. 13. Do you have country fares.....	80	20	80	37	43	.46
Q. 14. Do you have skating rinks.....	81	19	81	28	53	.35
Q. 15. Special Cars.....						
(a) Are any special inducements offered large parties.....	82	18	82	57	25	.70
(c) Have you a power charge after 12 p. m.....	65	35	65	30	35	.46
Q. 16. Excursions. Companies having.....	61	39	61	22	39	.36
Q. 17. Picnics and Special Outings.....						
(a) Do you make a special effort to get them.....	61	39	61	39	22	.64
(b) Are they worth the expense and effort.....	43	57	43	35	8	.81
Q. 18. Theater Patronage from Suburban Points.....						
(a) Do you make a special effort to stimulate such patronage.....	71	29	71	39	32	.55
(c) Do you act as agent in the purchase of tickets.....	48	52	48	10	38	.21
(d) Do you make special rates.....	58	42	58	16	42	.28
Q. 19. Real Estate Transactions.....						
(a) Have you tried to promote traffic by co-operating in real estate deals.....	72	28	72	10	62	.14
Q. 20. Rebates.....						
(a) What agreements do you have with merchants concerning fares paid by shoppers.....	77	23	77	..	77	..
Q. 21. Smoking on Cars.....						
(a) Do you find smoking on cars promotes traffic.....	82	18	82	66	16	.80
Q. 22. Have You a Park.....	91	9	91	63	28	.69
Is the park licensed or not.....	57	43	57	10	47	.18
Are licenses advantageous.....	18	82	18	8	10	.44
Have you a carousel.....	62	38	62	29	33	.47
Have you a scenic railway.....	57	43	57	4	53	.7
Have you a pleasure railway.....	58	42	58	6	52	.10
Have you a shoot-the-chutes.....	63	37	63	12	51	.19
Have you a loop-the-loop.....	61	39	61	3	60	.05
Have you a flying circular swing.....	61	39	61	9	52	.15
Have you a restaurant.....	66	34	66	54	12	.82
Have you an ice cream stand.....	68	32	68	16	50	.32
Have you a cigar stand.....	65	35	65	53	12	.78
Have you a candy stand.....	63	37	63	52	11	.83
Have you a betting checking stand.....	56	44	56	11	45	.20
Have you a bicycle rack.....	68	32	68	52	16	.69
Have you dancing galleries.....	65	35	65	31	34	.48
Have you shooting galleries.....	65	35	65	29	36	.45
Have you bowling alleys.....	65	35	65	29	36	.45
Have you a shuffle-board.....	61	39	61	5	56	.09
Have you toboggan slides.....	62	38	62	18	44	.29
Have you a miniature steam railroad.....	61	39	61	7	54	.11
Have you a lake.....	61	39	61	3	58	.06
Have you boats.....	63	37	63	44	19	.70
Have you boat racing.....	59	41	59	19	40	.32
Have you canoeing.....	61	39	61	24	37	.39
Have you rowboats for hire.....	62	38	62	19	43	.26
Have you aquatic sports.....	55	45	55	16	39	.29
Have you swimming races.....	55	45	55	10	45	.18
Have you high diving.....	59	41	59	8	52	.16
Have you swings.....	68	32	68	51	17	.75
Have you launches.....	62	38	62	20	42	.32
Have you electrical fountains.....	61	39	61	6	55	.11
Have you zoological grounds.....	64	36	64	11	53	.17
Have you baseball grounds or athletic fields.....	73	27	73	48	25	.66
Have you winter skating rinks.....	65	35	65	17	48	.26
Have you a theater.....	80	20	80	37	43	.44
What class of entertain- (Vaudeville ment is found desirable) (Operas).....	47	53	47	11	36	.21
(Farces) (Comedies).....	73	27	73	23	50	.25
Do you employ bands.....	59	41	59	34	25	.58
Do you employ orchestras.....	59	41	59	34	25	.58

TABLE I.—SHOWING SUMMARY OF REPLIES—Continued.

Table with 5 columns: Replies, No Replies, Per cent Replies, Positive, Negative, Per cent Replies Positive. Rows include questions about handbills for concerts, amusement resorts, prizes, and special features.

\* The percentages given by the nineteen companies replying vary from 8 per cent to 90 per cent, the average being 27 per cent.

It next describes the methods employed to keep newspaper men favorably disposed toward the company, such as manner of entertaining and issuing of passes. It also gives data concerning carnivals, giving kind, time, amount expended, prizes given, basis for figuring rates for specials and limiting conditions; see questions 9 and 11 on the data sheet.

The table next shows the relation of rates one way to those for the round trip for special cars, also the details of excursions; see questions 15 and 16 on the data sheet. Under the heading "officials issuing passes," the abbreviation G. M. is used for general manager, V. P. for vice-president, G. P. A. for general passenger agent.

It also gives details relative to picnics and special outings, theater patronage from suburban points, real estate transactions, parks and smoking on cars, as requested in questions 17, 18, 19 and 21, and under the head of "amusement resorts," on the data sheet.

Finally it gives details of "general attractions," which refer to orchestra, midway, special days, etc., also full detail of manner of leasing and conducting parks. Under the heading "parks leased on flat rental or percentage basis" the abbreviations used are "R."—rental; "F. R."—flat rental, and %—percentage.

Under the heading "special features," the abbreviations used are "B."—balloon ascensions; "F."—fireworks, and "V."—vaudeville. The

TABLE II.—COMPANIES AND EQUIPMENTS, ARRANGED ACCORDING TO POPULATION, INCLUDING TERMINAL

Table with 7 columns: No., NAME OF COMPANY., City., Population, Thousands., Miles of Track, Average No. of Cars Operated, Winter., Average No. of Cars Operated, Summer. Lists various street railway companies across the United States.

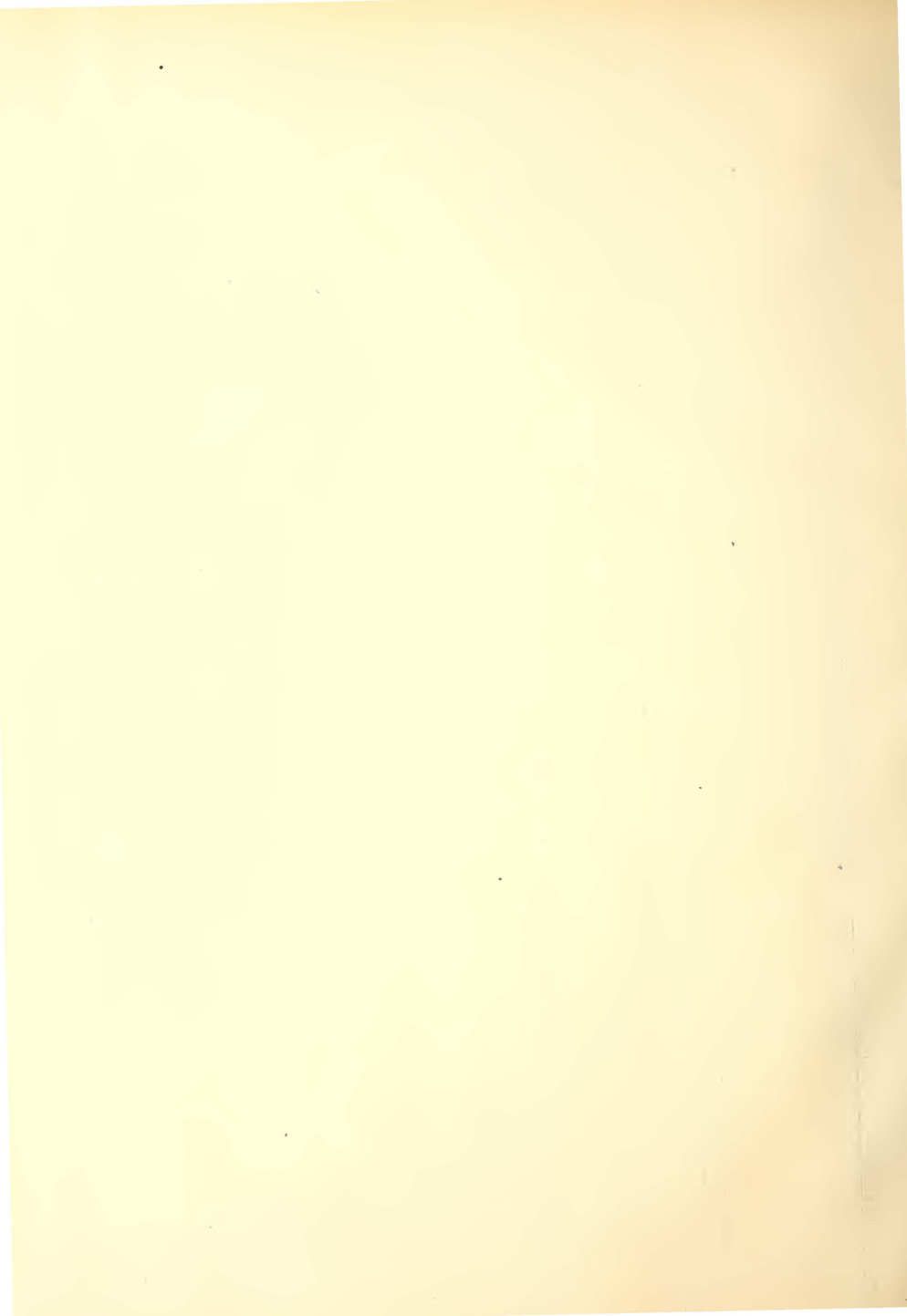


EXCURSIONS.				BANDS.		GENERAL QUESTIONS.				FINANCIAL.					
Does a pay boat than from energy was sent travel on regular car?	Are they fun. Holl. days and Sundays?	Maximum Distance Considered Advi- able—Miles.	Maximum Running Time Often loyed.	No. of Pieces.	Charge to Park.	Parks Leased on Flat Rental or Percentage Basis?	Contributions Obtained from Concessionaries for Running Extra Attrac- tions, Such as Band Concerts, Fireworks, etc.	SPECIAL FEATURES.	ATTENDANCE.	Receipts.	Expenses.	Fixed Charges.	Surplus or Deficit.	Dictary of Park from Cent. of Pop. 5 Miles.	Number of Fare of Five-cent Code No.
picnics.	Yes...	No...	10-20	1-1	ys	20	Rent'l & per'tage	Limited...	Balloon ascensions Bal'n & firew'ks*	10,000				11-31	1 3
	No...	No...	3-8	ys	23	23	Rent'l & per'tage	Limited...	Bal'n & firew'ks*					3-8	1 3
	No...	No...	8	ys	16	16	Rent'l & per'tage	Limited...	Bal'n & firew'ks*					24	1 6
				y		20-25									7 8
															9
															10
ons.	Yes...	No...	150	4	ys	16-25	Percentage.	None...							11
	Yes...	Yes...			ys	26		Pay 25 per cent.		5,000					12
															13
															15
															16
															17
						nd hol.	20	Rent'l & per'tage	None...	25,000					2 18
						20	20	Rent'l.	None...	21,000	\$5,017	\$5,392		2 19	
						24	24	Flat rental.	None...	2,500				3 1	
						10 cts.	10 cts.	Flat rental.	None...	8,000				3 2	
						14	14	Flat rental.	Limited.	Bal'n & firew'ks.				3 2	
	No...	Yes...	30	1-2	ys	22	10 cts.	Flat rental.		Bal'n & firew'ks.				3 1	
	No...	No...	34	5	ys	20	20	10 cts.		Bal'n & firew'ks.				3 1	
					ys	14	14	Percentage.		Bal'n & firew'ks.				2 127	
					ys	30	30	Percentage.		25,000	11,298			2 28	
	No...	Yes...												4 1	
	Yes...	No...	15	1		9-30	10 cts.	Rent'l.		Bal'n, firew'ks and skating*.	45,000			3-61	2 33
						7	7	Percentage.	50 per cent.	Bal'n, firew'ks, etc.	25,000				3 34
						30	12	Rent'l.	None...	6,000				6-18	2-0 36
						20	20	Percentage.	None...	Bal'n, aerial yacht	9,000	5,430	7,400	83,750	5,720
	Yes...	No...				25	25	Percentage.	None...	Bal'n, aerial yacht	9,000	5,430	7,400	83,750	5,720
						22	12 5 cts.			Fireworks...	5,000			10	4 42
	Yes...	Yes...	100-150	4-6	nd hol.	12	12	5 cts.		Fireworks...				2 4	
	Yes...	Yes...	50		week	45	13	Flat rental.		Bal'n & firew'ks*	20,000			2 4	
	Yes...	Yes...	50		week	13	12	Flat rental.		Bal'n & firew'ks.	15,000	1,430	1,346	90	2 46
						12	10 cts.	Flat rental.		Bal'n & firew'ks.	10,000			6	2 48
						12	12			Balloon...				3	49
						20	16	Rent'l & per'tage			12,000			2	50
	Yes...	Yes...			ys	18	18	Flat rental.		Balloon...				3	51
					ys	18	18							3	52
	No...	No...	18	1 1/2	ys	23	20-25	10 cts.	None...	30,000				1-10	1-2
	No...	Yes...			ys	6-10	20	10 cts.	None...	10,000	8,500	9,500	1,500	2,500	7 2
					ys	10	10	Rent'l & per'tage		Circus.				12	5 60
					ys	15	15	Rent'l & per'tage	20-33} per cent.	Bal'n, firew'ks and vaudeville*.	25,000			3	1 81
					vs	12	12	Rent'l & per'tage						6	1 64
								Percentage.	20 per cent.	Bal'n, firew'ks and vaudeville*.	5,000				65
	No...	Yes...	5			25	10 cts.	Percentage.		Bal'n & firew'ks.	7,000				67
						25	25	10 cts.		Fireworks...	10,000			7	2 68
						6-8	16	Rent'l & per'tage		Balloon...	2,000			2 3	1 69
	Yes...	Yes...			occ ns	16	16	Rent'l & per'tage		Bal'n, firew'ks, etc.	6,000			2 3	1 71
					ys	10 cts.	10 cts.	Flat rental.		Bal'n, firew'ks,* etc.	7,000			12	5 72
					occ ns	8-16	8-16	Percentage.	None...	Fireworks & water carnival*.	2,500			5 1	2 73
					week	20	20	Percentage.		Bal'n & firew'ks.	8,400			2 8	1 77
					week	12-15	12-15	Percentage.						4	1 81
					week	12-20	12-20	Rent'l & per'tage			10,000			3	3 85
						24	24							1	84
	No...	No...				40	40							2 8	1 78
	Yes...	Yes...	60	3										2 8	1 79
														4	1 81
														3	3 85
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														2 8	1 78
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Main table with columns: DIRECTION SIGNS, ADVERTISING ON DASHES, NEWSPAPER ADVERTISEMENTS, POLICY TOWARD NEWSPAPERS, CAPRNIVAL, SPECIAL CARS, EXCURSIONS, PLENCES AND SPECIAL OUTINGS, THEATRE PATRONAGE FROM SUBURBAN PLS., REAL ESTATE, SMOKING ON CARS, SIZE OF PARKS, CAR-ROUSAL, ZOOLOGICAL GARDENS, THEATRE, BANDS, GENERAL QUESTIONS, FINANCIAL. Each column contains detailed data for various categories.

\*The special feature that pays best



asterisk \* indicates the amusement that is considered as paying the best. Under the heading "surplus or deficit," the figures with † indicate deficit.

ANALYSIS OF REPLIES TO "DATA SHEET NO. 7"  
Direction Signs.

Style:	Companies
Illuminated .....	16
Wood .....	8
Metal .....	7
Revolving .....	4
Dash .....	3
Colored lights .....	2
Transparent .....	2
Miscellaneous .....	13
<b>Number on Car:</b>	
1 sign .....	6
2 signs .....	39
3 signs .....	2
4 signs .....	18
<b>Location on Car:</b>	
End .....	12
End and side .....	11
Hood .....	11
Front .....	6
Dasher .....	6
Side and front .....	5
Roof .....	5
Side .....	4
Vestibule .....	3
Side, monitor and dasher .....	3
Front and hood .....	2
Window and hood .....	2
Dasher and roof .....	1
<b>Manufacturer:</b>	
Original .....	37
Hunter Sign Company .....	15
St. Louis Car Company .....	1
Wason Company .....	1
Twin City Rapid Transit Company .....	1
Henderson .....	1
B. & S. ....	1
<b>Extent of Advertising on dasher:</b>	
None .....	14
Small .....	6
Moderate .....	3
Extensive .....	20
Special attractions only .....	45
<b>Size of Direction Signs:</b>	
Vary in depth from 14 ins. to 36 ins., and in width from 18 ins. to 72 ins.	
The prevailing size is about 14 ins. x 22 ins., or 18 ins. x 24 ins.	
<b>Bulletin Board</b>	
<b>Size of Bulletin Board:</b>	
Vary from 1½ ft. to 4 ft. in depth, and from 2½ ft. to 6½ ft. in width.	
The average size is about 3 ft. x 5 ft.	
<b>Newspaper Advertisements</b>	
<b>Extent of Advertising:</b>	<b>Companies.</b>
Daily for the year .....	6
Daily for the summer .....	4
Small .....	24
Moderate .....	17
Extensive .....	18
<b>Character of Advertising:</b>	
Schedules .....	26
Display .....	13
Special attractions .....	15
Descriptive .....	5
Miscellaneous .....	8
<b>Cost Per 1000 Car Miles:</b>	
Only four companies replied to this.	
Their rates were \$0.05, \$0.50, \$0.62, \$1.51.	
<b>Methods Employed to Keep Newspaper Men Favorably Disposed</b>	
<b>Toward the Companies:</b>	
Passes .....	45
Passes and entertainments .....	10
Passes and advertising .....	5

Toward the Companies:	Companies:
Complimentary tickets .....	4
Advertising and printing .....	1
Passes and excursions .....	1
None .....	3
<b>Entertainment of Newspaper Men:</b>	
On a personal basis .....	8
In large bodies .....	3
Large bodies and personal basis .....	3
None .....	21
<b>Basis for Issuing Passes:</b>	
Exchange for time-tables .....	4
To editors or reporters, or both .....	6
Per paper .....	24
The number issued to each paper varies from 1 to 10, the usual number being 2 or 3.	
With but few exceptions they are issued by the general manager, the exceptions are president, vice-president, treasurer and general passenger agent.	

Carnivals

Among the various carnivals held are: Street, water, skating and secret orders. They are held at appropriate times of the year, but usually in summer.

Six companies state the amounts expended, which are \$100, \$250, \$300, \$500, \$1,000 and \$2,000.

Four companies give as prizes cash, banners, cups, etc.

Special Cars

Basis for Figuring Rates for Specials:	Companies
Discount .....	12
Hour .....	11
Half rate .....	9
Seating capacity .....	6
Mileage .....	5
Car mileage .....	5
Chartered cars .....	3

Relation of Single Fare to Round Trip:

83 per cent .....	1
80 per cent .....	1
75 per cent .....	9
66 2/3 per cent .....	8
65 per cent .....	1
63 per cent .....	2
60 per cent .....	3
55 per cent .....	1
53 per cent .....	1
50 per cent .....	13

Excursions

The general character of excursions is picnics. Of fourteen companies replying to the question: "Do they pay better than provided the same energy were spent in the promotion of travel on regular cars?" nine answered "yes" and five "no."

Of twenty-one replies to the question: "Are they run on holidays and Sundays?" eleven answered "yes" and ten "no."

The maximum distance considered desirable for an excursion trip varies from 10 to 150 miles, and the time from 1 hour to 6 hours.

Of twenty replies to the question: "On an excursion do you try to give each one a special seat or assign a certain number to a bench, or let first come be first served?" One company gives each one a seat, and nineteen act on the latter, "first come, first served."

Three companies reply as finding accident risks serious and twenty-two companies as not finding them serious.

Eleven companies make an effort to increase travel in case of fire or accident and twenty-three do not. From the answers given to this question it is evident that some have understood it to mean fire or accident to the company's property, while some have understood it to mean fire or accident to private property along or near company's lines, so that the replies to this question should not be considered as answers.

Of twenty-five companies replying to the question: "Do you call attention to specially high surf or unusual tricks of nature at points reached by your cars?" Fourteen answered "yes" and eleven "no."

Picnics and Special Outings

Seven companies work these up by advertising, and twenty-three companies by agents, solicitations, etc.

The special efforts to get picnics and special outings are made as follows:

- Ten companies by personal solicitation.
- Eight companies by letter and literature.
- Eighteen companies by personal solicitation, letter and literature.

Theater Patronage from Suburban Points

The efforts made to stimulate this are by advertising, special service and special rates.

Of thirty-six companies giving their methods, nineteen advertise, twelve give special service and six special rates.

Real Estate

The methods employed to co-operate with real estate companies to promote traffic are by giving special rates, service and stops.

Smoking on Cars.

Allowed on Open Cars as Follows:	Companies.
Five rear seats .....	3
Four rear seats .....	8
Three rear seats .....	44
Two rear seats .....	11
One rear seat .....	2
Rear platform .....	2
Both platforms .....	1
All seats .....	1
None allowed .....	2

Allowed on Closed Cars as Follows:	
Compartments .....	21
Rear platform .....	25
Front platform .....	5
Both platforms .....	11
Three rear seats .....	1
One rear seat .....	1
All seats .....	1
None allowed .....	19

Carousal

Sixteen companies have given the diameter of their carousals. They vary from 30 ft. to 80 ft., the prevailing one being 40 ft. The rows of animals vary from one to four; two rows is the usual number.

Zoological Garden

The animals classed as "native" are bears, wild-cats, foxes, rabbits, etc. Miscellaneous consist of the above, also monkeys. Nine companies own the animals and one company hires them.

Theater

Of the forty-three companies replying, that have theaters, twenty-six have open, seventeen closed and one convertible. The stages vary in size, and with one exception (which is 150 ft. deep and 200 ft. wide) their sizes range from 15 to 40 ft. deep and from 20 ft. to 80 ft. wide, and from 10 to 40 ft. high. The average size appears to be about 30 ft. in depth, 40 ft. in width and 20 ft. in height. The seating capacity varies from 300 to 3000, with an average of about 1200. About 75 per cent of the theaters have reserved seats, the proportion of reserved seats being about 45 per cent.

The price of reserved seats varies from 5 to 50 cents, the usual price being 25 cents; that of other seats from 5 to 35 cents, the usual price being 10 cents. In most cases where the reserved seats are but 5 or 10 cents the other seats are free.

Bands

The answers received from the forty-three companies replying to the question: "How often do you employ bands?" are as follows:

	Companies.
Monthly .....	1
Weekly .....	8
Sunday and holidays .....	22
Three times per week .....	5
Two times per week .....	2
Daily .....	3
Special occasions .....	3

The number of pieces in the bands vary from seven to forty, the average being about twenty.

Orchestra

Twenty-seven companies reply as employing orchestras; the number of pieces are from two to fifteen, the usual number being about six.

General Questions .

The methods used to get undesirable people out of the park are by aid of police or special park officers. The latter are usually appointed as deputies.

The method used to keep account of attendance at the parks is usually by counting tickets. Other methods are by conductors' tallies or turnstiles.

Nine companies reply as charging admission to the park, of which eight charge 10 cents and one charges 5 cents.

Thirty-five companies reply as leasing parks, of which fourteen lease them on flat rental basis, nine on percentage basis, and fourteen on rental and percentage both.

The only contributions obtained from concessionaries for running extra attractions, etc., were from six, of which two are stated as limited, two as 20 per cent of expenses, one as 25 per cent of expenses, and one as 50 per cent of expenses. This is in cases where privileges are leased.

Investment in Park

The financial statement requested under this heading is given by but few companies. Several companies are unable to give this statement as no record is kept of these accounts.

The distance of the park from center of population served varies from 1 mile to 10 miles, and in one instance 18 miles. The usual distance, however, is from 2½ to 4 miles.

One 5-cent fare is the charge generally made for any distance within 4 miles. Over 4 miles the rate averages about one 5-cent fare for every 3 miles.

Cost of Amusements

Company No. 58 gives this detail as follows:		
	Amount Paid	Season, No. of Weeks
Theater, including all theater expenses.	\$6,000	15
Band .....	900	...
Launch and boats .....	400	...
Dance hall .....	150	...
Other expenses .....	2,050	...
Receipts per person entering park for entire season .....		.056
Operating expenses per person entering park for entire season .....		.063

Company No. 59 gives detail as follows:		
	Amount Paid Per Week	Season, Number of Weeks
Theater, including all theater expenses .....	\$600	\$6,000 10
Band .....	45	450 10

With these two exceptions no other company has given any detail or information of cost of amusements that can be considered. A few companies have given some figures, but same are useless without some explanation, and this is not given.

Very few companies have given the additional car miles and car hours account of park business. Those given vary from 200 to 50,000, and from 40 to 6000 respectively; but as some of the companies giving this information have estimated it, and not replied to some of the other questions relative to the park business, which should necessarily be given with the above, there is no chance for comparison or basis upon which to give a fair or intelligible statement on the same.

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Advertising (Ed.)	19
Amusements	522
An Effective Means for Interesting the Public	11
Aquatic Attractions for Parks	84
Attractions for Parks (Waddell)	141
Autumn Work in the Park (W. E. Partridge)	714
Descriptions of Street Ry. Parks.—11, 17, 22, 64, 87, 142, 209, 279, 351, 392, 496.	273
Designing Terminal Facilities for Parks	273
Detroit United Railways Advertising Contest	385
Freight Development by Interurban Roads (Seixas)	818
How to Advertise Street Railway Parks	208-277
Park Advertising (Waddell)	83
Street Railway Park Amusements (Waddell)	21
Street Railway Park Development	205
Street Railway Park Development	351
What a Street Railway Park Should Be (Barham)	86

Volume XIV.—1904

Advertising (Ed.)	459
Advertising in the Street Railway Business	595
A Good Example of Railway Advertising	522
Amusement Parks and Their Influence on Passenger Traffic	971
Freight Business on Electric Railways	123
New Departure in Handling Excursion Business	636
Park Attractions	181
Some New Ideas in the Pleasure Resort Business (Kann)	585
Street Railway Parks in 1904	177-252
The Attractions of the Brockton & Plymouth Street Railway	513
The Cost of Band Concessions	456
To Encourage Urban Traffic (Ed.)	154
Traffic in the Coming Winter	877
Vacation Traffic (Ed.)	291

Volume XV.—1905

Amusement Machines for Street Railway Parks	324
An Electric Railway Passenger Department	581
Dubouque Ball Park	349
Freight Development by Interurban Roads (Seixas)	821

Ingersoll's Luna Park, Cleveland	179
Logansport Park Train	446
Park Attractions for York Street Railway Company	209
Park Improvements at Baltimore	293
Park Receipts	25
Park Seats	64
Pittsburg Luna Park	311
Rapid Theater Construction in Elmira	141
Steel Boats for Street Railway Parks	250
Summer Parks (Tingley)	563
Tell the Public What You Have	98
The Eagle Park Swing	452
The Freight Traffic of the Ohio River Electric Railway & Power Company (Oppenheimer)	888
The Modern Amusement Park	58
Two New Pleasure Resorts	16
Willow Grove Park, Philadelphia, Rapid Transit Company	549

Volume XVI.—1906

Descriptions of amusement resorts controlled by different railways, 69-75, 82-88, 117-120, 160, 161, 172, 189, 209	
Good Schedules as Money Makers (Ed.)	448
Increasing of Profits of Interurban Railways	520
Interurban Service	149
Minor Conveniences at Parks (Ed.)	—
Park Traffic (Ed.)	—
Power Supply for Park Lines (Ed.)	77
Preparations for Handling Park Traffic (Ed.)	76
The Freight and Express Traffic of the Coeur d'Alene & Spokane Railway	279
The Most Effective Way of Stimulating Summer Travel	313

DATA SHEET SENT TO RAILWAY COMPANIES

Data Sheet No. 7	May, 1906.
Company	State
Operating city or interurban line	Population served
No. of miles of track	Average No. of cars operated (a) Winter (b) Summer
1. Time-Tables.—(a) Do they show connections plainly? (b) Are they made up in such a form as to be of value to the traveler as well as the railroad man? (c) Furnish copies.	
2. Descriptive Pamphlets.—(a) What size and general form do you consider most convenient and advisable? (b) In your literature, do you advise a wide use of illustrations? (c) In your descriptive pamphlets, do you attempt to give time- tables, or simply running schedules of distances, time and fare? (d) Furnish copies.	
3. Maps of Roads, Particularly Bird's-Eye Views.—(a) How are through lines shown? (b) What form do you find most readily understood by the public? (c) Send copies.	
4. Tourists' Books.—(a) Do you issue tourists' books showing sights of interest along route? (b) Send copies.	
5. Sight-Seeing Trips.—(a) Do you issue descriptive matter of special sight-seeing trips? (b) Send copies. (c) Are your conductors urged to keep informed as to connections, points of interest and side trips on your line?	
6. Direction Signs.—(a) Do you use direction signs? (b) Style. (c) Number on car. (d) Location on car. (e) Manufacturer. (f) Have you a car specially fitted for carrying billboard for advertising? (g) To what extent do you advertise on the dasher of your pas- senger cars? (h) Give standard dimensions?	
7. Bulletin Boards.—(a) Do you use bulletin boards at intersections and elsewhere? (b) Size. (c) Show matter	
8. Publications.—(a) Do you issue publications and mediums by which the attention of the public is drawn to the routes of the company, etc? (b) Send copies.	
9. Newspaper Advertisements.—(a) Do you advertise in newspapers? (b) To what extent. (c) Character. (d) What is the cost per 1000 car-miles covering a period of one year? (e) What other cost, such as passes, etc? (f) Send clippings. (g) What methods are employed to keep the newspaper men favorably disposed toward the company? (h) Are they given excursions? (i) Are they entertained in a large body or on a more personal basis, in small num- bers? (j) On what basis are passes issued to the newspapers? (k) How many? (l) From what official of the company?	
10. Tourists' Cars.—(a) Have you tourists' cars, such as the sight-seeing cars of Denver and other cities? (b) Describe. (c) Rates	

\* This list is somewhat abbreviated.—(Eds.)





# PAPERS AND QUESTION BOX PRESENTED AT THE COLUMBUS CONVENTION OF THE AMERICAN STREET AND INTER-URBAN RAILWAY ACCOUNTANTS' ASSOCIATION

## THE ACCOUNTING OF CAPITAL EXPENDITURES

BY P. S. YOUNG,  
Comptroller Public Service Corporation of New Jersey

It is hardly necessary, in a paper to be read before this association, to differentiate between "Capital Expenditures" and "Non-Capital Expenditures," for the term "Capital Expenditures" is well defined and understood by accountants generally. It is here used to cover such expenditures as are properly chargeable to capital in the accounts of an operating street and interurban railway.

The accounting of this class of expenditures is important, both from a financial and an engineering point of view. A company carrying on work of any magnitude must at all times be prepared to meet its obligations incurred either in the regular

an estimate is made that is too high and proves more than sufficient to do the work contemplated, an unnecessary expense is incurred in obtaining funds to meet the estimated requirements; on the other hand, if the estimate is too low the management may be misled into doing work which, if it had known the true cost, it would not have done.

It is important that estimates submitted should cover the work in its entirety. They should not embrace work which, upon its completion, would compel other engagements before being advantageous or profitable to the company.

For the information of the management and for the purpose of accounting, each separate estimate should give in detail the items which go to make up the complete cost of the work. Upon its authorization by the management a number should be given to it and a separate account kept of the cost in such detail that each item can be readily separated and kept distinct from

REQUISITION FOR IMPROVEMENTS OR REPAIRS.		Street Railway Co. No. 190	Received _____ Recommended _____ 190
Explanations:	[ESTIMATED COST.]	190	Amount for Approval, \$ _____ Charge _____ Acct. Close Into _____ Acct. By _____ Acct. Date _____ Gen'l Auditor. Approved by _____ Executive Committee. Date _____ 190 Sec'y
Material—To be ordered: On Hand:	_____ _____	_____ _____	Received _____ Auth. No. _____ Date _____ Written by _____ Date _____ Entered in Record Book by _____ Date _____
Labor— 's Bid _____ 's Bid _____ 's Bid _____	_____ _____	_____ _____	General Supt.
Remarks: Date of Previous Repairs, if any, _____ Cost _____ \$	Total Estimated Cost _____	_____	_____

REPORT OF IMPROVEMENTS OR REPAIRS.		Street Railway Co. Date _____	Authorization closed into _____ Account
Requisition No. _____ Date _____	Authorization No. _____ Date _____	190	By Journal Entry _____ Leger Account, \$ _____ Cost as per Report, \$ _____
Work on above Authorization completed, as follows: Description—	Completed _____	_____	Entered Record Book by _____ Date _____ Gen. Auditor _____ Initials. NOTED. Dates.
Material—	_____ _____	_____ _____	_____
Labor— 's Bid _____	_____ _____	_____ _____	_____
Work was charged to _____ account. Total Cost, _____ To be closed into _____ " Amount Authorized, _____	_____ _____	_____ _____	_____
Remarks: _____	_____	_____	General Supt.

operation of its properties or by reason of extensions, additions and improvements made necessary because of the growth of the territory in which it operates, or because of the strategic importance of the territory through which it wishes to extend. It is, therefore, essential that a proper record be kept, not alone of such obligations and liabilities as would naturally appear on the company's books, but also of such commitments as have been made by the undertaking of specific work in connection with the development of the property.

Such actual requirements as are necessary for the betterment of the property during a certain period should be summarized from detailed estimates of costs, and should be treated upon their approval as incurred obligations. The importance of reliable estimates is here apparent, for on these estimates the financing of the company is based, and if, on the other hand,

the others. Experience soon develops definite units of cost which will enable the engineer or officer investigating the costs to determine intelligently whether the work is being carried on with proper economy. Such units of cost are readily assimilated by the working force, and exert a beneficial result on their energies because of the ease with which comparisons can be made with similar units of cost of work that is being done simultaneously, or of work that has been done at a previous time.

Only when full detail costs are kept and made to agree with the total cost of a given piece of work can detail costs be relied upon as embracing all the charges against a given account, for it is a frequent occurrence that when estimates are made up from memoranda only of similar work in the past made by the man in charge of the work, such estimates are likely to be faulty, as



more important appliances. Anyone interested in pursuing the matter further will readily devise curves to show almost any data which is under consideration, and, by experimenting a little, can find out if the curves thus drawn have any real value for his purpose. I assume, however, that in the rush and hurry of

increase in gross earnings to an amount equal to one-third or one-fourth of the expenditure involved, the exact figures in each locality to be determined by a comprehensive judgment of local conditions, being dependent largely on the ratio of operating expenses to gross earnings. By dividing the construction expenditure we bring down the curves of construction so that they are easily comparable with the increase in gross.

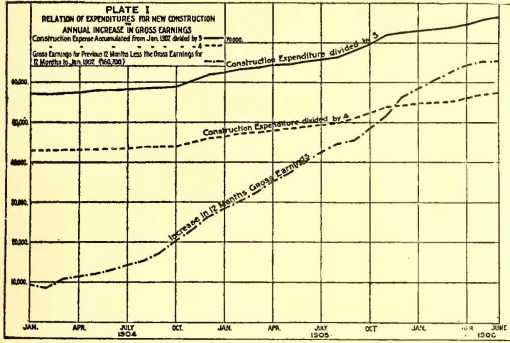


PLATE I.

In the case before you you can see that it took from January, 1902, to November, 1905, for the increase in gross to equal one-fourth the construction expenditure, and it has not yet reached the line representing one-third of construction expenditure.

It is perhaps needless to say that in using such a set of curves as this, one may be entirely misled unless he has a full knowledge of the situation. For instance, the increase in gross earnings, which has been very marked, would perhaps have occurred in very great part had no construction been done on the property.

Furthermore, construction expenditures to large amounts are often forced upon a public service corporation, when everyone connected with the company recognizes that no increase in gross earnings can possibly result. Of course, curves can be weighed to eliminate such matters, but it must be done with great care, and it is doubtful if much additional information would be derived from the result.

Plate II. is the monthly analysis of expenses. It is shown here mainly to demonstrate the abnormal curve which is developed at times when unusual conditions prevail.

Total expense rose during the strike to ruinous heights, and the various elements which go to make this up, as plotted below, show that general expense was responsible for the entire increase, while operating expense and maintenance were both abnormally low.

Plate III. presents curves showing monthly figures covering the operations of a company doing both a railway and a lighting business. The curve representing total gross earnings is obtained by a combination of the curves for railway gross and lighting gross.

Here it will be seen that the increase in the summer riding of the railway department is partially offset by low earnings in the lighting department, while in January the opposite state of affairs is shown, the large increase in lighting earnings offsetting in part the decrease in railway earnings. Expenses of the

modern business, a few simple curves, drawn on the natural scale, are sufficient for the average office. I shall, therefore, avoid consideration of the logarithmic curves, which are curves of ratios rather than of actual quantities, very useful in their appropriate place; neither shall I consider the weighing of curves by the insertion of estimates for unknown quantities. These, and other matters of like nature, are within the province of the statistician, pure and simple, and are appropriate for the general use of the man in business.

At the risk of repeating what so many of you know, I will describe shortly the method of plotting curves.

Establish a base line at the bottom of the sheet, marking, at equal intervals and in order, the various dates covering the period under consideration. At right angles to this line erect a perpendicular, starting from the point representing the beginning of the period. This should be divided into appropriate parts representing equal increases in dollars. The paper is then ruled in rectangles.

In the plates which are before you the lines are drawn for every three months. The data is, however, figured monthly and in practice the ruling would be monthly also, the intermediate lines being omitted here simply in the hope of adding clearness to the illustration.

With your data before you in figures, you are now ready to plot your curve by making a pencil dot for each total of dollars in your series over the appropriate date and to the right of the proper number of dollars. You have now recorded your facts, and you connect them with a broken or curved line for the purpose of being able to take in at a glance the relation which each item bears to the others in the series.

If a study of the plates which are presented herewith does not show to one familiar with the business under discussion the facts which they are intended to convey, they have failed in their mission. Nevertheless, perhaps a short explanation of each will be appropriate. All are taken from the real operation of companies under Stone & Webster's management.

Plate I. represents the relation of expenditures for new construction to the annual increase in gross earnings. Such a sheet tends to show whether or not good business judgment has been used in extending a company's plant.

The three lines on Plate I. started at zero in January, 1902, and at the first date which is shown, January, 1904, the gross had increased but \$10,000, while some \$170,000 had been expended on the plant. The increase in twelve months' gross earnings, as plotted for the next two years and a half, shows practically steady gains, with but little change in acceleration.

You will note that each curve representing construction expenditure is obtained by dividing the expenditure in the one case by three, in the other by four. This is done on the theory that construction, to be warranted, should finally produce an annual

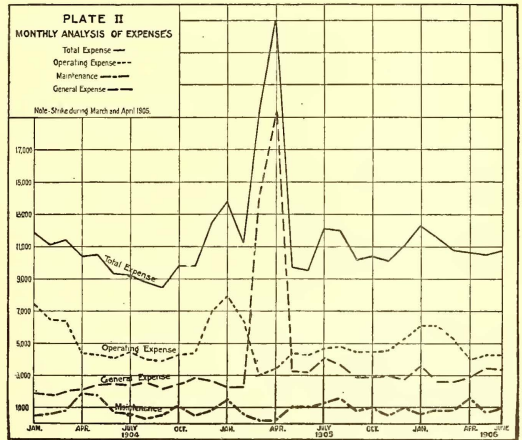


PLATE II.

two departments bear a similar relation to total expenses. This sheet should be of value to the manager, who is familiar with the details of operation and who should know the reason for the location of every point that is plotted.

Plate IV. represents the same data, taken from the same company, covering the same period, except that the curve is smoothed by plotting each month the point which represents the previous

twelve months' figures. This results in eliminating violent monthly fluctuations due to the season, or perhaps to the removal of snow and ice, or to large maintenance charges, and shows the general trend of the operations of the company.

This is much more valuable data than the other for the board of directors or the stockholders, as they have but little interest in monthly fluctuations, but are vitally concerned in the general situation.

Plate V. is designed to show the application of gross earnings, principally with a view of finding out what per cent is available for common stock dividends.

The distance from the gross earnings curve to the base line represents the entire gross earnings for twelve months on successive dates. Operating expenses are then cut off from this, leaving a line representing net earnings. Then interest charges are cut, leaving a curve which we will call net profit. We then cut off a slice of sinking fund and another slice for preferred dividends, and finally arrive at a surplus applicable to depreciation and common stock dividends, the percentage for the stock being shown on the right-hand side.

While on the sheet before us, in June, 1906, there would appear to be about 10 per cent applicable to the common stock dividends, it is, nevertheless, evident that the melon cannot be cut at this point, as no provision has yet been made for depreciation. This was left out, advisedly, as being a subject not appropriate to the matter in hand.

We recognize fully that the sinking fund, which is deducted, is not an altogether appropriate deduction from

under which the bonds were sold, or if the company has decided to set aside a fixed amount or per cent each year, I think a pro rata amount should be shown as a deduction from income on each monthly statement, and a debit and credit account opened up as is done with "interest on funded debt." The total should be shown on the annual statement as a deduction from income, and

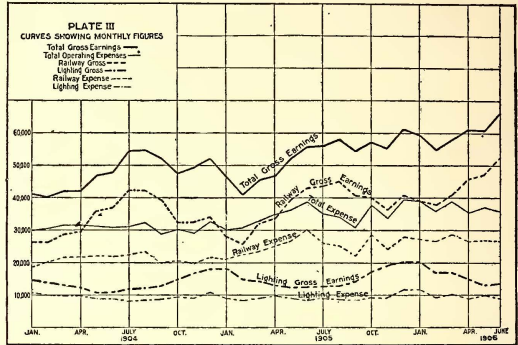


PLATE III.

the debit account should be charged to profit and loss at the end of the year. The credit or sinking fund account should be charged, and bonds outstanding should be credited with the amount of bonds purchased. If, however, no amount has been fixed and the company shall desire at the end of any year to set aside a certain amount, it should be shown as a deduction from income on the annual statement, and be charged to profit and loss account, and a sinking fund provided to which bonds purchased may be charged.—The Toledo Railways & Light Company.

As a deduction from income.—Montreal Street Railway Company

Enter the accounts as a reduction of liabilities.—Atlantic Coast Electric Railway Company (New Jersey).

Under ordinary circumstances the payment of a funded debt would be treated like the payment of any other liability; that is, credit cash and reduce liability. We have a similar mortgage on the books, the terms of which compel us to pay the installments from "surplus," thus forcing us to treat the payments like a dividend, which, in the opinion of the writer, is incorrect, as "surplus" is not

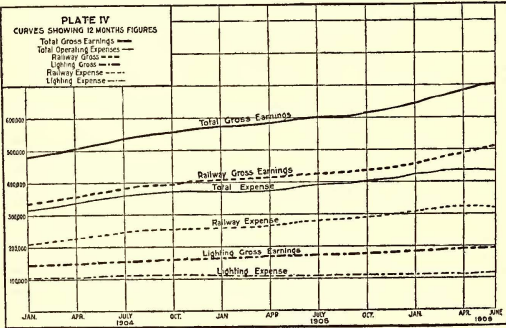


PLATE IV.

gross earnings, and goes but part way in providing for depreciation.

Curves like those on Plate V. tell the operating man nothing new, but are oftentimes desirable to give a comprehensive view, covering a series of years, to stockholders, or others financially interested in the company.

Before bringing to a close this elementary treatment of the subject of "The Use of Curves in Statistics," the fact should be emphasized that they, like figures, are very misleading unless the person who uses them is thoroughly familiar with the method by which they are compiled. Bearing this in mind, the use of the one will tend to bring to light points hidden by the use of the other alone, and the man who employs both will find that the labor involved in the preparation of the data is well repaid by the increase in his knowledge of the situation.

QUESTION BOX OF THE ACCOUNTANTS' ASSOCIATION

Q. 1. When periodical payments are made for the purpose of retiring bonds, and a sinking fund is thus created, to be closed at intervals by the redemption of bonds, this action reducing fixed charges, would you show the expenditure in annual statements as a deduction from income, or merely enter it in the accounts as a reduction of liabilities?

Merely as a reduction of liabilities.—The Columbus Railway & Light Company.

The total annual sinking fund is a deduction from surplus.—New Orleans Railway & Light Company.

If the payments are made in accordance with an agreement

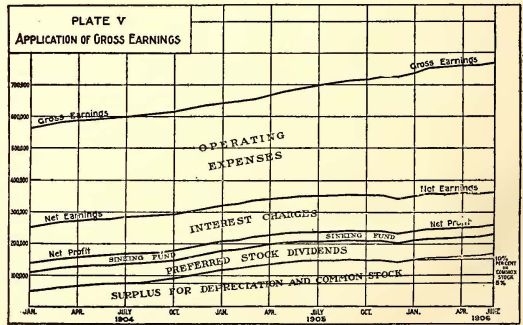


PLATE V.

affected in any way.—International Railway Company, Buffalo, N. Y.

Merely as a reduction of liabilities.—American Railways Company.

The payments to sinking fund should be shown in the annual statement as a deduction from income; otherwise a casual observer would be compelled to compare the reports for two years in order to get the desired information.—Worcester Consolidated Street Railway Company.

If the payments to sinking funds are required by the bonds or

mortgages, or there is an agreement with the purchasers that a specified amount of bonds are to be retired annually, the amount becomes a fixed charge, and should be included in "deductions from income" each month, showing its proportion of the annual charge. When bonds are voluntarily purchased the "income account" is not affected except by the reduction of future interest charges.—Chicago Union Traction Company.

Unless the sinking fund is created by a fixed charge made each month and shown on the monthly report as a "deduction from income," I should not show it as a "deduction from income" in the annual statement, but merely show it as a reduction of liabilities.—The Memphis Street Railway Company.

Periodical or full payments for sinking fund create a change of asset cash into asset sinking fund, and the object of such sinking fund is to offset and eventually eliminate certain liabilities, and consequently eventually eliminate the fixed charges relating to such liabilities. In the meantime the income from the sinking fund should be credited to fixed charges, making such fixed charges show correctly from time to time. When the sinking fund is used to pay off liabilities, the sinking fund is credited and liabilities debited, and there will be no fixed charges as there are no liabilities to create them.—Providence & Danielson Railway Company.

The transaction may be defined as merely repayment of a loan secured by means of a mortgage bond. As such it could hardly be said to affect income accounts. If the cash was not on hand to retire these bonds in accordance with mortgage requirements, the cost of securing funds for this purpose should be charged against income, as the effect of calling the bonds for redemption is to reduce the amount of bond interest deducted from income.—Indiana Union Traction Company.

When transfer is made to the sinking fund it should show as a deduction from income, and when the bonds are redeemed it should show as a reduction of liabilities.—Boston Elevated Railway Company.

Q. 2. Where bonds set aside for future improvements are taken down from year to year and sold at a discount from face value, how should the amount of discount be charged off. If the amount of discount appears for a time on balance statement, under what group of accounts does it belong, according to balance sheet form on page 60, report of 1905?

Charge off a certain per cent annually to profit and loss during the life of the bond. On balance sheet carry charge under "Miscellaneous."—The Columbus Railway & Light Company.

Discount is chargeable to construction account.—New Orleans Railway & Light Company.

To operating expenses, miscellaneous expenses, in proportionate monthly installments, the full amount to be wiped out each year. Current assets, miscellaneous, specifying same.—Montreal Street Railway Company.

(a) Charged to construction and equipment account. (b) Miscellaneous.—Atlantic Coast Electric Railway Company (New Jersey.)

Account "N" of the standard classification provides for discounts "resulting from the negotiation of securities for construction." It would be more conservative to make such charges to "profit and loss," rather than to give your "cost of road" an inflated value on the books.—International Railway Company, Buffalo, N. Y.

Should be apportioned over the unexpired life of the bond, and charged off from year to year with the accrued interest. On the general balance sheet it should appear under "accrued liabilities," miscellaneous (specifying same).—American Railways Company.

The amount of discount should be charged to profit and loss; at the end of the fiscal year the account should appear as an asset until charged off under the head of "discount."—Worcester Consolidated Street Railway Company.

Account "N."—Chicago Union Traction Company.

Should be charged to cost of property. Belongs at the top of the balance sheet with the schedules of construction and equipment.—The Memphis Street Railway Company.

Charge to construction and equipment under interest and discount.—Providence & Danielson Railway Company.

If these are mortgage bonds for construction and equipment the discount should be charged to construction accounts, under the sub-division provided in standard classification. In that event it would be included in first item of assets on balance sheet.—Indiana Union Traction Company.

The amount of discount should be charged off proportionately each year during the life of the bonds. Balance sheet does not provide this account.—Boston Elevated Railway Company.

Discount should be charged to account "N" under construction

and equipment accounts, and should be shown under that group on the balance sheet.—Public Service Corporation of New Jersey.

Q. 3. What accounting methods should be followed where equipment (steam, electric, rolling stock and overhead) in fair working condition is replaced with new outfit, to make a laterly acquired division uniform in equipment and practice with the balance of the road?

First find the cost of the old, if new to-day, and deduct this amount from the replacement cost, charging the difference to property account as a betterment.—The Columbus Railway & Light Company.

The difference between cost of the old and cost of the new outfit is chargeable to capital accounts. The balance is chargeable to maintenance, which in turn will receive credit when old outfit is sold.—New Orleans Railway & Light Company.

I think the expense of making uniform the equipment on a newly acquired division is really a part of the investment, and should be charged to capital after deducting the value of the old equipment.—The Toledo Railways & Light Company.

Charge the cost of new equipment to respective construction accounts, and credit respective construction accounts. Charge contingent or depreciation account with the original value of old equipment, less what you receive from sale of same. If you have not provided any contingent account for renewals, charge maintenance accounts.—Montreal Street Railway Company.

Charge to operating.—Austin (Tex.) Electric Railway Company.

Charge to maintenance an amount equal to the original cost; the balance to construction and equipment.—Atlantic Coast Electric Railway Company (New Jersey).

If the books of the company have a credit to depreciation account, such charges might properly be made to that account, otherwise to profit and loss.—International Railway Company, Buffalo, N. Y.

Assuming that the discarded equipment was sold, maintenance should be charged with the difference between the original cost of the equipment discarded and the cash price obtained. Construction should be charged with the cost of the new equipment, less the proportion so charged to maintenance and the cash obtained for the discarded equipment.—American Railways Company.

The difference in cost between old and new equipment should be charged to property account, and the balance to depreciation or reconstruction account, and charged off as soon as circumstances will permit.—Worcester Consolidated Street Railway Company.

Cannot answer without knowing whether or not the reconstruction is to be done with new capital.—Chicago Union Traction Company.

Charge cost of new and additional outfit to construction and equipment. The replaced property will stand for itself where after employed.—Providence & Danielson Railway Company.

If the division equipment is raised to a higher standard for the purpose of having greater earning capacity per mile, a part of the cost, at least, might properly be charged to construction. In this case construction should be credited with amount realized from sale of scrap equipment.—Indiana Union Traction Company.

Credit equipment account with the cost when new of the equipment disposed of, and charge the difference between this amount and the sum received for the equipment when disposed of to depreciation account.—Boston Elevated Railway Company.

The old equipment should be written off at value carried on books and new equipment charged to proper construction and equipment account.—Public Service Corporation of New Jersey.

Q. 4. a. What has been the result from a reduction of fares from a 5-cent cash fare to 4 1/2 cents by use of tickets? b. What per cent of tickets are lost? c. How much of passenger receipts come in through tickets? d. Does the increase in riding offset the decrease in fare, that is to say, is the natural increase maintained?

(a) Increased travel. (c) 90 per cent; the fare being seven tickets for 25 cents. (d) Yes.—The Columbus Railway & Light Company.

(a) We have always had tickets. (b) About one-half of 1 per cent each year. (c) In our road 83 per cent. (d) It is difficult to say whether the increase in riding is sufficient to offset the decrease in fare.—Montreal Street Railway Company.

(a) Never did it; reduced to 4.5 cents. (b) Less than 1 per cent. (c) About 4 per cent. (d) Possibly.—Austin (Tex.) Electric Railway Company.

(a) On the only property where this reduction has taken place during the present administration so that statistics are available,

the riding practically doubled the first year, the increase being entirely in the tickets, cash fares remained about the same. (b) As there is always a considerable balance of outstanding tickets it is exceedingly hard to estimate the number which are lost. (c) The passenger receipts through tickets will vary under varying conditions, of which I have knowledge from 50 per cent to 90 per cent of the total. (d) In my judgment the increase in riding more than offsets decrease in fare.—American Railways Company.

(a) Have made no such reduction. (b) Do not know. (3) About 6 per cent. (d) Natural increase is maintained.—Providence & Danielson Railway Company.

Q. 5. In case of two registers in each car, where all fares are registered, free transfers issued, certain forms of tickets sold by conductors and others by agents covering more than one zone, under a system of dividing lines into zones of 5-cent fare, what distinction of fares should be made in registering?

Always a possibility. One or a dozen registers will make no difference if a conductor adroitly persists in being dishonest. In time, of course, he will be caught.—The Columbus Railway & Light Company.

Under the circumstances described there is nothing to prevent the conductor from substituting a low-priced ticket for a higher-priced one, no matter how you divide the fares between two registers, unless you give each passenger a duplex receipt, the stub of which is to be checked in the auditor's office.—International Railway Company, Buffalo, N. Y.

All forms of transportation tickets, or cash having a cash value, should be registered on one register, and all forms of transportation having no value, such as transfers and passes, should be registered on the other.—American Railways Company.

It is the custom of the writer to register all tickets and transfers on one register and cash on the other.—Worcester Consolidated Street Railway Company.

We use the Ohmer register regarding all classes of fares, and do not distinguish between cash and tickets.—Providence & Danielson Railway Company.

Cash collected by conductors should be registered on the cash register; all tickets, transfers and checks on the other register.—Boston Elevated Railway Company.

Q. 6. Where all tickets are registered on one, and cash fares only on the other register, what possibilities are there for the conductors to substitute a free ticket or transfer for one of value?

Finest opportunity in the world unless you have a rigid secret service inspection, by registering a cash fare on ticket register and supplementing that by an exchange of transfers.—New Orleans Railway & Light Company.

Quite a number in a conductor's 8, 10 or 12 hour's run.—Austin (Tex.) Electric Railway Company.

Nothing to prevent such substitution except to give each passenger who presents a revenue ticket a numbered receipt, and make the conductor responsible for the stub or duplex.—International Railway Company, Buffalo, N. Y.

The method is bad; they should be registered in accordance with answer to No. 5. The opportunities for substitution are great.—American Railways Company.

The possibility and opportunity is great, and a systematic substitution may be carried on without detection, and undoubtedly is in general practice.—Worcester Consolidated Street Railway Company.

There would be nothing to prevent the conductor substituting free tickets or transfers for tickets of cash value except a rigid system of inspection.—The Memphis Street Railway Company.

The possibilities are only limited by the conductor's ingenuity, if the system of inspection is not very rigid. This inspection cannot be fully made in the accounting department, for it must be an inspection of the conductor himself—not only of his reports.—Indiana Union Traction Company.

This is altogether a question of how freely transfers are issued, and whether by conductors or agents.—Boston Elevated Railway Company.

Substitution could only be effected through failure to register the free ticket or transfer, for if all tickets, both free and otherwise, and transfers are registered they are all of value.—Public Service Corporation of New Jersey.

Q. 7. To what extent should conductor's returns be analyzed where all fares are registered and free transfers issued?

In the first place, register transfers collected. You will then have the conductor's complete report of his business, from which to make a comparative analysis with similar runs of other con-

ductors. (See answer to question 8).—The Columbus Railway & Light Company.

The difference between the "In" and "Out" register is sufficient.—New Orleans Railway & Light Company.

Quite closely at times.—Austin (Tex.) Electric Railway Company.

We verify all computations on conductor's reports and check same against register readings. We do not think any further analysis would be of much value.—International Railway Company, Buffalo, N. Y.

As far as practicable, conductor should return each trip all evidences of transportation except cash, which should be verified by trips. Conductors should also keep a day card, on which should be shown the state of the register. These should be compared not only with the trip returns but with the register.—American Railways Company.

The register readings should be carefully checked and the deductions verified, the total of which should agree with the amount turned in. It is also necessary to check the number of transfers issued to see that the conductor has not given out more than the total fares collected.—Worcester Consolidated Street Railway Company.

Enough to know that the per cent of transfers issued to cash fares received is fairly uniform.—Chicago Union Traction Company.

We check both ticket and cash fare registers, counting the transfers turned in, and check the same on the trip sheet, checking the issuance and receipt of transfers as to date, time, etc., checking a different line each day.—The Memphis Street Railway Company.

Take every precaution possible that the situation will suggest, have faith in the man until you find him unfaithful, then let him go.—Providence & Danielson Railway Company.

To the extent that, combined with inspectors' reports, irregularities may readily be detected.—Indiana Union Traction Company.

Depends upon how much the company can afford to pay for this information.—Boston Elevated Railway Company.

Q. 8. What is the best method for the accounting department to pursue to discover discrepancies in the conductor's report of fare collections?

Keep daily record of each conductor's returns, having column for each class of fare. At the end of the month, foot each account and then fill out the percentage which each class of fares bears to total passengers carried. Compare this finding, one conductor's account with another, and you will soon be able to detect where the weakness, if any, exists.—The Columbus Railway & Light Company.

The accountant can do very little beyond verifying computations and checking against register readings.—International Railway Company, Buffalo, N. Y.

A careful comparison of conductors' returns, register readings and secret service reports.—American Railways Company.

In case certain conductors are suspected of making improper entries on their day cards, it is necessary to have them checked by your secret service man on certain trips, and the amounts collected verified the next day.—Worcester Consolidated Street Railway Company.

The accounting department can have no method of discovering discrepancies in conductor's reports of fare collected, except in checking same against the register readings.—The Memphis Street Railway Company.

When a conductor pays according to the register, he is technically correct. Secret service inspection is the only way to learn his inclination as to ringing up all fares collected.—Providence & Danielson Railway Company.

In interurban service this may be accomplished by using tickets as much as possible. When mileage coupons are presented for passage, conductor should write on back of strip lifted, points between which passengers traveled. If card passes are used, passenger should sign identification slip showing pass number as well as points between which pass was used. Duplex receipts should be punched by conductor for cash fare collections. The coupon turned in to auditor will show amount of fare collected and zone covered by same. With this system provided, inspectors may be put on from time to time, and an accurate comparison may be made of their reports of passengers "on" and "off" at each station, with the tickets, coupons, pass identification slips and cash fare receipt audit coupons in the conductor's trip envelope.—Indiana Union Traction Company.

Check the conductor's returns with the register returns, and be sure that the registers are always in perfect condition.—Boston Elevated Railway Company.

Q. 9. Is the information obtained from a thorough and exhaustive examination and comparison of conductor's reports of sufficient importance to warrant the expense, and should it be made daily?

Yes, it is very important. (See answer to question 8 as to method and time.)—The Columbus Railway & Light Company.

This question would seem somewhat indefinite. In our case we are carrying such data as will enable us to know the amount of cash paid to conductors directly, and the kind and number of tickets lifted by them; almost the amount of income through tickets sold at agencies; through chartered cars; through excursions and excursion rates, etc. The greater part of these items would fall without the limits of conductors report.—The Indianapolis & Cincinnati Traction Company.

If by "thorough and exhaustive" is meant a minute examination of every detail to tickets and transfers, and comparison of the same with the reports, such daily checking would probably cost more than would be warranted by the results obtained. If it is done periodically at irregular intervals in the same manner as the secret service work, it will probably produce almost as good results.—American Railways Company.

I do not think that too rigid an examination of the day card is necessary, as the clerk who handles this part of the business is able to detect any great discrepancy.—Worcester Consolidated Street Railway Company.

Think that on a large system this should be done periodically. Think that a daily check that would be thorough enough to be of value would be too expensive. As a broad proposition think that the corporation that does not know whether or not it is being cheated, will find upon investigation that it is, and finding this, it is the duty of the officials to find out where and how, in order to apply the remedy.—Chicago Union Traction Company.

Yes; but not sufficient to justify its being made daily.—The Memphis Street Railway Company.

Do not think so.—Providence & Danielson Railway Company.

I believe it is of most value when made daily, and actively followed up.—Indiana Union Traction Company.

Altogether depends upon what opportunity the conductors have to falsify their accounts.—Boston Elevated Railway Company.

Q. 10. Should scrap material accumulate in the storeroom or in the departments?

In the storeroom.—The Columbus Railway & Light Company.

Beyond any question—in the storeroom.—New Orleans Railway & Light Company.

In the storeroom when possible.—Montreal Street Railway Company.

With small companies, in stock room. With larger companies having thoroughly organized departments, each equipped with clerical force, accumulation in departments would probably be better and safer.—The Indianapolis & Cincinnati Traction Company.

Should accumulate in the storeroom.—Atlantic Coast Electric Railway Company. (N. J.)

In the storeroom.—International Railway Company, Buffalo, N. Y.

In the storeroom.—American Railways Company.

Scrap material should be sent to the storeroom and not be allowed to accumulate in departments. When new material is sent to the different barns, the scrap should be collected and taken to the storeroom on the return trip.—Worcester Consolidated Street Railway Company.

Think the storeroom is the best place for it.—Chicago Union Traction Company.

In the storeroom.—The Memphis Street Railway Company.

In the storeroom. Scrap material, if left in the different departments, is more exposed to theft than in the storeroom, where it can be more securely cared for.—Providence & Danielson Railway Company.

A central point such as storeroom seems to be best, except in those instances where rail and other heavy scrap might better be sold nearer point of "scrapping," to avoid freight and expense of handling.—Indiana Union Traction Company.

Departments should send to the storeroom at regular short intervals all scrap material.—Boston Elevated Railway Company.

Scrap material should accumulate in the department, but should be reported to and kept track of by the storekeeper.—Public Service Corporation of New Jersey.

Q. 11. Should the wages paid to employees injured while in service be charged against the department where the accident occurred or be accounted for through the claim department?

Department where accident occurred.—The Columbus Railway & Light Company.

Should be accounted for through claim department.—New Orleans Railway & Light Company.

If wages are paid to employees while injured, they are usually paid as settlement of claim and should be charged to account No. 33 (damages) and go through the claim department records.—Public Service Corporation of New Jersey.

Through the claims department. Unless injured on new construction work, when they should be charged to construction.—Montreal Street Railway Company.

Should be accounted for through claim department.—The Indianapolis & Cincinnati Traction Company.

Accounted for through the claim department.—Atlantic Coast Electric Railway Company (N. J.)

Through the claim department, account 33.—American Railways Company.

The wages of employees injured while in service should be charged through the claim department to "damages," and not charged to the department where the accident occurred, as that department is being charged with the labor of the party filling the position.—Worcester Consolidated Street Railway Company.

If the employee has a claim against the company that he could maintain should he go into court, any money paid him should be treated as being in settlement of the claim and charged as such. If the wages paid him are a donation they should be charged under account 32.—Chicago Union Traction Company.

Through the claim department.—The Memphis Street Railway Company.

Accounted for through claim department.—Providence & Danielson Railway Company.

This is one way of paying a damage claim, and as such appears to be properly chargeable through claim department.—Indiana Union Traction Company.

Through the claim department.—Boston Elevated Railway Company.

Q. 12. Should the cost of repairs to cars and equipment occasioned by accident be included in the regular maintenance account or accounted for through the claim department?

Maintenance account.—The Columbus Railway & Light Company.

As I understand it, "damages" means damages to other property and not to our own. Such repairs, therefore, to our own property should be included in the regular maintenance accounts.—New Orleans Railway & Light Company.

In the regular maintenance account.—Montreal Street Railway Company.

Should be included in the regular maintenance account.—The Indianapolis & Cincinnati Traction Company.

Included in the regular maintenance account.—Atlantic Coast Electric Railway Company (N. J.)

We make such charges to "account 6," under a subdivision.—International Railway Company, Buffalo, N. Y.

Strictly speaking, through the claim department, account 33. If, however, the repairs are trivial, it is probably easier to handle them in the regular way, and through the regular accounts.—American Railways Company.

The cost of repairing a car damaged in accident should be charged to "car maintenance account."—Worcester Consolidated Street Railway Company.

Think they should come under the regular maintenance account.—Chicago Union Traction Company.

Should be charged to maintenance.—The Memphis Street Railway Company.

Accounted for through the claim department.—Providence & Danielson Railway Company.

Maintenance accounts. Authority for other disposition is not given in our own classification, and maintenance of equipment is specifically mentioned in the classification used by steam railroads.—Indiana Union Traction Company.

Regular maintenance account.—Boston Elevated Railway Company.

Q. 14. Is the statistical information obtained from the use of the passenger unit of such value and interest as to justify its continuance?

Only to the extent of determining the cost per mile for carrying a passenger.—The Columbus Railway & Light Company.

Yes, especially car earning per passenger if you have ticket as well as cash fares.—Montreal Street Railway Company.

The passenger unit certainly gives interesting data, and we think it of value.—The Indianapolis & Cincinnati Traction Company.

We do not find it so.—International Railway Company, Buffalo, N. Y.

This is largely a matter of local conditions; as it is desirable and in most States obligatory for State report purposes, to know the number of passengers carried, the obtaining of the unit cost, therefore, is a small matter and may be useful.—American Railways Company.

I do not consider it at all important.—Worcester Consolidated Street Railway Company.

I think so.—Chicago Union Traction Company.

Yes.—The Memphis Street Railway Company.

Yes.—Providence & Danielson Railway Company.

It is not nearly so valuable, in my estimation, as the car-hour and car-mile units. It is sometimes interesting, in a general way, to the management.—Indian Union Traction Company.

Altogether depends upon conditions.—Boston Elevated Railway Company.

Q. 14. Is not the car-house unit more valuable as a basis for determining results in connection with earnings and expenses than the unit of car-mileage?

If the car-hour unit is desired, use it, but use the car-mileage unit always.—The Columbus Railway & Light Company.

We use both and find them valuable.—New Orleans Railway & Light Company.

I believe in the car-hour.—The Toledo Railways & Light Company.

We use both.—Montreal Street Railway Company.

I think not. A comparison between the car-hours and car-miles is helpful.—Austin (Texas) Electric Railway Company.

We think it pays to use both units.—International Railway Company, Buffalo, N. Y.

For most cases, "yes," but in determining the life of wheels, trolley wheels, gears, pinions, motors, etc., the car-mileage basis is essential.—American Railways Company.

I consider the car-hour unit more valuable than the car-mile, owing to the fact that the speed of cars on different lines varies to a great extent.—Worcester Consolidated Street Railway Company.

I think so.—Chicago Union Traction Company.

I consider the car-hour unit more valuable than the car-mileage unit, but think the use of either should not be abandoned.—The Memphis Street Railway Company.

Have not used this unit as a basis.—Providence & Danielson Railway Company.

Yes, particularly in the case of "conducting transportation" accounts. Maintenance accounts, however, are more directly affected by car-mileage.—Indiana Union Traction Company.

Both the units have a value peculiar to themselves.—Public Service Corporation of New Jersey.

Both are valuable.—Boston Elevated Railway Company.

Q. 15. What basic figure is best in determining the rate for chartered cars, earnings per hour or mile?

Traffic earnings per hour.—The Columbus Railway & Light Company.

Both are of value.—New Orleans Railway & Light Company.

Car-hour.—Montreal Street Railway Company.

We use the car-mile as a basis, adding a fixed percentage for each hour the car is held out over the regular time the power plant is in operation.—The Indianapolis & Cincinnati Traction Company.

Either one when your mileage per hour is uniform, though time rather than distance appeals to those desiring to charter.—Austin (Texas) Electric Railway Company.

Chartered cars are subject to so many lay-overs that it is better to figure the earnings on a car-hour basis.—International Railway Company, Buffalo, N. Y.

Generally speaking, the car-hour. In some cases it is advisable to consider both.—American Railways Company.

The writer uses the car-mileage as a basis for figuring rates on chartered cars.—Worcester Consolidated Street Railway Company.

Think the car-hour best.—Chicago Union Traction Company.

Earnings per car-hour.—The Memphis Street Railway Company.

Per car-mile.—Providence & Danielson Railway Company.

One company with which I am familiar charged a certain rate per mile, with an additional flat rate of \$1 per hour for time interurban car was held at terminal awaiting return trip.—Indiana Union Traction Company.

Hours of service.—Boston Elevated Railway Company.

Earnings per hour.—Public Service Corporation of New Jersey.

Q. 16. Should the receipts from chartered cars be proportioned over the lines operated, or treated as an independent passenger earning?

Independent earnings.—The Columbus Railway & Light Company.

We treat such earnings independently.—New Orleans Railway & Light Company.

Schedule A in the classification of accounts, provides for receipts from "chartered cars."—The Toledo Railways & Light Company.

As an independent passenger earning.—Montreal Street Railway Company.

Should be divided proportionately over the divisions making the earning.—The Indianapolis & Cincinnati Traction Company.

Be proportioned over the lines.—Atlantic Coast Electric Railway Company (N. J.)

We pro rate the chartered car earnings over the several lines operated.—International Railway Company, Buffalo, N. Y.

Should be considered as a separate item. See standard form of report adopted by this association at Detroit in 1902, and by the National Association of Railroad Commissioners in 1903.—American Railways Company.

They should be treated as an independent passenger earning.—Public Service Corporation of New Jersey.

The receipts for chartered cars should be credited to the chartered car account and not be proportioned in any way.—Worcester Consolidated Street Railway Company.

Think they should be treated independently.—Chicago Union Traction Company.

Should be treated as an independent earning. See page 57, report of 1905.—The Memphis Street Railway Company.

Treated as an independent passenger earning.—Providence & Danielson Railway Company.

For comparative purposes chartered cars might be set down as a separate item. If these earnings, which are very irregular, are buried in division earnings, they cause fluctuations in daily earnings reports, which are confusing unless explained in some manner.—Indiana Union Traction Company.

Special item of earnings.—Boston Elevated Railway Company.

Q. 17. What is the best system of numbering the operating-expense accounts for the electric light department where a company operating both railway and electric light and follow the railway standard classification. If the electric light standard classification is followed, how is it modified to make it correspond with the railway?

If the railway account starts off with "1," make the starting account of light "201," and so on.—The Columbus Railway & Light Company.

Our electric light expense accounts are numbered from 51 to 100, and we have found that very convenient.—New Orleans Railway & Light Company.

Q. 18. What sub-accounts of standard operating-expense accounts do you use?

Account "A" to every operating account and which represents "labor."—New Orleans Railway & Light Company.

We issue a monthly statement "Details of Operating Expenses" on which we show about 150 sub-accounts; the standard transportation and maintenance accounts are all sub-divided, as are also office expense, stationary and printing, miscellaneous expense and stable expense of our general expense accounts.—Montreal Street Railway Company.

In the construction section: K1, cars, express; K2, cars, work; L1, electrical equipment of cars, express; L2, electrical equipment of cars, work. In the operating section: 2A, telephone lines; 5A, transformer stations; 6A, cars, express; 6B, cars, work; 7A, electrical equipment of cars, express; 7B, electrical equipment of cars, work; 17A, wages of conductors, express; 17B, wages of conductors, work; 18A, wages of motormen, express; 18B, wages of motormen, work; 22B, miscellaneous car service expense, express; 24½, station expense, passenger and express; 26A, salaries to agents and station clerks; 33A, damages, express; 34A, legal expense in connection with damages, express; 34B, surgical expense in connection with damages, all.—The Indianapolis & Cincinnati Traction Company.

All maintenance accounts are sub-divided as to labor and material. We also sub-divide as follows:

Account 1.—A, repairs to asphalt pavement; B, repairs to stone pavement; C, repairs to brick pavement; D, repairs to macadam pavement; E, repairs to bridges pavement; F, reconstruction to track account city repaving.

Account 5.—B, maintenance of storage batteries; C, maintenance of rotary converter plant.



Account 6.—A, axles; B, brake-shoes; C, journal bearings; D, painting; E, car signs; F, wheels, cast; G, grinding; H, wheels, steel; I, turning; J, damaged cars; K, miscellaneous.

Account 7.—A, armatures; B, field coils; C, commutators; D, brushes; E, brush holders; F, armature bearings; G, motor axle bearings; H, miscellaneous; I controllers; J, gears; K, pinions; L, trolley wheels.

Account 10.—A, storage battery wages; B, rotary converter plant wages.

Account 13.—A, rotary converter plant, lubricants.  
Account 14.—A, miscellaneous supplies and expenses, batteries; B, miscellaneous supplies and expenses, rotary converter.

Account 20.—A, car cleaning, labor; B, car cleaning, material.  
Account 21.—A, lubrication.—International Railway Company, Buffalo, N. Y.

Sub-account to maintenance of electric line, telephones and signals. To maintenance of electric plant, sub-station plant. To lubricants and waste for power plant, lubricants and waste for sub-station plant. To miscellaneous supplies and expenses power plant, miscellaneous supplies and expenses sub-station plant. To advertising and attractions, park expense, theater expense.—American Railways Company.

The only sub-accounts used outside of standard schedule are the maintenance of air-brake equipment.—Worcester Consolidated Street Railway Company.

All accounts in which the pay roll appears are sub-divided into pay roll and other charges. Paving is kept as a sub-division of maintenance of track and roadway.—Chicago Union Traction Company.

We use sub-accounts for operation of freight car to distinguish from operation of passenger cars.—Providence & Danielson Railway Company.

Maintenance Way and Structures.—No. 1A, maintenance and renewals of paving; 1B, maintenance of track bonding; 2A, maintenance of telephone lines; 2B, maintenance of signals and signaling apparatus.

Maintenance of Equipment.—No. 5A, maintenance of electric plant, sub-stations; 6A, maintenance of freight cars; 7A, maintenance of electric equipment of freight cars.

Operation of Power Plant.—Nos. 10A, wages, sub-stations; 13A, lubricants and waste for sub-stations; 14A, miscellaneous supplies and expenses of sub-stations.

Operation of Cars.—Nos. 16A, superintendent of transportation freight; 17A, wages of conductors, freight; 18A, wages of motormen, freight; 19A, wages of other car servants employed, freight; 22A, miscellaneous car servants' expense, freight; 24B, passenger station experience; 24C, freight station expense.

General Expenses.—26A, salaries of agents and clerks, freight; 39, loss and damage, freight.—Indiana Union Traction Company.

General Account	Surface Account	Elevated Account	Subway Account	Subway Elevated Account	
301	...	...	...	...	Superintendent and general expense.
...	307	...	...	...	Maintenance of stables.
...	312	313	...	...	Maintenance of electric car houses and repair shops.
316	...	...	...	...	Maintenance of power stations, wharves and sub-stations.
...	...	323	324	325	Maintenance of stations, ticket offices, fences, platforms, etc.
...	...	328	...	...	Maintenance of switch towers.
...	332	333	334	335	Maintenance of rented property (including light, heat and water rates).
...	337	338	339	...	Maintenance of miscellaneous buildings.
...	342	343	...	...	Maintenance of miscellaneous fences, sewers, etc.

EQUIPMENT

General Account	Surface Account	Elevated Account	Subway Account	Subway Elevated Account	
401	...	...	...	...	Maintenance of Steam Plant
...	...	...	...	...	Maintenance of Electric Plant
501	...	...	...	...	Maintenance of electrical equipment of power stations and sub-stations.

Maintenance of Cars

...	602	...	...	...	Maintenance of fare registers.
...	607	608	...	...	Maintenance of box motor cars.
...	612	...	...	...	Maintenance of open motor cars.
...	617	618	...	...	Maintenance of trucks.
...	622	...	...	...	Maintenance of fenders.
...	627	628	...	...	Transfer of trucks for purposes other than repairs.

Maintenance of Electrical Equipment of Cars

...	702	703	...	...	Maintenance of motors, miscellaneous.
...	707	708	...	...	Maintenance of motor armatures.
...	712	713	...	...	Maintenance of motor fields.
...	717	718	...	...	Maintenance of motor gearing and pinions.
...	722	723	...	...	Maintenance of rheostats and control.
...	727	728	...	...	Maintenance of power brakes.
...	...	733	...	...	Maintenance of contact shoes and beams.
...	737	738	...	...	Maintenance of electrical equipment of service cars and plows.
...	742	743	...	...	Transfer of motors and equipment (for purposes other than repairs).
...	747	748	...	...	Maintenance of trolleys, wiring, switches and miscellaneous.

Maintenance of Miscellaneous Equipment

...	802	803	...	...	Maintenance of wagons, etc., for track repairs.
...	807	...	...	...	Maintenance of wagons, etc., for line repairs.
811	...	...	...	...	Maintenance of other wagons, etc.
816	...	...	...	...	Maintenance of harness, blankets and robes.
821	...	...	...	...	Renewals and depreciation of horses.
...	827	828	...	...	Maintenance of service cars.
...	832	833	...	...	Maintenance of snow-plows and other snow-equipment.

MAINTENANCE, WAY AND STRUCTURES

General Account	Surface Account	Elevated Account	Subway Account	Subway Elevated Account	
...	102	103	104	105	Superintendence and general expense.
...	107	108	109	110	Labor repairing track.
...	112	...	...	...	Labor paving track.
...	117	118	119	120	Maintenance of timber and ties and tie fastenings.
...	122	123	124	125	Maintenance of rails and fastenings.
...	127	128	129	130	Maintenance of frogs, switches and guard-rails.
...	132	...	...	...	Paving blocks.
...	137	...	139	140	Sand, gravel and cement for track repairs.
...	142	143	144	145	Maintenance of track tools and equipment.
...	...	...	149	150	Maintenance of subway walls, track fences, snow-sheds, drains, ventilating apparatus, etc.
...	...	153	...	...	Maintenance of structure and foundations.
...	...	158	...	160	Maintenance of third-rail guard, railings, walk, feeder boxes, etc.
...	...	163	...	165	Maintenance of signal and interlocking systems (including compressors).
...	167	...	...	...	Maintenance of reservations.
...	172	173	174	175	Miscellaneous expenses of track and roadway.

Maintenance of Electric Line Equipment

...	202	203	204	205	Maintenance of feeder conduits.
...	207	208	209	210	Maintenance of feeder conduit cables.
...	212	213	214	215	Maintenance of overhead feeder lines.
...	217	218	219	220	Maintenance of poles.
...	222	223	224	225	Maintenance of trolley lines.
...	227	228	229	230	Maintenance of track wiring.
...	...	233	...	235	Maintenance of third rail.
...	237	238	...	...	Maintenance of line tools.
...	242	243	244	245	Miscellaneous expenses of electric line equipment.

TRANSPORTATION

General Account	Surface Account	Elevated Account	Subway Account	Subway Elevated Account	
1001	...	...	...	...	Power plant wages.
1101	...	...	...	...	Fuel for power.
1201	...	...	...	...	Water for power.
1301	...	...	...	...	Lubricants and waste for power plant.
1401	...	...	...	...	Miscellaneous supplies and expenses of power plant.
1501	...	...	...	...	Power hired.
1601	...	...	...	...	Power sold (credit account).
1701	...	...	...	...	Power for heating, lighting and stationary motors (credit account).

OPERATION OF CARS

General Account	Surface Account	Elevated Account	Subway Account	Subway Elevated Account	
...	1802	1803	...	...	General and division superintendence and clerks.
...	...	1808	...	...	Train master, dispatchers, supervisors, starters and clerks.
...	1812	1813	...	...	Street inspectors.
...	1902	...	...	...	Wages of conductors.
...	...	2003	...	...	Wages of guards and brakemen.
...	2102	2103	...	...	Wages of motormen.

General Account	Surface Account	Elevated Account	Subway Account	Subway Account	Elevated Account	Description
.....	2202	.....	.....	.....	.....	Wages of Sundry Transportation Employees
.....	2202	.....	.....	.....	.....	Starters, transfer agents and register inspectors.
.....	2212	.....	.....	.....	.....	Tower men, telegraph operators and flagmen.
.....	2218	.....	.....	.....	.....	Switch tenders, watching holes and flagging cars.
.....	2223	.....	.....	.....	.....	Car couplers and yardmen.
.....	2224	.....	.....	.....	.....	Station master and platform men.
.....	2228	.....	.....	.....	.....	Station fare collectors and chopper men.
.....	2302	.....	.....	.....	.....	Wages of Car-House Employees
.....	2307	.....	.....	.....	.....	Car house foremen.
.....	2312	.....	.....	.....	.....	Car, truck, motor, control and power brake inspectors and oilers.
.....	2313	.....	.....	.....	.....	Floormen, shifters and car cleaners.
.....	2402	.....	.....	.....	.....	Car Service Supplies
.....	2403	.....	.....	.....	.....	Lamps, lubricants, waste and miscellaneous car supplies.
.....	2501	.....	.....	.....	.....	Miscellaneous Car Service Expenses
.....	2506	.....	.....	.....	.....	Secret inspection expenses.
.....	2512	.....	.....	.....	.....	Transfers and tickets.
.....	2517	.....	.....	.....	.....	Wrecking expenses.
.....	2522	.....	.....	.....	.....	Miscellaneous supplies and expenses of car houses.
.....	2523	.....	.....	.....	.....	Miscellaneous car service expenses.
.....	2603	.....	.....	.....	.....	Station and Switch Tower Expenses
.....	2604	.....	.....	.....	.....	Janitors, porters and watchmen.
.....	2609	.....	.....	.....	.....	Miscellaneous supplies and expenses of stations and switch towers.
.....	2703	.....	.....	.....	.....	Interlocking Plants and Block Signal Expenses
.....	2705	.....	.....	.....	.....	Inspection and supplies for signal and interlocking system.
.....	2708	.....	.....	.....	.....	Power for signal and interlocking system.
.....	2802	.....	.....	.....	.....	Cleaning and Sanding Track
.....	2803	.....	.....	.....	.....	Labor, cleaning, greasing, sanding and watering track.
.....	2808	.....	.....	.....	.....	Oil, grease, sand, etc.
.....	2902	.....	.....	.....	.....	Removal of Snow and Ice
.....	2903	.....	.....	.....	.....	Labor removing snow and ice.
.....	2907	.....	.....	.....	.....	Hauling snow.
.....	2912	.....	.....	.....	.....	Salt for tracks.
.....	2917	.....	.....	.....	.....	Tools and miscellaneous snow expenses.
.....	3001	.....	.....	.....	.....	GENERAL
.....	3101	.....	.....	.....	.....	Salaries of general officers, assistants and clerks.
.....	3201	.....	.....	.....	.....	Printing and stationery.
.....	3301	.....	.....	.....	.....	Miscellaneous office expenses.
.....	3301	.....	.....	.....	.....	Storeroom Expenses
.....	3306	.....	.....	.....	.....	Salaries, storekeeper and clerks.
.....	3401	.....	.....	.....	.....	Miscellaneous storeroom expenses.
.....	3406	.....	.....	.....	.....	Stable Expenses
.....	3411	.....	.....	.....	.....	Stable labor.
.....	3411	.....	.....	.....	.....	Hay, grain and bedding.
.....	3416	.....	.....	.....	.....	Shoing, veterinary and miscellaneous expenses.
.....	3501	.....	.....	.....	.....	Use of horses—credit account.
.....	3501	.....	.....	.....	.....	Miscellaneous General Expenses
.....	3506	.....	.....	.....	.....	Maintenance of telephone and telegraph systems.
.....	3511	.....	.....	.....	.....	Subscriptions and gratuities.
.....	3602	.....	.....	.....	.....	Miscellaneous expenses.
.....	3602	.....	.....	.....	.....	Legal Expenses and Damages
.....	3607	.....	.....	.....	.....	Salaries and expenses of attorneys.
.....	3612	.....	.....	.....	.....	Salaries of claim agents and clerks.
.....	3617	.....	.....	.....	.....	Damages to persons by cars.
.....	3622	.....	.....	.....	.....	Damages to property by cars.
.....	3627	.....	.....	.....	.....	Damages to employes.
.....	3628	.....	.....	.....	.....	Miscellaneous damages.
.....	3902	.....	.....	.....	.....	Miscellaneous expenses, claim department.
.....	3902	.....	.....	.....	.....	Rentals
.....	4002	.....	.....	.....	.....	Rent of land and buildings.
.....	4101	.....	.....	.....	.....	Rent of track and terminals.
.....	4106	.....	.....	.....	.....	Insurance
.....	4106	.....	.....	.....	.....	Fire insurance premiums.
.....	4106	.....	.....	.....	.....	Indemnity premiums.

2. Maintenance Electric Lines	Line maintenance.
Sub-Accounts.	Renewals of pole and Pole fixtures.
	Renewal of wire and fixtures.
	Emergency crews.
	Engineering and superintendence.
	Extraordinary expense.
	Conduit and cable maintenance.
	Bonding.
6. Maintenance of Cars	Car-bodies.
Sub-Accounts.	Painting and varnishing.
	Fenders.
	Headlights, gongs, bells, etc.
	Fare registers and fixtures.
	Window glass.
	Heaters and fixtures.
	Truck and truck parts.
	Air-brakes and fixtures.
	Other brakes and fixtures.
	Wheels and axles.
	Journals.
	Brake-shoes.
	Shifting equipment.
7. Maintenance of Electric Equipment of Cars	Trolley stands, poles and wheels.
Sub-Accounts.	Wiring.
	Armatures.
	Commutators.
	Fields.
	Controllers.
	Gears and Pinions.
	Gear cases.
	Motor frames.
	Motor bearings.
	Brush holders.
	Miscellaneous electrical parts.
	Shifting equipment.
8. Maintenance of Miscellaneous Equipment.	Plows, sweepers and sprinklers.
Sub-Accounts.	Supply, sand, salt, coal and work cars.
	Trucks, wagons, carriage, horses and harness.
9. Miscellaneous Shop Expenses	Foreman and clerks.
Sub-Accounts.	Repairs plant repair shop.
	Repairs plant car house shops.
	Fuel, light and electric power.
	Stationary engineer, watchman and other labor.
	Engineering and superintendence.
	—Public Service Corporation of New Jersey.

Q. 19. In establishing a basis for calculating the per capita earnings of an interurban line, one of whose terminals is a large city, is it correct to consider the population of this city as tributary to your interurban line, either in whole or in part? If considered as partially tributary, what percentage of your total population do you include in your estimate of population served by your interurban line?

We think the population of larger terminals should be considered. The percentage of population included should, however, vary with the class of population of the smaller towns served. For instance, if agricultural, the business originating in city terminals will be smaller as compared with business originating in the same terminals where the towns served are manufacturing.—The Indianapolis & Cincinnati Traction Company.

We consider the total population when figuring the per capita earnings of suburban and interurban lines—International Railway Company, Buffalo, N. Y.

My opinion is, it would be proper to consider a part of the population of a large city terminal of an interurban system as tributary thereto. Have had no experience, but think the percentage would be largely governed by local conditions, and any estimate would necessarily depend very greatly on observation and experience.—The Memphis Street Railway Company.

One of our terminals is a large city from which we obtain nearly all of our excursion, or summer riding. If every one of the population does not patronize us it is not our fault, but we reserve the right to claim them all as our people.—Providence & Danielson Railway Company.

In the car houses of the Middletown Street Railway Company, of Middletown, Conn., are posted notices to the employes of the company that they may try to qualify as motormen and conductors on the new service between Meriden and Middletown, to be operated by the New York, New Haven & Hartford Railroad over its own lines. Six crews of twelve men are wanted. The applicants must go to New Haven to be tested for color blindness, etc.

1. Maintenance Track and Roadway	Repairs roadbed and tracks.
Sub-Accounts.	Renewals of rails.
	Renewal of ties.
	Renewal of special work.
	Repairs street paving.
	Repairs cast-welding equipment and tools.
	Cast welding.
	Repairs bridges.
	Engineering and superintendence.
	Extraordinary expense.

## EXHIBITS AT THE COLUMBUS CONVENTION

THE BALDWIN LOCOMOTIVE WORKS (Burnham Williams & Co.), of Philadelphia, showed in Building No. 1 one of its 78-in. heavy trucks for interurban service at its space. It also had four trucks under the Niles cars and two trucks under the Jewett cars in the outside exhibit. The company was represented by Warren Thorpe and J. R. Dickey.

THE STANDARD STEEL WORKS, of Philadelphia, made an exhibit jointly with the Baldwin Locomotive Works in Building No. 1, and showed solid forged and steel rolled wheels, steel tired wheels and steel car wheel tires. The merits of Standard wheels were explained by E. S. Lewis, O. J. Bamford, Frank Carpenter, C. H. Peterson, Charles Riddell and H. W. Sheldon.

THE GOLDSCHMIDT THERMIT COMPANY, of New York, has space in Building No. 1 and also made demonstrations each day outside the building of its rail welding process for ordinary and compromise joints. In the inside space it exhibited samples of the apparatus required in making thermit joints and also showed joints and wheels made by the process. Attention was called to samples of carbonless metals, as manganese and chromium, made by the thermit process, and also alloys of manganese with zinc and copper. The exhibit included samples of pipe welding and other applications of this process. The representatives were R. F. Kelker, Jr., and G. E. Pellissier.

THE DUFF MANUFACTURING COMPANY, of Allegheny, Pa., manufacturer of jacks and lifts, had a complete line of Barrett track and car jacks, including new sizes of both; also a full line of roller bearing and cone bearing ratchet screw jacks, differential screw jacks, pipe forcing jacks, etc. Of special interest to master mechanics were the two types of Barrett motor armature lifts, one having the ratchet jack movement and the other the wheel and screw ball bearing movement. A special feature was made of a special car jack adapted particularly to be carried on electric railway cars for emergency purposes. This is known as the special Barrett emergency car jack, and has been adopted by several leading companies who equip each of their cars with one of these devices. This jack is designed particularly for emergency purposes and will be found useful when a car is derailed or in removing obstacles which block the track, or for raising a car in a hurry to remove a person or obstacle caught under the car. The exhibit was in charge of G. A. Edgin.

THE R. D. NUTTALL COMPANY, of Pittsburg, as usual showed its complete line of trolleys, trolley harps, trolley wheels, gears and pinions. A special feature was made of a very large gear to be used for electric locomotive service in the Sarnia Tunnel. The gear shown had a cast-steel center with a steel rim and measured 50 ins. outside diameter, with 10-in. axle bore. The company's interests were looked after by F. A. Estep, C. N. Wood, George Provost, J. R. Provost, T. M. Cluley, R. M. Kerschner, J. S. Monroe, Max Berg and J. W. Porter.

THE INTERNATIONAL SPRINKLER COMPANY, of Philadelphia, made a complete display of apparatus used in fire sprinkler systems, including dry pipe valves, alarm valves, both with electric and mechanical alarms, sprinkler heads, etc. D. C. Scott, F. W. Smith and W. C. Woelner represented the company.

THE MILLER ANCHOR COMPANY, of Norwalk, Ohio, had samples of Miller safety anchors, and was represented by G. H. Miller and Frank B. Miller.

THE ELECTRIC STORAGE BATTERY COMPANY, of Philadelphia, had a large corner space in Building No. 1 and had as its chief exhibit two type-R cells. One of these represented the type contracted for by the New York Central & Hudson River Railroad, which is to install a total capacity in eight sub-stations of 60,000 hp. Four batteries are now in service. The other cell showed the type designed for the New York, Long Island & Pennsylvania Railroad Company, which is installing a total capacity of 4000 kw. The Electric Storage Battery Company also showed carbon regulators, hydrometers of various kinds, sample plates, load curves, photos and maps indicating the location of its storage battery plants in Ohio, Indiana and Illinois. In the way of literature there was distributed a bulletin describing the battery installations of the Columbus

Railway and Light Company. Those in attendance were G. H. Atkin, H. B. Gay, R. C. Hull and H. H. Seaman.

THE KALAMAZOO RAILWAY SUPPLY COMPANY, of Kalamazoo, Mich., had large space in Building No. 1, where attention was directed to Root railway spring scrapers and fenders for city and interurban cars; tower car; Moore track drills; Kalamazoo gasoline inspection car; Kalamazoo pressed steel wheels; jacks, track gages and various tools. The statement is made that the output during the last year of track scrapers has increased 800 per cent up to Oct. 1. The representatives on the ground were H. G. Haines, J. W. Thorne, F. N. Root and D. A. Moore.

THE CREGHEAD ENGINEERING COMPANY, of Cincinnati, Ohio, had samples of all of its well-known specialties, including complete overhead equipments, flexible brackets, pole line fittings, construction tools, new line of high-tension insulators and insulator pins, etc. A new device was the Murrey trolley switch, which is designed to positively turn the trolley wheel to the prearranged wire without breaking contact. A new line of feeder brackets and pins for heavy railway feeders were also shown, the distinctive feature of which is a wooden threaded thimble attached to the bracket to receive the glass insulator and reduce the chance of the insulator being broken. Considerable interest was also aroused in the company's new day and night illuminated car sign which gives equally distinct indications either by day or night. The sign gives any number of different signs up to forty, and by a simple indicator the motorman is able to tell without leaving the platform just what indication is exposed. The interests of the company were served by T. J. Creghead and Claude Johnson.

THE UNITED STATES METAL & MANUFACTURING COMPANY, of New York, called attention to the "Perfect" pressed steel car replacer, the "Victor" cast steel car replacer, and to Columbia lock nuts, all of which were shown in Building No. 1. B. A. Hegeman, Jr., Fred Atwater and F. C. Dunham were in attendance.

THE RECORDING FARE REGISTER COMPANY, of New Haven, Conn., showed recording fare registers of different types, simple registers, register rods, cord fittings, and its general line of railway supplies and trimmings. A new device shown by this company and known as the Richardson automatic lubricator for trolley wheels attracted considerable attention. The company's representatives were M. DeForest Yates, Frank B. Kennedy and Charles N. Yates.

THE PENNSYLVANIA STEEL COMPANY, of Steelton Pa., and the MARYLAND STEEL COMPANY, of Sparrow's Point, Md., made a joint exhibit in Building No. 2 of T and girder rails and special work. Particular attention was directed to a new torsion spring, parallel throw, automatic switch which combines four classes of operation, namely, anti-kick-over, right and left automatic spring, and loose switch tongue. Several types of standard frogs and switches were shown. Another novelty was the new semaphore switch stand with disappearing blade, which reduces the possibility of confusing the clear and block signals. This stand is intended for high-speed interurban lines. In one section of the space was shown a model turn-out for high-speed interurban lines and also a standard automatic switch with new Century switch stand for the same service. The company calls particular attention this year to the Maynard special work, showing a Maynard crossing, Maynard big pin switch tongue for heavy service, and a Maynard frog which has been in use on the Lake Shore Railroad for several years. It is stated that the sales of Maynard steel during the past three years have increased from 50,000 lbs. a year to 5,000,000 lbs. a year for electric railway work exclusively. A Maynard crossing was shown about which the interesting statement is made that the Dayton, Covington & Pique Traction Company had been renewing the special work at a particular location four times a year, but after installing the Maynard crossing a year ago it has made no renewals and the crossing is still in good condition. The company was represented by the following: R. E. Belknap, H. F. Martin, C. W. Reinhoel, Richard Peters, C. S. Clark, G. W. Parsons, R. E. Hoffman, Jr., John W. Hill, W. S. Cuntz, J. N. Shearer, John C. Jay, Jr., J. G. Miller, W. S. Erwin, M. W. Long, C. A. Alden, G. Vickery, C. Fink, W. M. Henderson, N. E. Salsich, H. E. McCormick, C. Chick, R. M. Read and H. Smiley.

THE O. M. EDWARDS COMPANY, of Syracuse, N. Y., had around its space full-size models of car sides showing twenty-five designs of window fixtures and nine designs of extension trap-door fixtures. It also displayed tin barrel spring rollers, sash balances and window fixture hardware. The company's force included O. M. Edwards, E. F. Chaffee, F. M. Nicholl, G. G. Morris and G. E. Blake.

THE UNITED STATES ENGINEERING COMPANY, of Philadelphia, had a working model of the Nachod automatic signal and parts of the signal itself. It was represented by Carl P. Nachod.

THE CHEATHAM ELECTRIC SWITCHING DEVICE COMPANY, of Louisville, Ky., showed a model of its automatic electric track switch, together with full-sized parts of the switch mechanism. The company was represented by R. V. Cheatham and S. C. Brandon.

THE NATIONAL LOCK WASHER COMPANY, of Newark, N. J., and Chicago, Ill., displayed samples of its sash locks, sash balances and nut locks. A feature of the display was a new balanced curtain fixture with protected groove. This fixture has no pinch handle and cannot be removed from the groove. Attention was also directed to a balanced curtain fixture for semi-convertible cars. Lock washers in sizes from 1-16 ins. to 3 ins. in diameter, of the National rib and plain coil patterns, were shown. There were in attendance F. D. Archibald, John B. Seymour and Daniel Hoyt.

THE GIBBS COUNTING MACHINE COMPANY, of Zanesville, Ohio, had in operation one of its machines for counting tickets, transfers, etc. This ingenious device was described and illustrated in the convention issue of the STREET RAILWAY JOURNAL, and attracted a great deal of attention and favorable comment. The workings of the machine were described by W. A. Gibbs, John C. Sullivan and E. T. McSwords.

THE LAGONDA MANUFACTURING COMPANY, of Springfield, Ohio, maker of the Weinland boiler-tube cleaners, showed boiler cleaners both of the turbine and belt-driven type, automatic stop and non-return crown valves, tube cutters, and a new damper regulator. A novel feature was the method of showing the cleaners, which were mounted on a frame in the center of the space and were kept in operation by a small motor. Twenty-four types of cleaner heads were exhibited on this frame. The representatives were H. F. Weinland, M. M. Sellers and F. S. Davidson.

THE BRADY BRASS COMPANY, of Jersey City, N. J., showed its complete line of brasses, motor bearings, etc. The company's souvenirs this year consisted of boxes containing six high-grade lead pencils. Daniel M. Brady, Geo. C. Morse, C. M. Reubens and W. F. Kranz were in attendance.

THE PANTASOTE COMPANY, of New York and Chicago, made its usual attractive display of substitute leather car curtains and seat coverings. The company was represented by J. M. High and D. E. Bonner.

THE WHEEL TRUING BRAKE SHOE COMPANY, of Detroit, Mich., had several of its abrasive brake-shoes for removing flat spots from wheels without taking the wheels from service. The company's souvenir, consisting of a pack of domino cards, was original and was in great demand. A novel feature of the exhibit was the railing around the booth, which has been designed for use by the company at exhibits and conventions. The railing consists of nickel-plated piping, which is made adjustable and can be used in any size space. The company's president and general manager, J. A. Griffin and F. F. Griffin, were in attendance.

THE STAR BRASS WORKS, of Kalamazoo, Mich., had its usual line of trolley wheels and trolley haps for city and interurban service. The secretary and treasurer, O. P. Johnson, was in attendance.

THE SPEER CARBON COMPANY, of St. Marys, Pa., showed its generator and motor carbon brushes and carbon specialties. It was represented by J. S. Speer and G. P. Fryling.

THE CURTAIN SUPPLY COMPANY, of Chicago, showed for closed cars curtains equipped with Forsyth No. 86, ring No. 88, eccentric Acme cable and Climax cable fixtures. A feature was also made of ring fixture No. 49, designed for semi-convertible cars, as well as a full line of fixtures for open cars. The company's many customers and friends were greeted by W. H. Forsyth, A. L. Whipple, F. C. Kenley and R. F. Hayes.

THE INTERNATIONAL REGISTER COMPANY, of Chicago, had an elaborate display in Building No. 1, where it exhibited a full line of single and double registers with the parts exposed to show the inner mechanism. A feature is made of the fact that these registers are absolutely interchangeable. The company illustrates this point by saying that if 1000 machines were taken apart and all the separate parts were shaken together in a basket, 1000 new machines could be built by taking the corresponding parts indiscriminately from the basket. The exhibit also included register fittings; a full line of round and square rod fittings; a full line of New Haven and International registers; a complete line of Simplex and Duplex counters; Heeren badges; punches; trolley rope, etc. A new detachable handle for round rods attracted attention. The company also makes a full line of portable registers and recording registers. As showing the capacity of the company's works, a circular was distributed calling attention to a recent order of the Brooklyn Rapid Transit Company for 2000 type R-7 International single registers, all of which were delivered within a period of two months. The company's souvenir, consisting of a small coin and bill bank, was in great demand. The company's force on the ground included John Benham, vice-president; A. L. Tucker, secretary; W. G. Kirchhoff, superintendent, and A. M. Loper.

THE GLOBE TICKET COMPANY, of Philadelphia, had samples of street and interurban railway tickets and transfers of many different designs. It also showed one of its power ticket destroyers in operation. The company was represented by W. C. Pope, P. C. Snow, W. P. Snow and R. C. Osman.

THE DUPLICATE TRANSFER & REBATE COMPANY, of Philadelphia, Pa., which makes a specialty of secret service work, was represented by H. N. Brown, Charles Goble and T. C. Cary.

THE TAYLOR ELECTRIC TRUCK COMPANY, of Troy, N. Y., had a full line of its electric car trucks, including single trucks; S. B. swing-motion double truck; H. L. B. swing-motion double truck; M. C. B. double truck; M. C. B. triple spring double truck. It also had a full line of coil and elliptic springs for car trucks. The company is just bringing out a full line of steel tire wheels with malleable iron centers especially designed for electric railway service. The tire is shrunk and bolted and has an internal reinforcing flange which permits of turning the tire very close to the center without danger of the tire coming off. John Taylor, president; C. H. Dodge, Western sales agent; Thomas Thornes and Walter Taylor were in attendance.

THE STANDARD BRAKE SHOE COMPANY, of Aurora and Chicago, Ill., made a display of its steel back brake shoes, composition inserted shoes, coil inserted shoes, Congdon shoes and plain shoes of special mixtures. The following were in attendance: F. C. Peck, F. P. Collier and C. P. Wright.

THE NATIONAL CAR WHEEL COMPANY, of Pittsburgh, showed several steel tire wheels with cast-iron centers, one fitted with the Mansel double-lip retaining ring; also one fitted with set screws. Among the wheels shown was a 30-in. engine truck M. C. B. wheel, and a special cast-iron type K. G. wheel for interurban service, and a 24-in. cast-iron pony truck wheel. The company's representatives included J. D. Cunningham, J. H. Yardley, George C. Morse, J. F. Weisbrod and E. H. Chapin.

THE AMERICAN RAILWAY SUPPLY COMPANY, of New York, had a sample board showing metal bearings of all kinds, and as usual was represented by Walter Chur.

THE CAMBRIA STEEL COMPANY, of Philadelphia, whose works are at Johnstown, Pa., maker of rails, axles and specialties, showed samples of 100 per cent rail joints, 100 per cent insulated rail joints and T-rail guards for electric railway service. The company was represented by A. Morrison, J. L. Adams, J. G. Carruthers, H. P. Hubbel, Clifford J. Ellis and E. D. Rogers.

THE ST. LOUIS CAR WHEEL COMPANY, of St. Louis, had samples of chilled cast-iron wheels for urban and interurban service, and also showed chilled cast-iron wheels mounted on axles for interurban service. The company's representatives were John W. Nute, W. W. Talman, and F. O. Grayson.

FRED BAIRD, of the Homer Commutator Company, of Cleveland, distributed a useful leather bill book.

THE T. H. SYMINGTON COMPANY, of Baltimore, showed its well-known journal boxes for all types of trucks, Baltimore ball bearings, and center plate and side bearings. The



C. G. GOODRICH



JAS. F. SHAW



A. M. BRADY



JOHN I. BEGGS



B. V. SWENSON

OFFICERS AND EXECUTIVE  
COMMITTEE  
AMERICAN STREET AND INTERURBAN  
RAILWAY ASSOCIATION



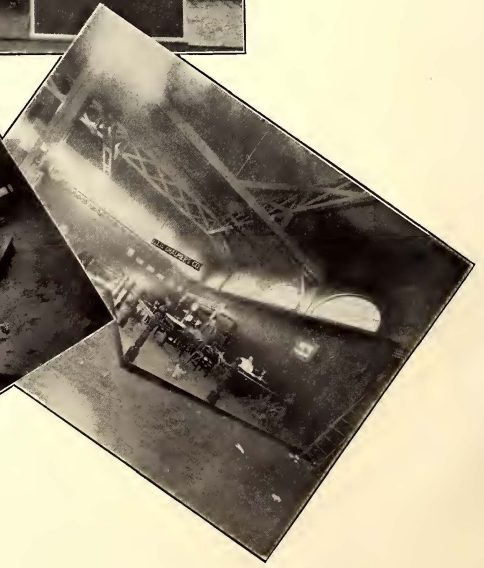
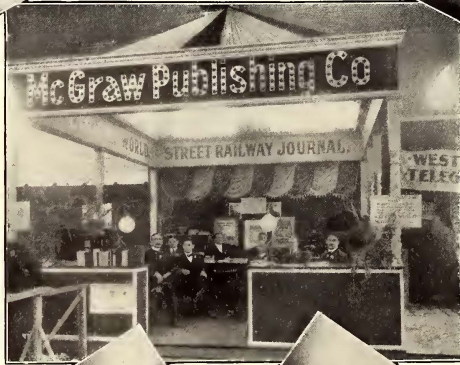
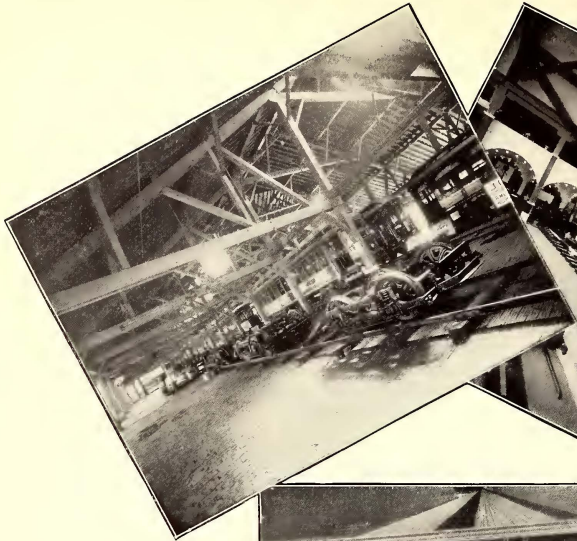
S. L. RHOADS



C. L. S. TINGLEY



H. H. ADAMS



J. G. BRILL COMPANY  
GENERAL ELECTRIC COMPANY

McGRAW PUBLISHING COMPANY

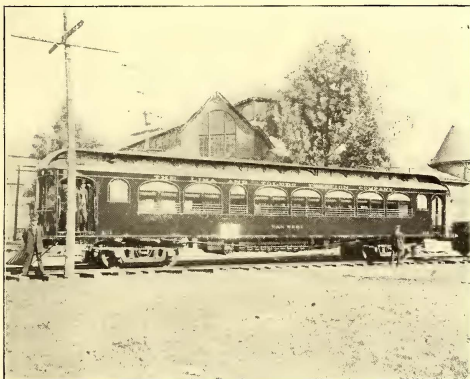
WM. WHARTON, JR. & COMPANY  
ALLIS-CHALMERS COMPANY



CARNEGIE STEEL COMPANY



STANDARD MOTOR TRUCK COMPANY



CINCINNATI CAR COMPANY



SECURITY REGISTER & MANUFACTURING COMPANY



DUPLICATE TRANSFER & REBATE COMPANY AND GLOBE TICKET COMPANY



HARRISON SAFETY BOILER WORKS



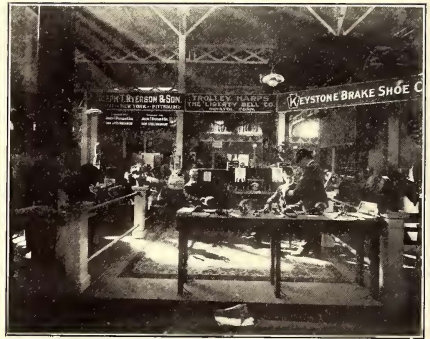
INTERNATIONAL SPRINKLER COMPANY

CHAS. I. EARLL

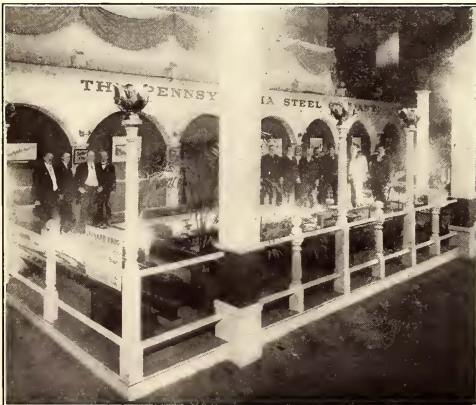
THE HAILE & KILBURN MFG. CO.



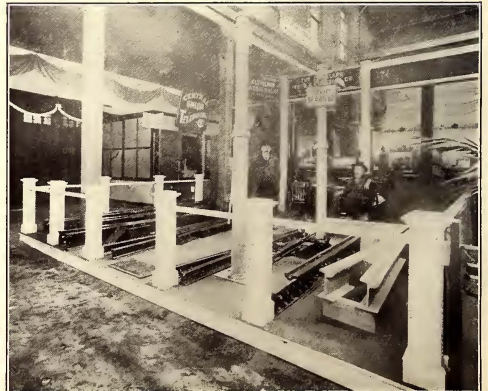
NATIONAL LOCK WASHER COMPANY



JOSEPH T. RYERSON & SON AND  
LIBERTY BELL COMPANY

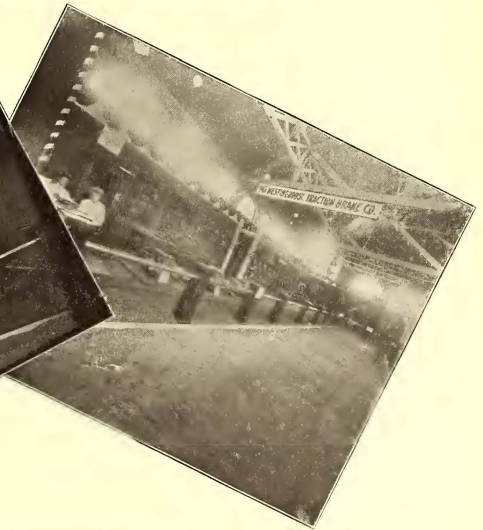
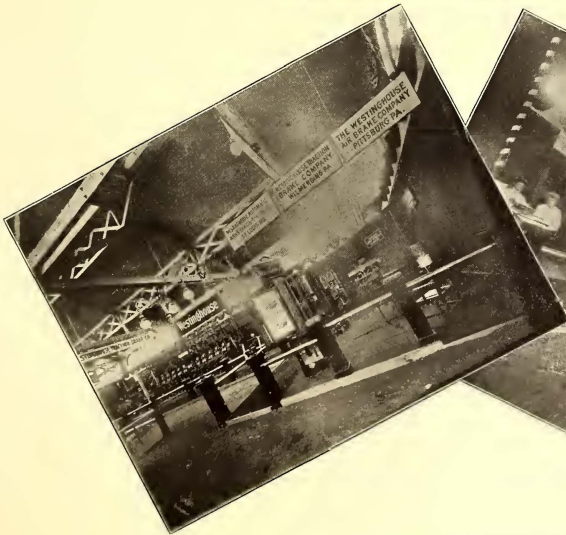
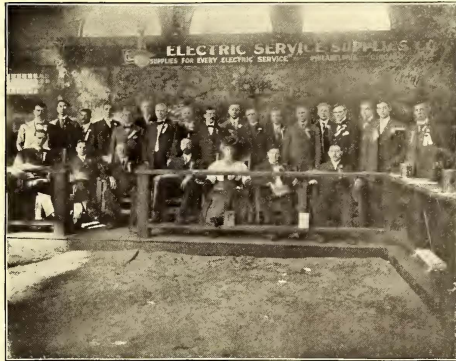


THE PENNSYLVANIA STEEL COMPANY

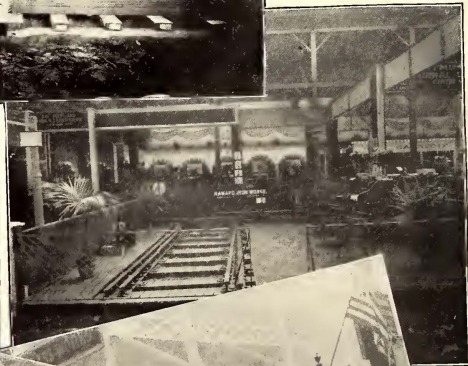
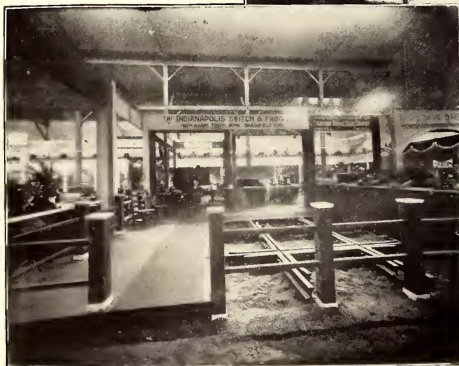


CLEVELAND FROG & CROSSING COMPANY





THE LORAIN STEEL COMPANY  
ELECTRIC SERVICE SUPPLIES COMPANY  
WESTINGHOUSE COMPANIES



PETER SMITH HEATER COMPANY  
 COOK'S RAILWAY APPLIANCE COMPANY  
 INDIANAPOLIS SWITCH & FROG COMPANY  
 W. T. VAN DORN COMPANY

TROLLEY SUPPLY COMPANY  
 RAMAPO IRON WORKS  
 SPEER CARBON COMPANY



STANDARD BRAKE SHOE COMPANY



SOUTHERN EXCHANGE COMPANY



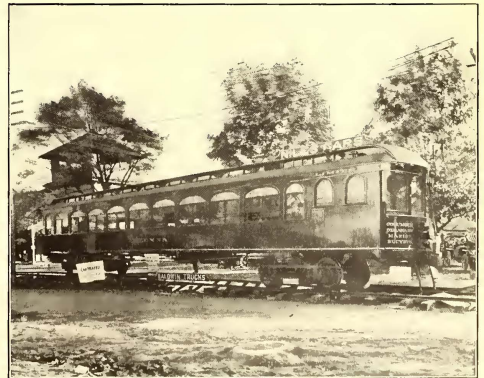
J. P. SJOBERG & COMPANY AND SEMON BACHE & COMPANY



O. M. EDWARDS COMPANY



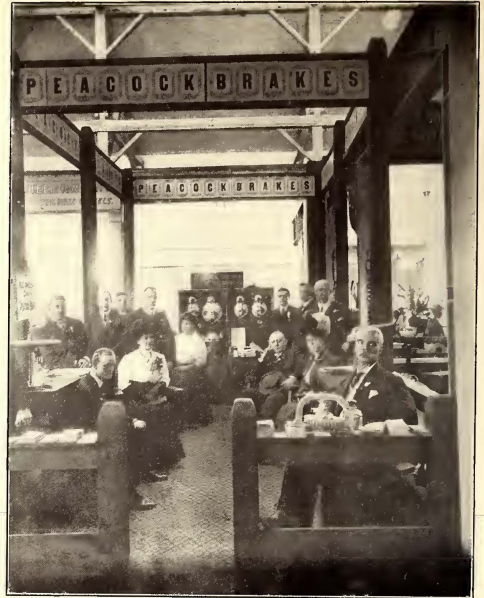
McGUIRE-CUMMINGS MANUFACTURING COMPANY



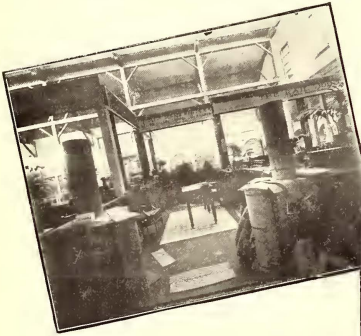
NILES CAR & MANUFACTURING COMPANY



BAYONET TROLLEY HARP COMPANY



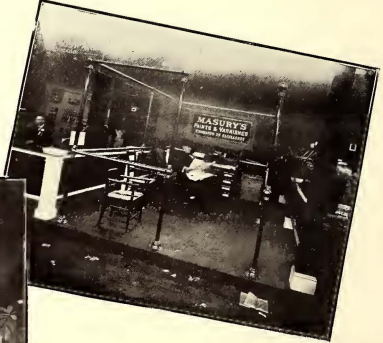
NATIONAL BRAKE COMPANY



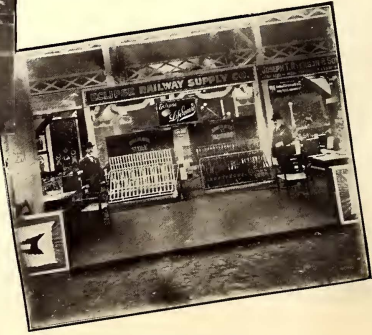
PEERLESS RUBBER MFG. COMPANY  
AMERICAN STEEL & WIRE COMPANY



AMERICAN MASON  
SAFETY TREAD CO.



JOHN W. MASURY & SON  
ECLIPSE RAILWAY SUPPLY COMPANY



representatives were E. H. Symington, D. Symington, C. J. Symington, W. W. Rosser, and Carl Tucker.

THE GRIFFIN WHEEL COMPANY, of Chicago, had space in Building No. 2, where it was represented by Charles K. Knickerbocker and W. H. Dickenson.

THE GRIP NUT COMPANY, of Chicago, had space in Building No. 2, where it brought out a new line of locking nuts which are not spring nuts nor jam nuts but by the peculiar shape lock themselves upon the bolt threads. The company was represented by B. F. Stewart, W. S. Wickerman and E. R. Hibbard.

THE PEERLESS RUBBER MANUFACTURING COMPANY, of New York, showed samples of its rubber products, including air brake, steam and pneumatic hose, valve packing, gaskets, step treads and the famous Rainbow packing. The company's souvenir consisted of a very fine pocketbook. The representatives were G. S. Taylor and C. S. Prosser.

MESSRS. SISSON and McCOY, of the St. Louis Car Company, were at the convention.

F. BISSELL, of Toledo, was smiling and urbane as usual.

O. W. UTHOFF and H. G. PARO, of the Watts & Uthoff Supply Company, St. Louis, Mo., were present.

THE JOSEPH DIXON CRUCIBLE COMPANY, of Jersey City, N. J., showed its well-known line of graphite specialties, which includes graphite silica paint for metal protection, flare graphite, belt dressings, graphite brushes, crucibles, graphite bearing greases, etc. In the center of a tastefully decorated stand was a huge paint can to which visitors were admitted; the interior being fitted up with mirth-provoking distortion mirrors. Souvenirs for lady visitors were miniature paint pails containing thimbles, while the men were supplied with a less useful article in the shape of a dice box. C. H. Spotts and L. H. Snyder, Jersey City, and F. R. Brandon, Chicago, were in attendance.

THE GOULD STORAGE BATTERY COMPANY, New York, displayed a number of single cells of batteries for railway and lighting work, including a 49-plate type U lead-lined tank of 720 amps. at eight-hour discharge; a 19-plate type S lead-lined battery of 180 amps. for eight hours; and a 21-plate type O cell in an Apert tank, having a capacity of 100 amps. for eight hours. A cabinet of photographs of large Gould installations was displayed, the most prominent being a plant of 280 cells, 640 amps. for one-hour capacity, recently installed at Eopka, Kan. R. H. Watson, Chicago, sole manager; H. W. Powers, manager telephone department; John Eipper, manager maintenance department, and Taliaferro Milton, of Chicago, were present.

THE AMERICAN STEEL & WIRE COMPANY, Chicago, had a uniquely decorated stand, outlined in copper springs. It exhibited its complete line of rail bonds and bond appliances. A new specialty was a new lever-operated hand drill for drilling bond holes. It was shown with from one to four spindles, and in the multiple drill each drill was adjustable and independent of the others. The device had a double-acting feed and had a capacity of seven to eight joints an hour at eight holes to a joint. Drills of this type are being used on the New York Central electrification work. A section of a submarine cable supplied to the Shawinigan Power Company, near Montreal, was shown. It weighed 12 lbs. to the yard, and was designed for 25,000 volts transmission. Another new device was a soldering torch in which each burner was separately adjustable and the pump was combined with the carrying handle. A line of hydraulic punches and presses for bonding work was also shown. The staff was a large one, and included C. S. Marshall, C. R. Sturdevant, George A. Craigan and J. D. Southerland from the Worcester plant, F. A. Keyes, E. W. Bauschard and W. H. Seavers from the New York office, and C. S. Knight, George Chandler, G. R. Rummel and B. B. Ayers from Chicago.

THE AMERICAN MASON SAFETY TREAD COMPANY, Boston, showed several varieties of safety tread car steps, vestibule mats, carborundum filled treads, lead and cork filled treads and cork carpets and mats. J. W. Scott, from New York, and Henry C. King, treasurer, Boston, were present.

THE FELT & TARRANT MANUFACTURING COMPANY, Chicago, showed the Comptometer, a mechanical wonder claimed to be a great time saver for auditing departments. It adds, multiplies, divides and subtracts rapidly enough to be practical. L. A. de Berard, Cincinnati district manager, and John B. Cooper, sales agent, demonstrated the device.

THE SPRAGUE ELECTRIC COMPANY, New York, showed sections of its flexible steel armored hose. W. A. Treat, of Chicago, was in charge.

THE WATSON-STILLMAN COMPANY, New York, showed a number of varieties of hydraulic railroad tools. Edward A. Johnson was in charge.

BERRY BROTHERS, Detroit, exhibited a number of panels showing samples of outside finishing varnishes and inside rubbing and polishing varnishes. F. W. Harmon, T. J. Lawler and William Stridirm distributed a neat pocket piece as a souvenir.

S. F. BOWSER & COMPANY, Ft. Wayne, Ind., exhibited one of its tank and pumping outfits for storing oils, varnishes, gasoline or other highly inflammable materials, with the use of which it claims to reduce greatly the chances of fire. W. T. Simpson and C. A. Dunkleberg were present.

JOHN W. MASURY & SONS, New York, demonstrated the high finish produced by its varnishes with panels showing the coats-of-arms of a number of States in various colors and finishes. T. J. Ronan and F. P. Hill, of New York, were present.

THE GALENA SIGNAL OIL COMPANY, Franklin, Pa., had a large and handsomely furnished reception room where a staff of eighteen representatives, headed by Le Roy G. Miller, manager of the street railway department, and G. A. Barnes, assistant manager, entertained. A few samples of Galena lubricants for car and power station lubrication were shown. E. H. Baker, New York representative of the Galena Signal Oil Company, rendered invaluable services to the convention as treasurer of the Manufacturers' Association, and the splendid exhibit of appliances at Columbus was due in no small measure to his energetic efforts.

THE FRANKLIN ELECTRIC MANUFACTURING COMPANY, of Hartford, Conn., had its stand decorated with its new incandescent lamps, which are especially designed for street railway service, having a filament which is anchored at its lowest point and supported direct from the stem, this being accomplished by means of a small glass column extending from the stem past the upper portions of the filament coil. The filament is fastened to an anchor wire welded in the glass column. The company illustrated the lack of vibration to the filament and the life of the lamp by a vibrating board on which six lamps were vibrated by means of a cam shaft and rocking table at a speed of 14,000 r. p. m. Also featured was a reflector back for a lamp which it was claimed would reflect 125 cp from a 50-cp lamp. P. S. Klees, C. Leonard, G. O. Curtis and F. E. Wilson were present.

THE PETER SMITH HEATER COMPANY, of Detroit, showed samples of its Nos. 1, 2, 3 and 4 hot-water heaters, which are among the best-known specialties on the market. A new feature shown on the heaters this year was the use of a distributing plate in the top of the heater which distributes the heat equally throughout the coils, giving a more uniform heating effect in all parts of the car. The popular Smith family, comprising Peter, Sr., E. J. and E. W., were in attendance.

THE WESTERN ELECTRIC COMPANY, of Chicago and New York, showed samples of "Deltabeston" field and armature coils, arc lamps and other railway material. It exhibited a number of photographs of power and railway generators. R. H. Harper, F. D. Killion, of New York; E. A. Burrows, W. L. Stockton, H. Walton Heggstra, W. F. Sandwell, D. C. Guest and C. A. S. Howlett were present.

THE D. & W. FUSE COMPANY, of Providence, R. I., showed numerous varieties of its cartridge fuses, enclosed fuse cut-outs and boxes; featuring a high-tension 2500-volt, 60-amp. overhead box, a transformer cut-out designed for 30 amps., and a new code 100-amp. railway box. W. S. Sisson and C. E. Harmann were in charge.

THE F. P. HARRISON ELECTRIC & MANUFACTURING COMPANY, of New York, which manufactures coils using D. & W. formulas, showed a number of samples of field and armature coils, in which asbestos was used in place of linen or cotton for insulating material, and having a special waterproofing compound outside. The company was represented by Ambrose E. Meixell, vice-president and general manager, and F. P. Harrison.

THE MASSACHUSETTS CHEMICAL COMPANY, of Walpole, Mass., showed numerous samples of its insulating materials, including Armalac compound, weatherproof tape, friction tape, molded rubber guards, etc. A. F. Baldwin, E. C.

Green, R. T. Elwell, L. O. Duclos and A. E. Duclos entertained callers and distributed a very useful souvenir in the form of a rubber cuspidor mat.

THE HOLLAND TROLLEY SUPPLY COMPANY, of Cleveland, showed the Holland trolley wheels, harps and bases. The wheel has an outer bearing contact and a hollow axle-grease hub in place of a grease chamber. A remarkable mileage record was shown for a wheel used on the Cleveland Electric Railway from Oct. 15 to July 10, during which time it covered 43,200 miles. A new base shows a ball bearing at the lower end of the pin and  $\frac{1}{2}$ -in. x 1-in. rollers at the upper end of the bearing. It was supplied with a lubrication capacity for one year. H. Holland was in charge.

THE CANTON TROLLEY SUPPLY COMPANY, of Canton, Ohio, showed the Climax combination arc and incandescent headlight and the Knutson trolley retriever. The company claims that this device is used on 90 per cent. of the high-speed interurban roads of Ohio. J. E. McLain and Joseph Hollis entertained visitors.

THE SHERWIN-WILLIAMS COMPANY, Cleveland, showed numerous panels illustrating car finishing processes and samples of paints for cars, power stations, buildings, bridges, offices, etc. A new wrinkle was a section of a rattan seat before and after treatment with rattan seat enamel, the improvement being very marked after an application. The company is now furnishing a new solid compound for impregnating processes and is prepared to supply sketches of apparatus for the application of this process. It displayed a number of sectional parts, showing the efficiency of the process and apparatus. Prominently displayed at the stand was a testing outfit for submitting samples of impregnated insulated materials to break down tests. E. N. Williams, manager of the railway department; H. E. Billan, G. A. Jacobs and C. P. Jardean, who were in charge, distributed the usual wealth of souvenirs, including chameleon paper weights and neat oxidized cuff buttons.

THE DEARBORN DRUG & CHEMICAL COMPANY, of Chicago, had its usual tastefully arranged exhibit of its boiler feed compounds and lubricating oils. G. W. Spear, R. F. Carr, Daniel Delaney, A. W. Clark and P. F. Payne received callers. The company distributed as souvenirs bottles of fine perfumery.

COOK'S RAILWAY APPLIANCE COMPANY, of Kalamazoo, Mich., showed a line of wood and steel cattle guards, track jacks, track drills, drill grinders and other tools. A new feature was a quick-return drill press having spindles mounted on ball bearings. E. Cook and H. W. Russell were present.

THE SOUTHERN EXCHANGE COMPANY, of New York, had an exceedingly attractive stand. This company has a very extensive patronage among street and interurban roads on Southern pine poles, ties and pins. On either side of the entrance were octagonal and square poles and cross-arms of long-leaf yellow pine, and there were also displayed sections of Southern white cedar poles, Georgia pine cross-arms and birch pins; the latter are becoming very popular as a substitute for locust pins. E. G. Chamberlain, president, and Walter Mitchell, sales manager of the company, were present. They reported a tremendous increase in business during the past few months, which has been the heaviest in the history of the company.

JOHN A. ROEBLING'S SONS COMPANY, the well-known wire house, showed numerous samples of armature coils and field coils, rail bonds, car cables, etc. The Roebling soldered bond recently brought out is tinned in a strip before being formed, and on the contact surfaces there are corrugated solder pockets to insure perfect contact. Several varieties of grinders for bond work were shown, including one of the wheelbarrow type which can be handled by one man, a velocipede grinder, a ball-bearing hand grinder and an outfit fitted with a  $1\frac{1}{2}$ -hp gasoline engine. These were designed for the New York Central electrification work and twenty of them are now in service. Samples of 500,000-cm and 1,000,000-cm soldered bonds were shown, together with a series of photographs showing the process of applying bonds on the New York Central work. G. R. Mitchell, James Henry, J. E. Nolan and M. G. Swartz from Trenton; W. W. Affleck and J. W. Brooks, of Cleveland; H. L. Shippey, of New York; A. B. Conover, of Chicago, and A. M. Whaley, of New York office, were present.

THE GOLD CAR HEATING & LIGHT COMPANY, of New York, exhibited numerous samples of its well-known line of electric heaters. A. E. Robbins and F. A. Purdy, of New York, were present.

THE CONSOLIDATED CAR FENDER COMPANY, of Providence, R. I., showed its models A, B, C and D fenders for city and interurban cars; life-saving devices which are too well known to need further detailing. It also featured the Campbell snow broom for sweepers. A. J. Thornley, manager, and George Hollingsworth were present.

THE NARRAGANSETT MACHINE COMPANY, of Providence, exhibited sections of its steel lockers for car houses and shops. A. J. Thornley was in charge.

THE ACME AUTOMATIC STREET INDICATOR COMPANY, of Cleveland, demonstrated its automatic street announcer in one of the convention halls and did an excellent piece of missionary work by placing the device on twenty cars operating on the line leading to the fair grounds. The announcer proper is a neat metal box, 10 ins. x 18 ins., hung in the front of the car. It contains rollers giving a capacity of 1000 stations, so that it can be used on a line of any length. The operating device is an electrical one, the rolls being turned by means of a magnet and clockwork in the case. The contact is formed by a small and simple lug attached to the span wire adjoining an ear, being properly spaced so as to announce the next street immediately after the last one has been passed. The circuit is completed passing each overhead contact by means of a small arm attached to the trolley pole. In case one on the contacts should fail to operate, the conductor can turn it ahead to the proper station announcement. At the end of the line the order is automatically reversed. It is claimed that the device is simple and easy to maintain, and it attracted a great deal of attention on the Columbus cars. Peter Small, F. W. Small, C. W. Johnson and Frank Bruggeman were present.

F. W. BIRD & SON, of East Walpole, Mass., exhibited "Paroid" roofing, "Neponset" red rope roofing and waterproof building paper. The booth in which rolls of the different materials were on exhibition was in itself a portion of the exhibit. The floor consisted of roofing material, while the sides of the booth were covered with building paper. Frank Lowe, of Columbus, was in charge of the exhibit.

THE UNITED STATES ELECTRIC SIGNAL COMPANY, of West Newton, Mass., had a working exhibit consisting of two signal and two trolley switches. This apparatus was installed in the rear of the booth in such a manner as to illustrate the signal equipment for one block. The signals consisted of full signals with lamps and semaphores attached, and were of the improved type having barriers between the terminal binding posts, which to a great extent eliminates the danger of damage from lightning. The trolley switches are also of an improved type. The pendulum of this is flexible, and is so constructed that the inertia of the moving parts is lessened. The exhibit was in charge of J. J. Ruddick.

THE CAPITOL LOCK NUT & WASHER COMPANY, of Columbus, Ohio, made a very complete display of lock nuts, truck and track bolts, rail clips, and several bolts made to specifications. The lock nut exhibited consists of a nut similar to the usual type of nut, with the exception of the fact that a ratchet is pressed in the face. A washer of peculiar design, fitting down under the nut, locks it in position. The nuts and washers of this type can be purchased at practically the same price as the ordinary type of nuts and washers. L. R. Ayers, of Columbus, and T. H. Ryan, of Denver, had charge of the exhibit.

THE HOME RUBBER COMPANY, of Trenton, N. J., had a very complete exhibit of N. B. O. (never blow out) steam packings, steam and pneumatic hose, tubular gaskets and a full line of mechanical rubber goods. The exhibit of pneumatic hose included hose manufactured especially for use in connection with air-brake systems on electric cars. A. R. Foley, of Trenton, N. J., and sales manager of the company, was in personal charge of the exhibit.

THE PHILIP CAREY MANUFACTURING COMPANY, of Cincinnati, Ohio, had an exhibit consisting of Carey fireproof roofing and magnesium asbestos and "argentum" pipe coverings. The sample asbestos coverings exhibited included some of the air cell type. In addition to covering for straight pipe, fittings for elbows, joints and tees and other special shapes were shown. A feature of the exhibit was several samples of "argentum" pipe coverings for underground steam pipes. I. H. Cooper and J. O. Davies, both of Columbus, were in charge of the exhibit.

THE POWER SPECIALTY COMPANY, of New York, exhibited sectional parts of the Foster superheater. The parts

of the heater were put together in such a manner as to show its construction. The exhibit included numerous photographs and drawings showing the methods of installing the superheater on all of the standard types of boilers. Drawings were also on exhibition showing the details of the Harter flexible expansion joint for steam mains. The railing of the booth, which consisted of parts of the Foster superheaters, presented a rather novel appearance. The features of the exhibit were shown by Alexander Bradley, manager of the Chicago office, and Robert H. Wyld, his assistant.

J. FRANK LANNING & COMPANY, of Pittsburg, had an exhibit consisting of several electric railway specialties. The Meaheer arc lamp for interurban cars was shown in operation. Probably the most important feature of the exhibit was a "little giant" boring machine. This consists of a combined bearing babbitting device and a reaming device by means of which the bearings are reamed or bored out by hand or power immediately after being poured and before removal from the holder in which they are babbitted. Included in the exhibit were F. M. oil cups for grease boxes of street railway motors and Chisholm and Moore chain hoists. J. Frank Lanning, who was in charge of the exhibit, was assisted by J. Vettlein, C. A. Schettlar and C. E. Summers.

NIC LE GRAND, representing H. F. Vogel & Co., St. Louis, Mo., attended the convention.

THE AMERICAN ENGINEERING COMPANY, Indianapolis, Ind., distributed literature through President Wilson and Secretary Burrows.

OTTO H. FALK, vice-president The Falk Company, Milwaukee, was in attendance.

JOHN G. KIPP, of the Electric Railway Equipment Company, Cincinnati, Ohio, was there.

ARTHUR S. PARTRIDGE, of St. Louis, was at the convention as usual.

THE CLIMAX STOCK GUARD COMPANY, of Chicago, had on exhibition several samples of the clay blocks employed in the construction of the Climax stock guard for railways. A small model of a guard installed in the tracks showed the manner of its installation. A portion of the exhibit consisted of two full-size farm crossing gates. Fred V. Stewart and F. W. Stewart, both of Chicago, were in charge of the exhibit.

THE HEANY FIREPROOF WIRE COMPANY, of York, Pa., demonstrated in a rather effective manner the heat resisting qualities of the Heany fireproof wire. A coil wound with the wire was heated repeatedly to a heat sufficient to ignite paper placed within the coil without injury to the insulation of the coil. This fireproof wire is manufactured in sizes varying from No. 3 to No. 00, and the insulation is made to comply with the specifications for double cotton-covered wire. The wire is especially adapted for use in armature and field coils of street railway motors. W. H. Easton exhibited the wire.

THE DIELECTRIC MANUFACTURING COMPANY, of St. Louis, exhibited insulating varnishes and compounds, insulating papers and wood fiber of its manufacture. The manner of making factory tests of the dielectric strength insulating varnishes was shown by means of sample test sheets and several pictures of transformers and other apparatus used in the tests. The company has developed a new insulating compound which may be dried on the inside of a coil and which, moreover, is claimed to be absolutely water and oil proof, free from corrosive effects, and which cannot be melted out of a coil by any temperature below the fusing point of copper. J. J. Kessler, vice-president and general manager of the company, was in personal charge of the exhibit.

THE CROUSE-HINDS COMPANY, of Syracuse, N. Y., exhibited arc headlights, Syracuse incandescent headlights, "Harpoon" guy anchors and condulets. The headlights exhibited were hung on a supporting frame and electrical connections were made so that any of them could be supplied with 500-volt current. A shallow headlight of new design attracted considerable attention. This headlight, which measures but 7 ins. in depth over all and weighs but 17 lbs., was designed so that it would not project beyond the bumper of the car. Included in the exhibit of headlights was one of solid brass, on the private car "Martha" of the Indiana Union Traction Company, which was on exhibition near the entrance to the exhibition grounds. Another interesting feature of the exhibit was a specimen of

conduit wiring in which "condulets" of various styles were employed instead of the usual outlet boxes. This exhibit demonstrated in a very effective manner the method of using condulets in car house and car barn wiring. By the use of these devices, outlets from conduit wiring can be made without destroying the rigidity of the conduit. Among the several representatives of the company in attendance at the booth were A. F. Hills, Nathan Shute, C. M. Crofoot, F. F. Skeel and H. B. Crouse.

THE PITTSBURGH STEEL COMPANY, of Pittsburg, Pa., furnished the wire fences by means of which the passageways between the several exhibit buildings were enclosed. Samples of similar wire were shown in a booth enclosed by the fencing. This wire fencing made by this company is electrically welded, and a feature of the exhibit in the booth was the demonstration of the ability of the weld to withstand the effects of intense heat and acid. E. D. Findlay and J. F. Williams, of Pittsburg, had charge of the exhibit.

THE UNITED INDURATED FIBRE COMPANY, of Lockport, N. Y., exhibited a covering for third rails consisting of chemically treated fiber. Covers for any type of third rail are made from this fiber. The special treatment makes the fiber thoroughly weather proof, and it has withstood a pressure of 39,000 volts. Wm. H. Baker represented the company.

THE AMERICAN INSTRUMENT COMPANY, of Philadelphia, exhibited a complete line of switchboard and portable voltmeters and ammeters. In addition to assembled instruments the unassembled parts were shown. A special feature of these instruments is the construction of the pivots and bearings. The shunts are constructed of metal having no thermal e. m. f. with copper. The large copper terminal permits a minimum amount of shunt metal to be used. The shunts are all interchangeable and operate with a 50-millivolt drop across the terminals. The instruments are standardized electrically as well as mechanically. The voltmeters contain a resistance of 100 ohms per volt. T. G. Sexias, A. B. Weeks and James G. Biddle, general sales agent, explained the features of the instruments.

HAROLD P. BROWN, of New York City, made a very interesting working exhibit to demonstrate the low resistance of the plastic rail bond. A motor-driven 3000-amp. dynamo was connected through two rail joints and two knife switches in series. A voltmeter was employed to indicate the relative voltage drop across the plastic rail joints and in a similar length of rail. One joint was termed a plastic bond rail joint, while the other is known as the continuous plastic plug bond. One of the two knife switches connected in multiple was coated with plastic metal, while the other was of uncoated copper. Voltage readings taken across the switches showed that the voltage drop across the coated switch was practically negligible as compared with that across the uncoated switch. In performing the experiments Harold P. Brown was assisted by James Holland, superintendent; J. Maxwell Coote, assistant superintendent of the company, and Julius Alsberg.

CHAS. I. EARL, of New York, exhibited Earl trolley retrievers. In all fifty retrievers, embracing four different types, were exhibited. Three of the retrievers were exhibited under as nearly as possible actual working conditions. For these trolley poles and stands were mounted on a firm support. The retrievers were fastened in position on other supports and the trolley ropes were connected to them. Several retrievers were shown in an unassembled state, and by means of these the principle upon which the retrievers work was explained to visitors by C. I. Earl, C. A. Coutan and Ernest Miller.

THE OHMER FARE REGISTER COMPANY, of Dayton, showed eleven different types of fare registers in working order. These were installed and connected up in the usual manner to register rods which were supported by an arched framework. Two new types of registers excited considerable interest. One of these was known as the "duplex" register. It makes a duplicate record sheet, one of which is usually sent to the auditor while the second one is either left in the machine or retained by the conductor. Another new type of register was a special make of a single fare register. A register of this type can be placed in each end of the car and one may be used to register transfers while the other may be employed to register 5-cent fares. In such a case the two registers are worked by a single rod. In addition to the exhibit of registers, five designs of the "Ohmergraph" for issuing transfers were shown. The uses of the different types of registers were explained to visitors by John F. Ohmer, president; E. B. Grimes, assistant manager;

W. E. Hennion, general Eastern agent; Hiram Tyler, general Southern agent; C. B. Funk, Central agent, and Charles Ketterman, Western agent.

THE KINNEAR MANUFACTURING COMPANY, of Columbus, Ohio, showed automatic motor-operated rolling steel doors. One of the doors shown in operation measured 12 ft. x 17 ft., which size is that usually employed in car house construction. This door was fitted with a device for allowing a smooth path for the trolley in passing through the doorway. A shoe on the bottom of the door bridged the gap which would otherwise have existed. The motor drive was so arranged that current was automatically cut off from the motor when the door was completely raised or dropped. With this drive the door operated three or four times as fast as with hand operation. The second door exhibited was particularly adapted for round houses. It was non-corrosive, being constructed with wood slats on phosphor bronze ribbons. Henry G. Cox represented the company.

THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY, of Mahwah, N. J., had a very instructive exhibit consisting of new and worn brake-shoes of different types. One set of shoes formed "Object lesson No. 1." These were old types of combined heads and shoes, and were exhibited to show the big proportion of metal thrown away, and the excessive first cost. The second portion of the exhibit consisted of several types of shoes with separate heads. These shoes, while a step in the right direction, were improperly designed, so that more metal than necessary was scrapped. They were also of such design that each required a special head. In another portion of the exhibit a brake-head was shown so designed as to take a common shoe. An advantage of the use of this head and shoe is that one shoe may be used with several types of trucks and equipments. In general the exhibit was a very effective means of showing the advantages to be derived from a close consideration of the design of brake-shoes. Several representatives of the company were in attendance at the convention, among them being F. W. Sargent, chief engineer; W. S. McGowan, Eastern sales manager; F. L. Gordon, Western sales manager; J. S. Thompson, Western representative; E. L. James, New England representative, and R. T. Hatch, Western representative.

J. P. SJOBERG & COMPANY, of New York, showed two new styles of vestibules. The essential feature of these was a sliding sash hung from an overhead track. The use of this sash avoids the necessity of dropping the sash with the consequent danger of breaking the glass at frequent intervals. One of the cars in the out-door exhibit was equipped with the device. J. P. Sjoberg and C. F. Sjoberg were in attendance at the booth.

SEMON BACHE & COMPANY exhibited imported glass for car and vestibule windows. This glass was used in the vestibule fronts exhibited by J. P. Sjoberg & Company. F. J. Goertner, of New York; H. C. Fechheimer, of Cincinnati, and M. H. Fechheimer, of St. Louis, represented the company.

THE DAYTON MANUFACTURING COMPANY, of Dayton, Ohio, showed a variety of fittings for the interior of electric cars. Quite a complete display of arc and incandescent headlights was made. These headlights were wired up and were shown burning. A new dash combined arc and incandescent headlight attracted considerable attention. This headlight was so constructed that it could be trimmed and cleaned from the inside of the vestibule. A new sanding device known as the Simmons-Moore sander was also shown. This sander works either by means of a foot lever or by air pressure. An agitator in the box works at each operation and keeps the sand loose. A finger which extends up through the discharge opening at each operation keeps the opening clear. Nelson Emmons, Jr., assistant general manager; Peter Leidenger, Southern representative, and George W. Frost represented the company.

THE DAVIS PRESSED STEEL COMPANY, of Wilmington, Del., exhibited solid truss brake beams. The truss is constructed by cutting away except at the ends one portion of a bar of a peculiarly shaped cross-section from the other. The T-shaped bar remaining is upset and the round portion cut away is forced outward at the center to form the tension member. W. C. Du Comb, Jr., of Wilmington, Del., represented the company.

IRA P. CLARK, of Decatur, Ill., exhibited protruding and non-protruding fenders. The protruding fender was so constructed that when a heavy weight was thrown on the netting strung over the fender frame the front bar of the fender was caused to raise so as to cause the netting to form a pocket.

The non-protruding fender which is attached to the truck is carried 2½ inches from the roadbed. It is so attached to the truck by means of steel springs that a weight on it causes it to drop to the roadway. Mr. Clark explained the important features of the fender to visitors.

WM. H. PONTIUS, of Columbus, showed a shield for grab handles, intended to discourage the habit of getting off a car backwards. A section of an open car was used to show the purpose of the shields. These were so mounted on the car post that the rear handles could not be used in getting off of a car, but could be grasped in getting into the car. John M. Beckett, of Columbus, explained the merits of the device.

THE ELECTRIC RAILWAY IMPROVEMENT COMPANY, of Cleveland, Ohio, exhibited an electric welding car used in welding soldered bonds to rails. The apparatus on the car consisted of a specially designed rotary converter and a step-down transformer. Current from the trolley after being converted was transformed to a lower voltage by means of the transformer, and the heavy current was employed in soldering the bonds. In addition to the car an exhibit of a hand electric grinder was made. This machine, which weighed about 35 lbs., consisted of a ½-hp motor on the shaft of which was a small emery wheel. The motor was well protected from dust and the shaft was carried on ball bearings. C. L. Cadle, manager, and J. A. Cadle represented the company.

THE CHICAGO PNEUMATIC TOOL COMPANY exhibited a complete line of pneumatic and electrical tools. Of special interest to electric railway men were several types of 500-volt electric drills and grinders. These tools are built to operate directly across a 500-volt circuit without the use of any external resistance whatever. The drills are built in sizes ranging from ¾-in. to 2 ins. capacity. One drill which weighed 35 lbs., it was stated, would drill a ¾-in. hole through the web of an ordinary rail in less than two minutes. One of the portable grinders shown drove an 8-in. emery wheel at 2500 r. p. m. This machine weighed but 28 lbs. The company was represented by J. W. Duntley, president; W. O. Duntley, vice-president; C. E. Walker, manager railroad department; T. Aldcorn, Eastern sales agent; C. B. Coates, electrical engineer, and Edward Aplin, salesman.

THE BURDETT - ROUNTREE MANUFACTURING COMPANY, of Chicago, exhibited a pneumatic door-opening device on two of the cars in the outdoor exhibit. The device exhibited was described in detail in the STREET RAILWAY JOURNAL of Oct. 13. J. B. Burdett and Harold Rountree represented the company.

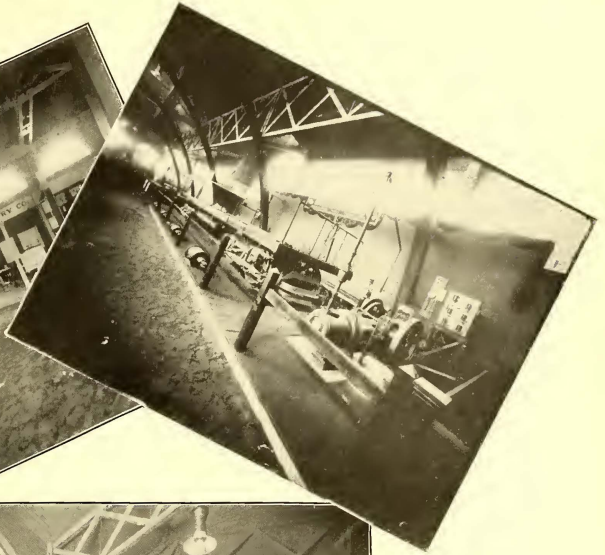
THE CARY AUTOMATIC COUPLER COMPANY, of Chicago, exhibited its combined car and train pipe couplers. The couplers, which are automatic, are used both by steam and electric railway systems. The coupler heads for the air pipes are carried immediately below the car coupler heads. Included in the exhibit were several actual size photographs of couplers installed on electric railway cars. Boleslaw R. Kozlowski, president, and Clarence W. Taylor, vice-president of the company, were in attendance.

THE NEW YORK SWITCH & CROSSING COMPANY exhibited several track switches. Two of the types shown are known as the "anti-straddler" and the "anti-kicker." Another portion of the exhibit included a frog with hammered steel centers. The centers, after being hammered and planed, are tempered. They are then fastened in place by means of bolts. W. C. Wood, president of the company, as well as Howard Sherman, secretary and treasurer, and E. Armerding, superintendent of shops, were in attendance at the exhibit.

THE AUTOMATIC ELECTRIC COMPANY, of Chicago, had installed an automatic telephone exchange. The selector switches were so installed that their operation could be seen. Several telephones installed in the booth were so connected to the switchboard that communication could be established between them. The exhibit was in charge of Roy Owens, superintendent of the switchboard department of the Citizens' Telephone Company, Columbus, Ohio.

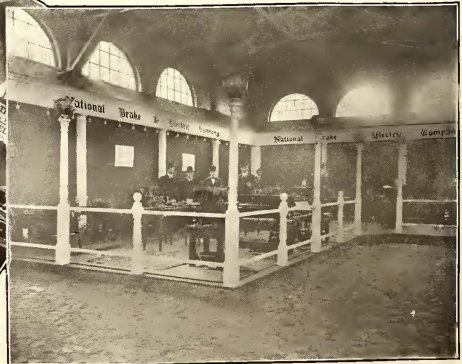
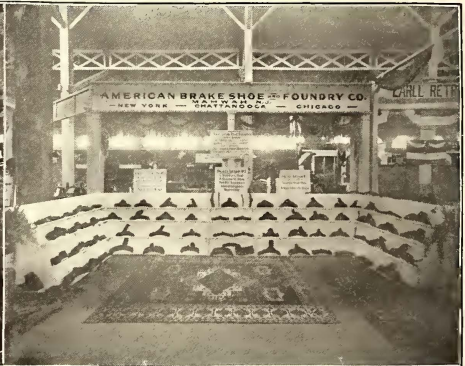
THE JENKINS AUTOMATIC FENDER COMPANY, of Toronto, Canada, exhibited a fender quite different in construction from fenders in service in the United States. A "feeler," consisting of a steel cross-bar, extends about 14 ins. beyond the cradle or the fender proper. When a heavy object is struck the "feeler" is forced backwards and the fender is automatically dropped and is held down by the pressure of heavy springs. Several of the fenders are in use on cars of the To-





ELECTRIC STORAGE BATTERY COMPANY  
 H. W. JOHNS-MANVILLE COMPANY  
 GOULD STORAGE BATTERY COMPANY

MAGANN AIR BRAKE COMPANY  
 THE CREGHEAD ENGINEERING COMPANY



AMERICAN LOCOMOTIVE COMPANY  
OHIO BRASS COMPANY  
THE GOLDSCHMIDT THERMIT COMPANY

GALENA SIGNAL OIL COMPANY  
AMERICAN BRAKE SHOE & FOUNDRY COMPANY  
NATIONAL BRAKE & ELECTRIC COMPANY



THE RAIL JOINT COMPANY



THE JEWETT CAR COMPANY



THE STAR BRASS WORKS



THE EQUIPMENT PROTECTION COMPANY  
CONSUMERS' RUBBER COMPANY  
THE ACME AUTOMATIC STREET INDICATING COMPANY



FRANKLIN CAR HEATING COMPANY



CARY AUTOMATIC COUPLERS COMPANY  
AND POWER SPECIALTY COMPANY



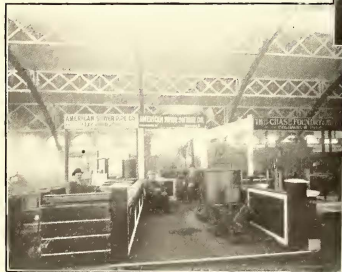
HOME RUBBER COMPANY AND CAPITOL LOCK NUT & WASHER CO.



BUHNE METAL PACKING CO. AND INTERNATIONAL FENCE & FIRE-PROOFING COMPANY



THE MILLER ANCHOR COMPANY



AMERICAN WATER SOFTENER COMPANY AND CHASE FOUNDRY & MFG. CO.



CAMBRIA STEEL COMPANY



ATLAS RAILWAY SUPPLY COMPANY



FRANK RIDLON COMPANY

ronto Street Railway Company. B. B. Jenkins, the inventor of the fender; John Halum, president of the company, and J. H. Jenkins explained the operation of the fender to visitors.

W. N. MATTHEWS & BRO., of St. Louis, Mo., exhibited Kearney cable clamps and Stombaugh guy anchors in a rather effective manner. Poles erected in the booth and guyed up with Stombaugh guy anchors carried cross-arms on which were strung cables in such a manner that two right angle turns of the direction of the lines were made. The Kearney cable clamps employed in making these turns showed some of the advantages of their use. The Lima jack box and plug, for use in connection with despatching systems on electric railways, formed an important feature of the exhibit. The display also included O. K. sleet cutters and "Hold Fast" lamp guards. The exhibit was attended by Claud L. Matthews, James R. Kearney, R. W. Harms, of W. N. Matthews & Bro., and by D. L. Monjo, of the Wesco Supply Company.

THE NOVELTY INCANDESCENT LAMP COMPANY, of Emporium, Pa., had a very complete display of incandescent lamps. The feature of the exhibit that attracted most attention was the opal lamps especially adapted for use in electric cars. In conjunction with the lamp exhibit Black Hawk dry batteries were shown. R. K. Mickey, president of the company, and A. J. Jackson, of Albin & Jackson, Western agents of the company, were in attendance at the booth.

THE BALDWIN & ROWLAND SWITCH AND SIGNAL COMPANY, of New Haven, Conn., had a working exhibit of a multiple interlocking signaling block signal. Two signals, one at either end of the booth, were connected to contacts on a short section of trolley wire in such a manner that the signals could be operated as in actual practice. The system permits any number of cars up to seventeen to enter a block without changing the signals. While the block is occupied the signal is locked, so that a car coming in the opposite direction cannot change the signals. An automatic cut-out device insures the working of the signal in case of one lamp burning out. H. Rowland, general manager of the company, and Geo. A. Simonds were in attendance.

WOTTRUNG & SUTPHEN, of Prospect, Ohio, exhibited the "Deluge" chemical engine, which consisted of a 20-gallon tank mounted on a truck with rubber tire wheels. The engine is especially adapted for service in car houses. There was also included in this exhibit Royal coach hand extinguishers for the interior of cars. C. H. Sutphen, of Columbus, and S. L. Wottrung, of Prospect, Ohio, were in attendance.

THE OLIVER MACHINERY COMPANY, of Grand Rapids, Mich., was represented, in building No. 3, by J. Herbert Armstrong.

THE BUHNE METAL COMPANY, of New York, exhibited fibrous babbitt steam packing. This packing is made of long, fine fibers of soft babbitt metal. The company was represented by T. M. Remington.

THE INTERNATIONAL FENCE & FIRE PROOFING COMPANY, of Columbus, Ohio, exhibited wire fences and wire railroad gates for right of way fences. In addition to the fence exhibit, a working exhibit was made of a concrete mixer. A small model of the mixer was shown in operation, being driven by an electric motor. J. M. Campbell, of Columbus, Ohio, represented the company.

THE HARRISON SAFETY BOILER WORKS, of Philadelphia, had on exhibition a Cochrane feed-water heater and a steam separator. The heater shown was of 250-hp capacity. A portion of the steam separator was cut away in such a manner that the position of the baffle inside could be seen. I. E. Harris, of Philadelphia, represented the company.

THE BURROUGHS ADDING MACHINE COMPANY, of Detroit, Mich., had on exhibition several hand and electrically operated bookkeeping and accounting machines. The electrically operated machines were connected to the mains entering the building and were shown in operation. C. N. Smith, head of business systems department, represented the company.

J. H. WAGENHORST & COMPANY, of Youngstown, Ohio, exhibited two blue printing machines. Each machine consisted of a cylinder of glass over which the tracing is placed and a mechanism for gradually lowering an arc lamp through the cylinder. Donald Parson, of Youngstown, Ohio, represented the company.

THE STATE MANUFACTURING COMPANY, of Cleveland, exhibited several barrels of "Metla-Cota," a preparation which is applied to the inside of steam boilers with the object

of preventing the formation of scale and of increasing the life of the metal. John McDonald, president; G. A. Bethel, district agent in Columbus and the vicinity, and Walter Watt, of Cleveland, represented the company.

THE PERRY SIDE BEARING COMPANY, of Joliet, Ill., had on exhibition several roller side bearings for truck bolsters. The bearings shown were designed especially for electric railway service. H. M. Perry exhibited the bearings.

THE AMERICAN SEWER PIPE COMPANY, of Pittsburgh, made a very complete display of sewer pipe and tile conduits. One of the sewer pipes shown was 36 ins. in diameter. Conduits varying in size from those of one to those of six ducts were exhibited. The company was represented by J. M. McClave, of Pittsburgh, and Earl D. Hawke, of Columbus.

THE MAGANN AIR BRAKE COMPANY, of Detroit and Toronto, had a working exhibit consisting of a complete air compressor station and a complete car air brake equipment. A motor with automatic starter was employed to drive a Magann air compressor of 35 cu. ft. capacity per minute. Two storage tanks served as reservoirs for the compressed air. On a double-truck flat car equipped complete with trucks, brake apparatus, including cylinders, storage tanks and engineer's valves, was installed. The attention of exhibitors was drawn to several features of the compressor. The crank runs in an oil bath, and all the working parts are supplied with oil by means of the splash system of lubrication. A pump circulates the cooling water only when the compressor is in operation. W. K. Omick, superintendent, and F. V. Harrison, mechanical engineer, were in attendance at the exhibit.

THE CONSOLIDATED ENGINE STOP COMPANY, of New York City, exhibited Monarch and Corliss or Springfield engine stops. These were electrically connected in such a manner as to show the method of operating the devices. The company was represented by A. W. Lenderoth, consulting engineer for the company, and H. Quackenbush, Western agent.

THE NEWMAN CLOCK COMPANY, of Chicago, exhibited several kinds of watchman's clocks. These clocks are carried by the watchman, and keys, by means of which records are imprinted on a paper chart in the clock, are hung at stations. A. E. Newman and C. E. Renshaw represented the company.

THE C. LEE COOK MANUFACTURING COMPANY exhibited Cook's metallic packing for piston rods and Corliss valve stems. Several sizes of packings were shown. A cider barrel in the rear of the booth was patronized by all visitors. C. Lee Cook represented the company personally.

THE JAMES G. WILSON MANUFACTURING COMPANY, of New York, had on exhibition four types of doors; a sliding swing door, a rolling wood door, a rolling corrugated steel door and a slat steel door. The latter two were particularly adapted for use in car houses. These are provided with a trolley device which permits the current to be continued into the building. The trolley wheel is carried to the door proper by means of pans supported from above the door by long, curved arms. When raised, the bottom bar of the door bridges the gap between the pans which would otherwise exist. The doors are operated either by means of chain gears or electric motors. A special feature of all the rolling doors shown was a reciprocating mechanism for moving the shaft carrying the door backwards and forwards as the door ascends or descends. The mechanism and method of operation of the doors were explained to visitors by A. H. Dodge, district manager, and Lester G. Wilson, engineer of the company.

MR. J. E. WHITTLESEY, of Pittsburgh, represented the Heine Safety Boiler Company.

THE BUCKEYE ELECTRIC COMPANY, of Cleveland, Ohio, manufacturers of the well-known Buckeye incandescent lamp, was ably represented by Messrs. Bliss & Evans. The new Buckeye tantalum, with which the lobby of The Chittenden was brilliantly illuminated, attracted a great deal of favorable comment.

MR. E. C. BENEDICT, of the J. P. Devine Company, of Buffalo, N. Y., was very much in evidence. The The Passburg vacuum drying and impregnating apparatus which this company makes is in use generally by manufacturers and repairers of coils, etc., and is attracting the attention of railroad repair shops.

MR. J. S. LAPP, manager of the Locke Insulator Manufacturing Company, was on hand with samples of Victor high-tension insulators in various sizes and types. These were exhibited in the booth of the Electric Service Supplies Company.

**THE PEACOCK BRAKE FAMILY AT COLUMBUS.**—One of the most frequented booths at the convention was that of the National Brake Company, of Buffalo, N. Y., where the manufacturers of the well-known Peacock brake had provided cozy quarters for their friends. Here they displayed, in a very attractive manner, six models in aluminum, cast from the regular patterns of the brake, showing the different sizes of frames and drums in which this brake is manufactured to suit the various types of cars on which they are installed. Within the three years during which this brake has been upon the market it has been used on over 525 different roads; more than 200 of these have been added since the last convention. The company has also recently entered into contracts with the Cincinnati Car Company, the St. Louis Car Company and the Niles Car Company, whereby these companies make the Peacock brake the standard hand brake on the cars manufactured by them. This success is to be attributed to the aggressive work which the management of this company and its representatives have done throughout the country in bringing the brake to the attention of the individual roads. In addition to the actual headquarters of the company in Building No. 2, the company was well represented in all the brake equipments of the various exhibit cars shown in the open pavilion at the Columbus convention. There were in attendance at the convention this year, as representatives of this company, G. S. Ackley, president; W. D. Brewster, secretary; F. D. Miller, treasurer; W. W. Miller, manager St. Louis office; J. A. Edwards, Metropolitan District and New England, and E. C. Rutherford, of Canada.

**THE ECLIPSE RAILWAY SUPPLY COMPANY,** of Cleveland, showed two varieties of its well-known tilting line guard; one of them a new type designed to slide under the car when not in use. Two over bearings and one under bearing, all three equipped with rollers, render it easy to move the platform in or out. Benj. Lev and Ross Forward were present.

**JOSEPH T. RYERSON & SON,** of Chicago, showed a glass working model of the Continental tubular boiler. It was heated by incandescent lamps and showed the circulation of steam throughout the boiler. The boiler is fitted with the Morrison corrugated furnace, and it has been adopted for a number of large interurban power stations. Other exhibits included the Ryerson key seating machine and a line of Simplex jacks, the most interesting of which was a 30-ton jack which could be handled by one man. F. B. Sloeum, E. T. Hendee and A. P. VanSchaick were in attendance.

**THE LIBERTY BELL COMPANY,** of Bristol, Conn., showed the Liberty cushion harp, which is fitted with two small springs, giving a cushion effect in making curves or at points where the tension is uneven. E. D. Rockwell and M. J. Horton were in charge.

**THE KEYSTONE BRAKE-SHOE COMPANY,** of New York, attracted a great deal of attention with the wedge type of interchangeable brake-shoe, which was fully described and illustrated in our issue of Oct. 13. The facts that there is no scrap to this shoe and that it can be attached to any type of head, made it most interesting to all operators. Charles H. Platt, George Hoadley and V. B. Lamb were present. The Keystone Brake-Shoe Company, in addition to its exhibit, distributed at the convention a very attractive circular, descriptive of and illustrating its new type of brake-shoe. The circular requested the honest judgment of the railroad world on this new type of shoe and presented very strong claims for its safety, efficiency and economy. A few of the circulars were issued with a leather cover as an edition de luxe.

**THE STERLING-MEAKER COMPANY,** of Newark, N. J., showed its "Five Modern Registers," all of the geared type. A feature was the new printing register which gives a record of all fares. A new roller bearing trolley base was constructed so that at any angle of the pole there was the same tension on the springs; in other words, the same tension with any height of trolley. The Giant hand brake is provided with a new feature in the shape of a cam on the hub, so that the brake takes up quickly with a small leverage. A new center hanging fixture was shown for side-seat cars. It places the operating straps directly over the head of the conductor in the center of the aisle, and at the same time operates from either side of the car.

**THE YALE & TOWNE MANUFACTURING COMPANY,** New York, showed two new motor-driven hoists, the motor being designed for railway circuits where the voltage fluctuation is great. One of the hoists had a controller giving two

speeds for raising or lowering, while the other had four speeds for raising and lowering. These cranes were portable, being shifted either by hand or motor drive. The company is just installing a 2-ton ash and coal conveyor with 800 ft. travel, both motor driven and motor operated, for the Nashville Railway & Light Company. Several hand-power cranes were shown, including a 20-ton triplex block for power houses and shops. It could be operated from one or both sides, the use of two chains giving double the raising or lowering speed that could be secured with one chain. C. W. Beaver and H. E. Deckerman were in charge.

**DOSSERT & COMPANY,** of New York, showed the Dossert solderless connection for cables, motor leads and other heavy feed wires. The railing around the booth was put up with these joints. E. A. Dossert and H. B. Logan explained the advantages of the joint.

**THE FRANK RIDLON COMPANY,** of Boston, showed a large line of street railway specialties, including the Ridlon trolley retriever, a patent rabbitting device which eliminates the necessity for finishing the surface, the Maguire forged steel rail brace, a series arc lamp for street railway circuits, the well-known Shawmut pure copper bonds and trolley wheels, a new automatic vestibule door fastener, the Kilburn track sander, a patent coil taping device, together with a large line of car fittings. The new Ridlon retriever has an excellent feature, in that the conductor cannot return the trolley to the wire until he has set the retriever. It can be set to pull down to any distance under 3 ft. Henry A. Kellogg, Frank Master-son and L. C. Norton represented the company.

**THE W. T. VAN DORN COMPANY,** of Chicago, attracted a great deal of attention with a model of an all-steel box car. The outside casing and ends had circular corrugations pressed into them, which, it was claimed, greatly increased the strength of the part. The end sections were in one piece, while the side sections were in three pieces. The car roof was also corrugated from the running board, and the top was crimped over and braced inside. The company is prepared to furnish corrugated steel ends for old box cars. Several varieties of couplers were shown, including the No. 20 long radius, automatic coupler, similar to that used on the Scioto Valley Traction Company. W. T. VanDorn and John Sequist were in charge.

**THE W. R. GARTON COMPANY,** of Chicago, which has the Central West agency on a large number of manufactured articles, had an extensive exhibition, and a number of the manufacturers had special exhibits with those of their agent. The Lima Porcelain Insulator Company, of Lima, N. Y., showed a line of high and low-tension insulators, making a feature of insulators designed for 180,000 volts for a Western transmission company. The Lord Electric Company, of Boston, showed a line of Thomas bonds and Shaw lightning arresters. The American Electric Company, of Chicago, showed its railway dispatching car and line telephones, a new line recently taken up by the Garton Company. The telephones are designed for either central energy or local magneto operation. On the car 'phone the cord was attached to the 'phone with a reel and plug, the plug being attached to jack boxes on poles. The Wapak Anchor Company, of Wapakoneta, Ohio, attended the national convention for the first time and showed a line of its anchors, together with a number of photographs showing recent tests made with the anchor. The Economy Electric Company, of Boston, showed samples of armatures and coils and rewinding. The Maine Hub Manufacturing Company showed samples of birch pins, which are not treated in any way, and which are said to be superior to other varieties of wood. E. W. Bliss Company, of New York, had samples of gears, pinions, gear cases, the latter having wood sides and steel rims. The Garton Company showed a new high-efficiency lamp which it is having made to its order; a new tubular steel trolley pole which it is having built to order, and a line of bells and gongs. The Lord Electric Company had present Edwin H. Hamlin and George B. Crane. The American Electric Telephone Company was represented by H. Henderson. The Wapak Hollow Ware Company was represented by H. R. Hicks, and the E. W. Bliss Company by B. W. Stone. The Garton Company's force included W. R. Garton, C. E. Ewing, L. E. Bearbaum and H. M. Kennedy.

**ALBERT & J. M. ANDERSON MANUFACTURING COMPANY,** of Boston, featured a new high-tension oil switch operating device. It was designed to be thrown by an automatic overload relay or by a trip on the switchboard. The throwing of the switch on the board energizes a magnet in the

base of the switch mechanism and throws up a plunger into a dash pot, which gives a cushion effect to the opening of the oil switch. Several other varieties of switches were shown. J. M. Anderson, Ernest Wolmann and N. W. Hinchler were present.

THE G. W. LORD COMPANY, of Philadelphia, which for the past forty-five years has supplied practical and satisfactory boiler compounds and chemicals, was represented by Col. Nat P. Lane, Capt. J. E. Dougherty, V. L. Lawrence and Edward McCarthy.

THE ELLIOTT BROTHERS ELECTRIC COMPANY, of Cleveland, showed its armature and field coils, laying particular stress upon impregnated coils recently brought out. W. H. Elliott and A. S. Elliott were present.

THE CINCINNATI CAR COMPANY, of Cincinnati, displayed one of the magnificent 63-ft. parlor buffet cars built for limited service on the Schoepf properties in Ohio and Indiana. The car came to the convention on its own power, bringing a number of the officials of the Lima & Toledo Traction Company, for which system the car was built. The car was a duplicate of the cars used in Indianapolis-Ft. Wayne limited service, and illustrated and described in the Souvenir Number. It had a 9-ft. rear platform with seats for smokers, high back roll plush seats in the main passenger compartment, and leather chairs in the smoker, a buffet between the two compartments and a baggage compartment in common with the motorman's cab. The car was equipped with Westinghouse traction brakes, Westinghouse No. 85 motors with the Westinghouse electric pneumatic control, heavy Baldwin M. C. B. trucks. Robert Dunning was present.

KILBOURNE & JACOBS MANUFACTURING COMPANY, of Columbus, showed samples of side and center-dump ballast cars.

THE AMERICAN LOCOMOTIVE WORKS, of Schenectady, showed two special trucks designed for the New York Central. One was a trailer truck weighing 11,000 lbs. and designed for a load on center plate of 38,000 lbs., and the other a motor truck weighing, including motor, 27,700 lbs., and excluding motors 15,300 lbs., and designed for a load of 40,000 lbs. on center plate. William Wampler and B. H. Hunt were in charge.

THE MAC DONALD TICKET & TICKET BOX COMPANY, of Cleveland, demonstrated its cash fare receipt and receipt holder which is being adopted by many interurban roads in the Central West. During the past few weeks the company has placed its device on the Lake Shore Electric Railway, the Kansas City & Leavenworth and the Ft. Wayne & Springfield Traction Company. Murdock MacDonald was present for the company.

THE NATIONAL TICKET COMPANY, of Cleveland, which describes its field by the saying, "If it's a ticket, we can make it," showed a number of samples of tickets, including the interchangeable coupon book adopted by Ohio interurban roads and printed by this company; a canceling box and turnstile for elevateds and other ticket collection. On this machine a single foot pedal interlocks the turnstile and cancels the tickets in one operation. A. J. Reynolds was there for his company.

THE GENERAL SYSTEMS COMPANY, of Dayton, showed the Egly system of triplicate or quadruple train orders and a similar system for making out way bills in duplicate or triplicate. These systems have been adopted by a number of interurban roads in the Central West. W. L. Egly and James Joseph were present.

THE STANDARD PAINT COMPANY, of New York, showed samples of its P. & B. clear baking varnish, a new line; also samples of ruberoid car roofing. H. P. Benedict, J. H. Thomas, F. P. Barker, J. H. Vail and H. H. Cowhurd were present.

THE BAYONET TROLLEY HARP COMPANY, of Springfield, Ohio, demonstrated its new quick detachable pole and harp which was fully described in the STREET RAILWAY JOURNAL for Oct. 13. The company is just beginning to deliver the device, and received many orders at the convention. Jacob Olinger, president; S. C. Olinger, secretary-treasurer, and R. A. Garlough, assistant secretary, were present.

EMIL CALMAN & COMPANY, of New York, explained the features of Ohmlack insulations and Calman's solid compound.

THE L. M. BOOTH COMPANY, of New York, showed a large number of photographs and blue prints of its water softening plants.

One of the largest ever installed for electric railway work is located at the new plant of the Terre Haute Traction & Light Company, Terre Haute, Ind. N. T. Booth, F. S. Dunham, E. Richardson and L. M. Booth were present.

THE SECURITY REGISTER & MANUFACTURING COMPANY, of St. Louis and New York, showed several types of registers and sectional views of same. Col. Giles S. Allison, who was present, was known to practically every attendant. The flag in New York was temporarily furled while the colonel was in Columbus.

THE STANDARD VARNISH WORKS, of New York, showed samples of its insulation for coils, featuring the solid compound being used in connection with the Passburg impregnating process, which is growing largely in favor. F. A. Elinquist, John Dolf, and L. Robinson were in charge.

THE BUCKEYE ENGINE COMPANY'S stand was constantly a center of attraction, especially for the ladies, because of the distribution of roses, carnations and souvenir buckeyes. The company displayed a large number of photographs of large installations in this district, and especial attention was called to the new Buckeye gas engine which the company is preparing to push as soon as a tremendous flood of orders for standard steam engines has been relieved somewhat. V. T. Price, of Cincinnati; G. A. Pope, of Cleveland, and J. F. Castle were the hosts.

HEYWOOD BROTHERS & WAKEFIELD COMPANY, of Wakefield, Mass., showed several varieties of car seats, and an interesting part of the display was a motor-driven outfit showing the mechanism and reversing feature of the seat. B. B. Berry was in charge.

THE FRANKLIN CAR HEATING COMPANY, of Syracuse, N. Y., showed five sizes of its well-known Franklin hot-water heaters. K. D. Hequemour was present for the company, and also in his capacity as director of exhibits was in large measure responsible for the complete success of this year's exhibition. In addition to its exhibit of heaters in the main hall, the company had a demonstration of its pneumatic trolley retriever among the car exhibits.

THE ATLAS RAILWAY SUPPLY COMPANY, of Chicago, showed its tie plates, joints and rail braces. Daniel Thompson, J. G. McMichael and S. T. Alden entertained callers.

THE ADAMS & WESTLAKE COMPANY, of Chicago, displayed its large line of lanterns, headlights, signal lamps and other specialties. Among the new things was a sliding door lock for New York Central metal cars, a renewable bottom for a rack in which this section could be taken out for cleaning by the removal of three screws, and a new automatic signal lamp with a color changing device giving three colors for each lens in the lamp. Colors were changed by operating a thumbpiece causing a frame with a flat glass to drop back of the lens. The operating mechanism had an interlocking device which prevents confusion of colors, and it was equipped with a new non-sweating ventilator which prevents moisture or frost from getting into the lamp.

THE MCGUIRE-CUMMINGS MANUFACTURING COMPANY, of Chicago, had an exhibit consisting of several trucks, a snow-sweeper and a Romunder semi-convertible single-truck car. One of the trucks shown was a standard M. C. B. truck, with a 6-ft. wheel base, especially constructed to permit the body of the car to be placed very low. The parts of the truck were of such design that repairs could be made in an ordinary machine shop. The company's No. 39A truck with a wheel base of 4 ft. 3 ins. and the solid steel Columbia single-truck were also exhibited. The snow-sweeper shown was of the single-truck type. The Romunder semi-convertible car attracted a great deal of attention. It was of steel-frame construction. The sash were curved and were provided with curved glass. These, as well as the flexible panels below them, were raised in an over-head pocket when it was desired to convert the car to an open one. The usual deck sash were absent, the car being ventilated through ventilators over the windows. Five of these cars have been built for the Citizens' Railway Company, of Lincoln, Neb. F. J. Ryan, W. J. Cooke and W. A. Stoerzer represented the McGuire-Cummings Manufacturing Company.

WESTINGHOUSE COMPANIES AT THE CONVENTION.—The Westinghouse exhibits occupied one whole side of the Agricultural Building in the Fair Grounds, in Section C. Spaces 4 to 19. The exhibit was lighted by Nernst lamps. Cooper Hewitt lamps and Westinghouse arc lamps, each of these types having its peculiar advantages. The Nernst lamp

gives an illumination which is the nearest approach to daylight that has been obtained, and is particularly effective in the illumination of terminals and underground stations. The Cooper Hewitt light is recommended for machine shop use or drafting rooms where a light is desired which has the least effect on the eyes. The strain on the eyes from working under its light is no more tiring than in daylight. The Westinghouse arc lamps are of course so well known as to need no mention, and their use is universal for both indoor and outdoor service.

A most comprehensive line of apparatus was on exhibit, including almost every type of device used in the electric railway field. The exhibit of the Westinghouse Electric & Manufacturing Company included a full line of railway motors, among the more prominent of which were Nos. 92-A, 101-B, 93-A, 113 and 132-A. An interesting part of the exhibit was the Westinghouse unit group system of multiple control in operation. This system, which has been developed by the Electric Company, is an ingenious combination of electro-magnetic and pneumatic devices which produce a reliable and effective method of controlling from a single point a single car or a train of cars, all or part of which are equipped with motors. The arrangement is such that each motor car operates as an independent self-propelling unit, which may be connected to other similar units, or to trailer cars not provided with motors, in any combination whatsoever, but which is at all times under perfect command. This unit group system can be used for both alternating and direct-current motors and for either double or quadruple equipments. It can be arranged with either automatic or non-automatic acceleration and for operation either with or without train bus line. The active element of the main control system is made up of the following apparatus: A group of unit switches which regulate the supply of current to the motors; a set of resistances, or an auto-transformer, which is used in connection with the unit switch group to control the supply of the motor; a line switch which controls the main supply of current to the unit switch group, and a reverse switch which covers the brake and car movement. The auxiliary control derives its energy from a storage battery which forms part of each car equipment and actuates the main control through the intervention of compressed air drawn from the brake supply. It comprises the following apparatus: The master controller; the train line; the line relay switch; the series limit switch; the control cut-out switch. Perhaps the most important part of the system is the switch group. This consists of a number of powerful circuit breakers mounted in a common frame and assembled with their air cylinders in such a manner that when a valve magnet is energized the air will be admitted to the cylinder, forcing the piston forward and closing the switch.

Included in the electric exhibit was also a complete line of detail apparatus, such as circuit breakers, lightning arresters, fuses, fuse blocks, etc., and a line of switchboard instruments.

Westinghouse M. P. (Multipath) lightning arrester, which is suitable for either alternating-current or direct-current service, embodies a new principle. By a special method of development tests, an arrester has been produced which has an indefinite length of life and offers a freedom of discharge many times greater than any low-voltage arrester now on the market. The arrester takes its name from the fact that the static discharge separates itself over the block along a number of minute discharge paths, multipath, hence the name. The voltage across each gap is very small, therefore the line cannot maintain an arc across them.

The Westinghouse Traction Brake Company had working racks showing the company's various air brake equipments. It also showed a motor-driven blowing outfit. In connection with the exhibit of the Westinghouse Traction Brake Company there was shown a working model of the American automatic slack adjuster, manufactured by the American Brake Company, of St. Louis, Mo.; also an automatic air and steam coupler, manufactured by the Westinghouse Automatic Air & Steam Coupler Company, of St. Louis.

A number of cars on exhibit in other sections were fully equipped with Westinghouse air brake apparatus of the improved type.

Referring to the air brake equipments, a short description of the different types is of interest. The S M I straight air brake equipment consists essentially of an air supply, a main reservoir and a brake cylinder, a foundation brake leverage transmitting the brake effort from the brake cylinder to the wheels, a brake valve for admitting air from the main reservoir to the brake cylinder, and in return releasing the pressure, and a governor for controlling the pressure in the main reservoir and cutting the

pump out of operation when the desired maximum pressure is reached. This equipment represents the highest type of straight air brake and is intended for use on single cars only, since the moment two cars or more are operated together as a train, it is absolutely necessary to apply some form of automatic brake in order to be able to control the separate car in case of a break-in-two.

The A M M equipment was shown in a five-car train arrangement. This equipment is designed for use in trains of from three to five cars, consisting of all motor cars or motor and trailer-car combinations, as may be desired. The equipment is essentially an automatic brake and is designed for either a single pipe line or an additional control pipe line as desired, depending upon the operating conditions of the road on which it is to be installed. It consists of a very simple brake valve in the released position of which a wide-open connection is made from the control line beyond the feed valve to the brake pipe, therefore securing feed valve pressure on top of the rotary, which prevents the overcharging of the brake pipe and consequently of the auxiliary reservoirs on the front part of the train. This particular feature cannot be too strongly emphasized, as it is a very important point in connection with the satisfactory handling of short trains, and especially single cars, with automatic brakes. This is a very popular form of automatic brake, especially for interurban train service.

The A M R equipment was also shown in a working five-car train model. This equipment is designed for use on trains of any length, but more particularly for those longer than five cars. This brake has all the features of quick recharge and graduated release that pertain to the A M T equipment, and has in addition regular Westinghouse quick-action features in the triple valves and a new departure in the matter of a quick-service feature. This equipment is an automatic air brake of the highest type, with all the additions and refinements that the present train operation requires. The features embodied in this one equipment are graduated release, quick recharge of auxiliary reservoirs, quick-serial service application, no overcharging of brake pipe, prompt response of triple valves after release, uniform operation of all compressors in a train, and a single hose pipe only will accomplish this under certain conditions.

The A M S equipment is intended only for use on a motor car and a non-motor trailer train where the cars are likely to be operated together the major portion of the time. The equipment consists of a very simple brake valve in the release position of which a wide-open connection is made from the feed valve to the brake pipe, so that the feed valve pressure is on top of the rotary at all times, and not the variations of the main reservoir pressure. The application of the brakes is made in the regular automatic way by a reduction of pressure in the brake pipe, both in service and in emergency. In this equipment the motor car is always provided with straight air release. This equipment is the automatic brake in its simplest form and yet at the same time designed to meet the new conditions of surface car operations in two-car trains where a lighter car is hauled behind a heavier motor car.

The S M E equipment is intended only for two-car trains, consisting either of a motor car and trailer or two motor cars. This equipment as applied to two-car trains provides what is in effect an ordinary straight-air brake for service stops. In emergency, however, a brake-pipe line in which pressure is maintained and an exceedingly simple emergency valve provide for automatic applications in event of the train breaking in two or at the will of the motorman. In addition, motor cars on which the S M E apparatus is installed may be operated singly, as in ordinary straight-air brake practice.

The motor-driven blowing outfits mentioned are made for both alternating or direct-current service, and being mounted on trucks are particularly useful in car houses and power houses for cleaning generators, motors, or dusting out cars.

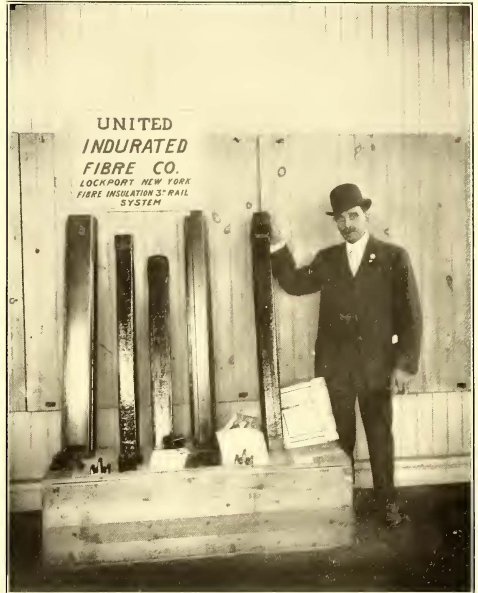
The Westinghouse interests had a large force in attendance to receive visitors, both at the Fair Grounds, where the exhibits themselves were located, and also at the Westinghouse headquarters in Parlor G, Southern Hotel, where every convenience was provided for the entertainment of visitors, including telephone service, automobiles for trips to the Fair Grounds and back, etc. Among those present were the following:

Westinghouse Electric & Manufacturing Company.—W. M. McFarland, acting vice-president; C. S. Cook, manager railway and lighting sales; J. A. Brett, R. S. Brown, L. M. Cargo, W. L. Conwell, Thos. Cooper, H. P. Davis, J. L. Davis, W. F. Fowler, G. H. Gibbs, J. J. Gibson, G. B. Griffin, J. R. Gordon, S. B. Keese, C. S. Powell, C. W. Register, F. F. Rohrer, F. H.

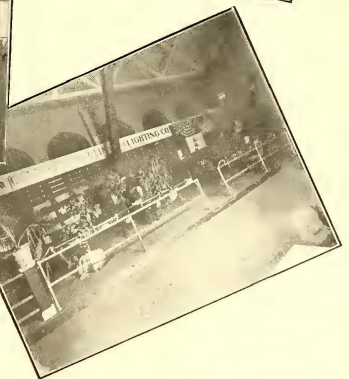
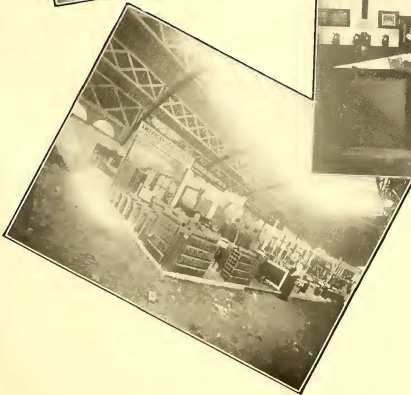
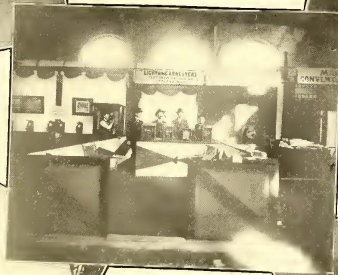




AMERICAN INSTRUMENT COMPANY



UNITED INDURATED FIBRE COMPANY



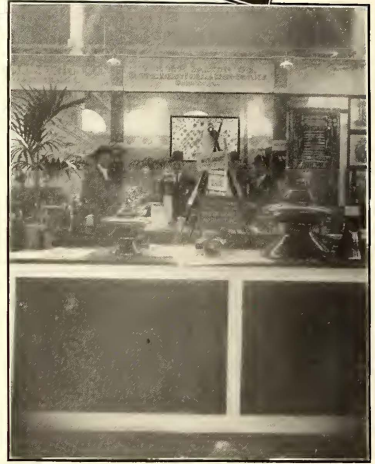
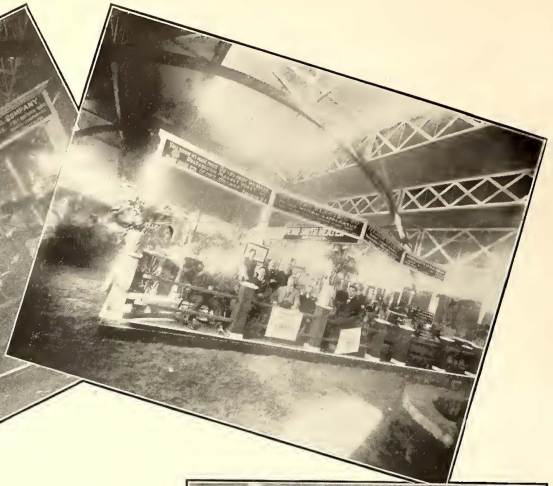
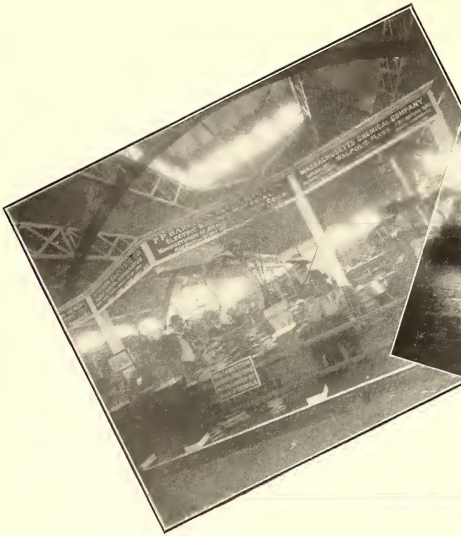
DAVIS PRESSED STEEL COMPANY

OLESON-WILLIAMS COMPANY

F. W. BIRD & SON AND U. S. ELECTRIC SIGNAL COMPANY

AMERICAN SEWER PIPE COMPANY

GOLD CAR HEATING & LIGHTING COMPANY



F. P. HARRISON ELEC. & MFG. CO. AND MASS. CHEMICAL CO. D. & W. FUSE COMPANY AND WESTERN ELECTRIC CO.  
 EXHIBITS OF LORD ELECTRIC COMPANY, W. R. GARTON COMPANY, AND A. & J. M. ANDERSON MFG. COMPANY



BALDWIN STEEL COMPANY



COLUMBIA MACHINE WORKS & MALLEABLE IRON COMPANY



STANDARD VARNISH WORKS



THE VAN DORN & DUTTON COMPANY  
THE VAN DORN-ELLIOTT ELECTRIC CO.



THE STANDARD PAINT COMPANY



KALAMAZOO RAILWAY SUPPLY COMPANY



TAYLOR ELECTRIC TRUCK COMPANY



JENKINS AUTOMATIC FENDER CO.



STATE MANUFACTURING COMPANY



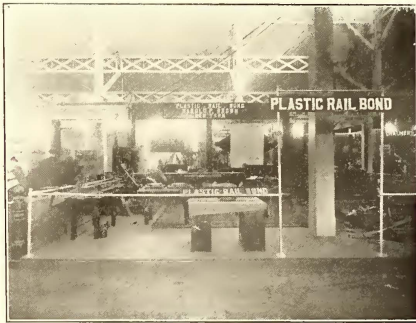
PITTSBURGH STEEL CO.



BRADY BRASS COMPANY



CROUSE-HINDS COMPANY



HAROLD P. BROWN



WATTRING & SUTPHEN



PANTASOTE COMPANY



JOHN A. ROEBLING'S SONS COMPANY

Shepard, O. T. Smith, H. C. Stier, N. W. Storer, J. E. Webster, G. C. Ewing, J. T. Queeny, J. G. Swain, N. S. Braden, and many of the district men.

Westinghouse Machine Company.—J. B. Allan, C. C. Chappelle, H. D. Watson, Ed. Yawger, H. H. Kerr and N. G. Nagenhurst.

Nernst Lamp Company.—James L. Anderson.

Westinghouse Air Brake Company.—G. W. Baker, W. S. Bartholomew, Robert Burgess, E. A. Craig, E. H. Desson, J. R. Ellicott, C. R. Ellicott, A. L. Humphrey, S. D. Hutchins, A. Johnson, J. F. Miller, F. M. Nellis, J. C. Olmsted, C. W. Townsend and W. V. Turner.

J. C. M. McQuiston, publishing department, was in charge of the exhibit.

THE NATIONAL BRAKE & ELECTRIC COMPANY, of Milwaukee, had a booth in Building 3, which was designed in a color scheme of red, green and white, with gold letters. The exhibit of apparatus was the most extensive ever made by this company, and was rendered especially attractive by the constant operation of the apparatus. Among the apparatus shown was the new National air compressor, completely assembled, and also with sections of housing cut away, showing the details of construction of the mechanism, its operation and the ready accessibility of all parts. The especially distinctive features of the motor compressor are as follows: The construction of the motor and compressor as entirely separate self-contained units; the construction of motor and compressor with a large air space intervening, which prevents radiation of heat of the compressor to the motor; the use of a third bearing on the crankshaft, giving added strength, minimum vibration, and hence slight noise in operation; the absence of loose bearing brackets, unsightly goose necks and elbows, and ample insulation of the brush gear. The new National emergency valve was shown in operation on a two-car equipment. This valve possesses some decidedly novel features, and its simplicity is especially noteworthy. The new type N oil pneumatic governor was also shown in constant operation, and the small number of parts, its compactness and freedom from complications created much interest from representative railway men. The new engineer's valve was shown automatically operated by a device which moves the handle back and forth. The novel design of the wearing parts of the new engineer's valve permits of 150,000 applications with but one oiling. A complete two-car schedule O. E. air brake equipment, with automatic features, was shown, as well as a complete line of repair parts for types of compressors and other air brake apparatus, together with repair parts for new and improved types. The portable compressor outfit shown presented a very handsome and substantial appearance, its stout construction being especially noteworthy. The frame which carries the compressor and its auxiliary apparatus is of channel iron, to withstand the hardest kind of service. This outfit was also equipped with the new oil pneumatic governor, in which burning and pitting of contacts are entirely obviated by the oil which surrounds the electrical contacts and all wearing parts. The company's new line of Type N. L. motors was shown in sizes from 3 hp to 40 hp, inclusive. These motors are especially designed to meet the growing demand for motors for machine tool applications. Bulletins of all apparatus on exhibition, as well as bulletins of electrical machinery, were on hand for distribution. The National Company was represented by S. I. Wailes, sales manager; R. P. Tell, general manager; W. L. Waters, chief engineer; Griffith Johnson, general superintendent; J. T. Cunningham, New York representative; C. N. Leet, Bert Aikman, W. M. Bissel and W. H. Beatty, Jr., of the Chicago office; George S. Hastings, Cleveland representative; J. T. Perry, of the San Francisco office; W. H. Goble, of the Philadelphia office; Arthur Jones, of the Arthur Jones Company, Illinois representatives; R. W. Woodward, of the Milwaukee office, and R. W. Hutchinson, Jr., manager of the publicity department.

THE ATHA STEEL CASTING COMPANY, of Newark, N. J., exhibited the "Titan" steel motor gears. This steel is so hard that it cannot be machined, yet so tough that test pieces can be bent through an angle of 180 degs. without fracture. The gears are accurately ground by special machinery, making more perfect teeth than the cut teeth. They are cast solid with separate hub, which is made of soft steel or gray iron and pressed into the gear with 35 to 45 tons pressure, insuring an absolutely secure fit. When the gears are applied in similar manner to the axle no key is necessary. "Titan" gears will outwear about five cut gears and thus result in economy to

roads using them. No "Titan" gear has broken in service or comes loose on hub or axle. Among the gears on exhibition was one which was tested by the Interborough Rapid Transit Company, on elevated car No. 385. This gear was applied at the same time as a new cut gear to the other end of the car. After running 20,000 miles the cut gear broke and had to be removed. The "Titan" gear was removed also, but showed no wear. A new "Titan" gear, standard on Interborough Rapid Transit Company, was shown. Another gear shown was applied to car No. 1024 of the Public Service Corporation of New Jersey, on July 24, 1905. The cut gear which was applied new to the other truck on the same car at the same time was also shown. Both gears were removed Nov. 13, 1905. The cut gear was worn out, while the "Titan" gear showed only about 1-32-in. wear, and all on the pitch line. A new "Titan" gear, Public Service Corporation standard, 68-tooth, was shown. Besides making the "Titan" steel motor gears, the Atha Steel Casting Company manufactures cast-steel body and truck bolsters for electric and steam roads, and it is stated an "Atha" bolster has never broken in service. The company exhibited a cast-steel truck bolster similar to those furnished for trucks on the Cleveland City Electric Railway. The company was represented by Louis A. Shepard.

THE RICHMOND CONNECTOR COMPANY, of Richmond, Ind., was represented by A. Gordon.

JOHN MILLAR, for more than 20 years master mechanic of the Chicago Union Traction Company and the International Railway, of Buffalo, greeted many of his old friends during convention week. Mr. Millar is now resident manager of the Chicago office of Charles F. Johnson. This is a new departure in the equipment business, by which railroad companies secure the advice of an experienced, practical man in the selection of equipment best suited to the requirements of a road.

WM. WHARTON, JR., & COMPANY had a fine exhibit, tastefully decorated and lighted, which stood out prominently in Building No. 2. Handsome large photographs and prints of drawings embellished the background, the subjects of which these pictures showed being not less noteworthy. They were as follows: A view of a large track layout built for the New York City Railway, the photograph having been taken during installation; several views showing extremely complicated layouts during fitting and assembling in the yard of the factory; view of a part of the Chicago Union Elevated road during installation of a layout built entirely of Wharton manganese steel, and an instantaneous photo. of the "Pennsylvania Limited" going over a Wharton manganese steel frog at full speed, giving proof of the use of manganese steel on main lines under the heaviest and fastest service. In connection with this view, a manganese steel frog, taken out of the Pennsylvania R. R. tracks, among the articles exhibited attracted probably the most attention. The history of this frog is very interesting. After having done service for 4 years and 47 days in a place where the traffic was so heavy that an ordinary frog only lasted 3 months, it was taken out of the track, restored to good surface by the Wharton Company through a patented process, and put back in the track in the same place, doing 2 years and 64 days more service, thus outlasting over twenty-five ordinary frogs, a most remarkable record for the superior quality of the Wharton manganese steel. Switches and frogs, both of girder and T-rail, illustrating the various types of construction, formed the other parts of the exhibit, supplemented by various models by which the interior details of the devices were explained. As novelties, might be named the H. T. type tongue switch with a most substantial adjustable heel fastening; a new combination tongue locking and spring device that can readily be changed from one to the other and can be operated by a spiral spring, flat spring or weight, as may be preferred; interurban main line switch for interurban roads, etc. The company was represented by Wm. Wharton, Jr., president; V. Angerer, vice-president; R. C. McCloy, sales agent; H. F. McDermott, G. Lyman, T. L. Hantey, engineers and representatives; A. I. Partridge, M. McLain, J. B. Robinson and J. W. Stringfellow.

THE BARBOUR-STOCKWELL COMPANY, of Cambridgeport, Mass., was represented by F. F. Stockwell, W. W. Field and H. R. Luther.

THE NEW YORK CAR & TRUCK COMPANY, of Kingston, N. Y., was represented by Frank W. Curtis, general sales agent, and Thomas F. Carey, of Boston.

G. M. GEST, engineer and contractor, was represented by W. T. Jackson, commercial engineer.

CHARLES F. JOHNSON, of Cleveland, New York, Chicago and Buffalo, reports some large purchases and sales through his chain of offices. He has purchased and owns over 400 latest types of railway motors and more than 200 cars coming from the Public Service Corporation, of Newark, N. J.; the Cleveland Electric Railway, the International Railway, of Buffalo; the Cincinnati Traction Company, and others. He reports large sales to the Chicago Union Traction Company, the Toronto Railway, the Illinois Traction System, Dayton & Xenia Traction Company, Niagara, St. Catharines & Toronto Railway; London Southwestern Traction Company, Lake Shore Electric Railway, Meadville Traction Company, Aurora & DeKalb line, and many others.

THE ALLIS-CHALMERS COMPANY occupied 1400 sq. ft. of space which had been decorated throughout in green and black, with mission style of furniture, and the railings painted a color to match. Palms and cut flowers were also used to give greater attractiveness to the booth. On the walls were hung large framed pictures, illustrating the various types of machinery manufactured by the Allis-Chalmers Company, such as steam turbines, reciprocating steam engines, gas engines, hydraulic turbines, condensers, boiler feed pumps, electrical apparatus of various kinds, rock breakers for ballast plants, etc. The exhibit proper consisted of the apparatus used by street railway systems, prominent among which were two Allis-Chalmers railway motors, one of 50 hp and the other of 75 hp, together with controller and resistance girds; a complete line of Christensen air brake apparatus, now manufactured solely by the Allis-Chalmers Company; stationary and movable blading from an Allis-Chalmers steam turbine; Allis-Chalmers power transformers, both assembled and in various stages of construction; Allis-Chalmers induction motors, portable starters, etc.

The air brake apparatus was assembled on a frame similar to the arrangement used on a car, and was put in operation whenever any one wished to see it working. Visitors had a further demonstration of the efficiency of the Christensen air brake in observing the operation of the street railway system of Columbus, as both the local lines and the interurban cars in Columbus are almost entirely equipped with this apparatus, and the motormen showed that they understood it thoroughly. The induction motors exhibited by the Allis-Chalmers Company, although not strictly in the line of street railway apparatus, were a center of attraction, and seemed to be greatly admired by the delegates, particularly because of their powerful and finished appearance. The steam turbine model also underwent almost constant inspection. Visitors were particularly interested in the method of securing the blading and of protecting the tips by means of a shroud ring—a device that is patented and can be used in this country only by the Allis-Chalmers Company.

The exhibit was in charge of C. A. Tupper. Other representatives of the company present were F. C. Randall, W. W. Caskey, J. H. Denton, W. S. Doran, G. B. Foster, W. T. McCaskey, A. N. Libby, W. S. Heizer, O. A. Stranahan, H. A. Strauss, M. W. Thomas, George Voigt, H. S. Buell, F. C. Colwell, C. E. Lord, W. J. Buckley, W. H. Powell, Ervin Dryer, Fred. L. Webster, J. W. Murray, J. W. Gardner, A. Brodbeck, B. A. Behrend, Louis Bogen, E. Mattman, David Hall, W. B. Spellmire, W. J. Richards, W. D. Pomeroy, B. Ellshoff and Lea Nicholson.

THE GENERAL ELECTRIC COMPANY, in addition to its many different lines, exhibited a portable air compressor outfit which promises to fill in a most satisfactory manner the demand for such apparatus. It consists of a portable truck with 4-ft. x 5-ft. platform, a compressor, governor and gage being mounted on top of the platform, while the tanks are located beneath. It is equipped with a portable connecting cable and hose, the entire outfit making a most convenient addition to the equipment of a car house or repair shop. The very considerable interest on the part of the railway men in the single-phase system led the General Electric Company to exhibit a complete equipment. Following its usual policy, the company showed the very latest development in this field, which is an adaptation of the Sprague-General Electric multiple unit control system to single-phase work. The simplicity of this outfit, which is most complete and flexible, was quite in contrast with the complicated designs exhibited at earlier conventions. The equipment shown was one of those on order from the Central Illinois Construction Company. A novel and interesting feature of the General Electric Company's exhibit was a CP-21 air compressor from which various parts had been so cut out as to permit ex-

amination of all the details of construction of both the electrical and mechanical mechanism.

For the first time at any convention there was exhibited in the General Electric Company's space a commutating or inter-pole motor for railway use. This motor is known as the GE-100 and has a normal rating of 100 hp. In selecting line material for exhibition at Columbus, the General Electric Company brought only some of its latest devices, particular attention being paid to the subject of catenary construction. A few other general railway supplies, including a sample board of rail bonds, were also shown. One of the most ingenious devices recently presented to the trade is the large capacity automatic circuit breaker shown by the company. This device consists of a motor-operated circuit breaker in combination with a main switch also motor-operated. It has a capacity of 12,000 amps. at 650 volts. The circuit breaker and switch may be controlled from a distance, making it necessary to run only one wire from the switchboard to the point of control. The General Electric Company's exhibit space was lighted by 250-watt Gem lamps with Holophane reflectors. Beside these the new tantalum lamp was also used in the most effective manner. The company's arrangements at the convention were complete. In the Southern Hotel the headquarters and bureau of information were established on the mezzanine floor, where a private, telephone line was installed. At the Fair Grounds the exhibit contained, as usual, attractive reception quarters with telephone, stationery and literature at the disposal of visitors.

Among those representing the company were the following: J. R. Lovejoy, Schenectady; C. C. Peirce, Boston; G. D. Rosenthal, St. Louis; H. L. Monroe, Chicago; R. E. Moore, Philadelphia; E. H. Ginn, Atlanta; J. J. Mahoney, New York; H. H. Crowell, Buffalo; E. H. Anderson, C. E. Barry, H. N. Ransom, E. D. Priest, W. G. Carey, W. C. Andrews and F. E. Case, all of Schenectady; W. J. Hanley, Columbus; M. M. Corbin, Cincinnati; H. H. Corson, Memphis, and Frank H. Gale, manager of publicity.

THE H. W. JOHNS-MANVILLE COMPANY, of New York, as usual had a very attractive and interesting exhibit located in Building No. 4. As is well known, this firm manufactures and handles a very large and diversified line of railway supplies and electrical and insulating materials of various kinds. One of the more recent products of the company, and which attracted considerable attention, was the "Transite" asbestos fireproof doors recently developed from transformers and oil switches in power houses, using high-tension currents. The object of these doors is to prevent persons coming into contact with the apparatus, as well as to protect the apparatus itself from short circuits between adjacent parts. In modern transformer stations, the most approved construction is to surround high-tension transformers and switches with brick walls in front of which moveable doors, made of "Transite" asbestos fireproof lumber, are placed. These doors are absolutely fireproof and will prevent danger to both persons and property. The material from which they are made, "Transite," is a fireproof sheathing, the basis of which is asbestos fiber. It is mechanically much stronger than ordinary asbestos board and has a density that makes the finished material practically non-absorbent and possessed of the very highest heat-resisting properties. It will stand much rougher usage than slate, being harder and tougher, but not so brittle. This material is also being extensively used in various ways about electric light and railway plants.

The exhibit of the company also included a very complete line of "Molded Mica" overhead line material and fittings for low and high-tension railway service, trolley wheels, cable anchors, electric car heaters, etc. A representative line of insulating materials, including "Vulcabeston," "Phoenix" and "Monarch" insulation was shown, suitable for controllers, motors, arc lamps and other special work requiring high heat-resisting combined with perfect insulating properties.

As usual, an extensive line of "Noark" enclosed fuses, blocks, contacts and fittings for all voltages up to 10,000 volts were exhibited. These included subway and service boxes for railway and light service for 250, 600 and 2500-volt circuits. Porcelain high-tension insulators for voltages up to and including 75,000 volts, and malleable iron and forged high-tension pins for all types of high-tension insulators were shown, as well as a line of third rail insulators, constructed of reconstructed granite and porcelain.

The following representatives were in attendance: J. W. Perry, manager electrical department, New York; H. M. Voorhis, Philadelphia; J. W. Hardy, Milwaukee; F. E. Johnson, St. Louis; H. M. Frantz, Chicago; R. R. Braggins, Cleveland; R.

W. Harnes, New York; C. B. Reed, Pittsburg; Harry Gillett, Cleveland, and R. B. Montgomery, Pittsburg.

THE CARNEGIE STEEL COMPANY, of Pittsburg, Pa., exhibited a full-size set of steel switch and cross-ties upon which girder rail branch-off was laid to show exactly the appearance when used in connection with special work. On account of the simplicity of section, the railway men could see at a glance what an easy matter it is to apply this steel tie in any kind of work at any point in the track. The tie is a modified I-beam construction and is finished in three different sizes weighing 10.7-10 lbs., 14½ lbs. and 9½ lbs. per ft. respectively. The dimensions according to the foregoing sizes are as follows: Depth, 5½ ins., 4¼ ins. and 3 ins.; bottom flange, 8 ins., 6 ins. and 4 ins., and top flange, 4½ ins., 4 ins. and 3 ins., respectively. The size to be used is determined by the character of work.

The tendency toward concrete track construction is rapidly growing, and while the heaviest section is used in concrete in several cities, the medium of 14½-lb. section has been designed so as to reduce the cost of this work and still be as efficient as the heaviest section. The lightest or 9½-lb. section is adapted to narrow gage and other tracks where traffic is light. The Duquesne rail joint for all standard American Society sections was also exhibited. This is simply an angle-bar rolled with an additional amount of metal forming a lower flange extending beneath the base of the rail to such a depth as to produce a girder joint equal in strength and elasticity to the rail itself. After the section is rolled and cut to length a portion of the lower flange is cut off to permit proper spacing of ties, allowing sufficient to remain to give proper reinforcement. The exhibit and decorations were very attractive and held the attention of all the delegates and visitors in attendance.

The following representatives were in attendance: W. P. Siebert, N. M. Hench, L. C. Lustenberger, F. W. Highberger, W. A. Bostwick, C. L. Wood and S. B. Rainey, from the general office at Pittsburg; John E. Woods, Robert A. Bruce, Robert H. Graham, K. E. Porter, from the Cincinnati sales office; F. C. Deming, from the Buffalo sales office, and C. C. Wright, from the Cleveland sales office.

THE CONSOLIDATED CAR-HEATING COMPANY showed its complete assortment of standard and special electric heaters, and switches for heaters, car lights, headlights and switchboards. Heater resistance coils were shown in detail, illustrating the McElroy spiral resistance coil construction, which is used in all types of heaters and for which the following advantages are claimed: The spiral coil being supported continuously in helical grooves on porcelain spindles, the insulation is made perfect; no vibration is possible and a great length of low-resistance wires can be used in limited space; the coils operate at a low temperature, owing to the heat being distributed over a large radiating surface; the resistance coils are guaranteed for five years against any failure caused by faulty construction.

The following were some of the latest types of heaters shown: Portable cab heater used in heating the motorman's cab; in this heater a special high-resistance coil is used so that it can be connected directly across the line voltage, independently of the heaters in the car, and can be transferred from one end of the car to the other, according to the direction in which the car is running. The double-coil single-spindle cross-seat heater with all leads brought out at one end of the heater into a junction box where connections are made, doing away with exposed wires in the car. This type of heater is being installed in 100 new cars for the Brooklyn Heights Railroad. Special New York Central type of heater, which will be used on cars in the electrified zone of the New York Central. Single-coil panel heaters of the Cincinnati Traction Company type. Panel heaters for steel cars of the type used by the Subway, Long Island Railroad and the Boston Elevated Railway. Heaters for office and house purposes arranged for operation across either 500, 240 or 120 volts.

A very complete line of switches for controlling heater circuits, car lights, headlights and special switchboards were also shown. The company is making a specialty of building switches and switchboards in the construction of which the double quick break knife switch with fuses and connections are all arranged on substantial slate bases. The company was represented by Cornell S. Hawley, S. Butler Keys, W. S. Hammond, Jr., and F. W. Brownell.

THE LORD ELECTRIC COMPANY, of Boston, exhibited Shaw non-arcing lightning arresters and various types of the Thomas soldered rail bond. The method of applying the bonds

was shown by means of short sections of rails with the joints bonded. Torches for heating the bonds and clamps used in applying them were also exhibited. The exhibit was made in connection with that of the W. R. Garton Company, which is the representative of the Lord Electric Company in the Middle West. G. B. Crane and E. M. Hamlin represented the company.

THE J. A. FAY & EGAN COMPANY, of Cincinnati, exhibited woodworking machines adapted for use in car building and repair shops. One of the machines shown was a hollow chisel mortiser for miscellaneous mortising. There was also exhibited a special square column extra heavy 36-in. hand saw. Both machines were motor-driven. Clifford P. Egan and J. J. Sexton represented the company.

THE NATIONAL CARBON COMPANY, of Cleveland, Ohio, had a complete display of carbon brushes for street railway motors and carbons for arc headlights. N. C. Cotabish, sales manager; F. D. Kathe, A. G. Cummerell and J. F. Kerlin represented the company.

THE NILES CAR & MANUFACTURING COMPANY, of Niles, Ohio, exhibited three interurban cars. All of the cars were completely equipped. Two of the cars exhibited were built for the Columbus, Delaware & Marion Traction Company. They were probably the longest cars ever built for electric interurban service, as they measured 67 ft. over all. Some of the other dimensions were: Width over all, 8 ft. 8 ins.; height of body, 9 ft. 5 ins.; height, track to roof, 12 ft. 10 ins.; truck centers, 44 ft. The interior arrangement of these cars was quite out of the ordinary. The main passenger compartment was in the forward portion. The smoking compartment behind this was built almost the full width of the car. A corridor along side of it connected the main passenger compartment with the baggage room in the rear of the car, from which entrance to the smoking room was obtained. A ladies' toilet room opened out into the corridor, while the gentleman's toilet room was located in the extreme rear of the car behind the hot-water heater, which was of the Peter Smith type. The interior of the car was furnished in dark figured mahogany, with artistic inlay of rare colored woods. With movable chairs the car had a seating capacity of 40. The weight of the body was about 35,000 lbs. Another interurban car shown was a cafe car built for the Aurora, Elgin & Chicago Railway. This car contained a smoking room in one end and a parlor compartment in the other. These were connected by a narrow corridor, on one side of which was located a lavatory and toilet room and a buffet compartment. The body was bolted to an independent steel bottom framing having 9-in. I-beams for outside members. The length of the car was 52 ft. 10½ ins. over all, and its width over all, 8 ft. 10 ins. The company was represented by J. A. Hanna, F. C. Robbins, F. A. Richards and A. W. Schall.

THE LUMEN BEARING COMPANY, of Buffalo, N. Y., had a small but attractive exhibit in Building No. 2. One of the special features of the exhibit was a working model of the company's new form of journal bearing. In this journal the lower edge of the inside of the bearing is concave, so that the oil gathers there, as in a pocket, and is then carried up between the shaft and the bearing, where it spreads out in a thin film. The bearing in the model shown by the company was tapped with a vertical hole at the top, and, as the shaft was slowly revolved by hand, the oil came out through this hole, indicating its travel around the shaft. In addition, the company had on exhibition the other appliances manufactured by it, including its latest type of trolley wheel and samples of wheels which had given a long mileage, also various motor bearings and truck bearings. E. P. Sharp and C. W. Stimpson were in charge of the exhibit.

THE JONES-LAUGHLIN STEEL COMPANY, of Pittsburg, Pa., showed a rack containing four cold-rolled finished axles. Some of these axles were key seated and others were left blank. The representatives of the company present were E. B. Batchelor, G. B. Mitchell and C. H. L'Honmedieu.

THE VAN DORN & DUTTON COMPANY, and VAN DORN-ELLIOTT ELECTRIC COMPANY, of Cleveland, devoted their space to a reception room, which was supplied with various comfortable chairs. C. I. Carthwright, J. N. Elliott and H. L. Schneider represented the company.

THE RAIL JOINT COMPANY, of New York, had an extensive exhibit in Building 2. The space was attractively deco-

rated and devoted to showing different samples of its well-known Continuous, Weber and Wollhaupter joints as applied to girder rails, standard and high T-rails, and also to compromise joints. Altogether, there were some fifty sections of rails fitted with these joints in different parts of the exhibit. The representatives of the company at Columbus were Jas. C. Barr, of Boston; Benjamin M. Barr, of New York; G. A. Hagar and D. J. Evans, of Chicago; E. A. Condit, Jr., of Pittsburgh; H. C. Holloway, of Cincinnati; J. G. Miller and C. E. Irwin, of St. Louis.

**THE INDIANAPOLIS SWITCH & FROG COMPANY**, of Springfield, Ohio, devoted its space this year to exhibiting a sample crossing of steam track with an electric railway track. The company was represented by W. H. Thomas, chief engineer, and E. C. Price.

**THE RAMAPO IRON WORKS**, of Hillburn, N. Y., was well represented at the convention, and showed one of its automatic return switch stands and switches, which were described in the issue of this paper for Oct. 13. This stand is designed to secure safety in operation, and its main principles have been used on steam railroads for a number of years, although the steam railroad switch stand is slightly different from the electric. The exhibit attracted a great deal of attention, and the advantages of the switch were explained by Arthur Gemunder and J. B. Strong, who were present in the interests of the company. In addition, the company showed other appliances manufactured by it.

**THE CLEVELAND FROG & CROSSING COMPANY**, of Cleveland, Ohio, had an attractive space in Building No. 2, and showed as its principal exhibit one of the Porter derailing switches which has been manufactured by the company for a great many years, and which is now used on a large number of roads. The space was handsomely decorated with plants, and the company was represented by Geo. Stanton, sales agent; Geo. C. Lucas, general manager; H. C. Engerg, Wm. Smith and E. D. Powell.

**THE BALDWIN STEEL COMPANY**, of New York, exhibited a number of drills and other tools made of the Hudson brand of high-speed steel. Chips and turnings made by these tools were shown. Those present in the interests of the company were W. L. Stone, T. S. Hanna and H. L. Raynor.

**THE STANDARD MOTOR TRUCK COMPANY**, of Pittsburg, had one of the largest, if not the largest, exhibit of trucks at the Columbus convention, and was represented by Arthur M. Field and W. D. Price, both of whom have attended conventions for many years in the past. The space was devoted principally to showing the standard C-35 single truck, 0-50 double truck and C-60-A double truck. The 0-50 is a truck designed for city and suburban service, and is intended to carry a car body weighing from 800 to 30,000 lbs., with an approximate load at the king pin of 50,000 lbs. per pair of trucks. The C-60-A is a heavier truck, designed to carry a car body weighing from 30,000 to 45,000 lbs., with an approximate load at king pins of 70,000 lbs. per pair of trucks. Trucks of this type are being used on the Pittsburg & Butler Street Railway, and both of these trucks are constructed of heavy, solid forged steel with a weld. The standard C-35 single truck is built with an extra long spring base, and has a strong trussed frame which supports the ends of the car body and in which the journal boxes form the vertical tension members. The company has sold a number of these single trucks to the Tarentum Traction Passenger Railway Company. The carrying capacity of this truck is about 30,000 lbs. As a souvenir, the company distributed to the convention a neat pocket pencil, which was eagerly sought after.

**THE LORAIN STEEL COMPANY** made a special feature in its exhibit of improved and heavy tongue switch constructions, one of which, the switch with a protected heel, and another with a pinless tongue, created many inquiries and favorable comments. In the case of these new types, as in the present standards of tongue switch and mate construction of this company, the structures were solid cast steel with renewable wearing plates extending under the entire length of the tongue. The switch known as the "Prior" type, with protected heel, has the pivotal end of the tongue recessed under the main bed plate, so that by no possibility can the tongue "kick" by reason of wear at the heel or by the passage of a car, no matter how long the wheelbase. The pivotal pin is accessible from the top of the switch and can be readily removed, allowing the tongue to be removed quickly and easily. The bed plate is also of guarantee steel, and extends not only the full length of the

tongue, but a foot or more beyond the heel, and, as it is made in one piece, the number of joints is reduced to a minimum. The "pinless" tongue switch, which, in the parlance of the Johnstown shops, is known as the "Tadpole," from its likeness to that amphibian, is probably the only tongue switch of its kind, being a tongue with exact mechanical lateral motion without a center pin. The body of the tongue is of the usual dimensions, while the heel is more than double the diameter of the standard switch tongue, and is held within a circular recess by special bevel plates at the sides, which are secured in place with splter. The "Chicago" type of switch was composed of a heavy cast-steel sub-structure in which the bed plate, made of "Guarantee" steel, was secured by the company's quick release fastening and extended the full length of the tongue, which was likewise "Guarantee" steel. A pin of large diameter at the heel of the tongue gave support against lateral motion. Tongue switch and mate of solid cast steel "Guarantee" construction, to accommodate M. C. B. flanges and for use with the new 9-in. guard rail weighing 164 lbs. per yard, were also shown. Three types of street railway track crossing steam railroads were on exhibition: The "P. R. R. standard" (built up with heavy forged knees and continuous filler); the "hard steel center" type, with abutting main, riser and guard rails of rolled steel and the latest and most improved type, the "Solid Guarantee Steel" construction in steam track with cast-steel arms shaped at end to meet the existing rails in street railway track. Fifty of the last mentioned are in use in Philadelphia, and this construction is now the standard of the Philadelphia Rapid Transit Company. In a frame, 12 ft. long by 3 ft. wide, were exhibited some seventy odd sections of the girder (tram and groove) high T and slot and guard rails of various design and weight most generally used to-day by street railway systems throughout the world. A standard spring split switch of 85 lbs. standard T-rail, with plain ground throw and a split switch, the points of which were "Guarantee" steel, the points being operated by a "Johnstown" switch stand, formed part of the exhibit. The company also had on exhibition samples of electrically welded joints as applied to different forms of girder rails. Horizontal and vertical sections through the welds were shown, also sections of copper bond electrically brazed to rails. In addition to these, a sample of expansion joint for T-rail was shown which is being used in connection with electrically welded T-rail track on interurban lines. These joints are placed at the ends of all curves and turnouts, and are spaced about 1000 ft. apart on straight track. The representatives present were: H. C. Evans, Carroll Burton, F. J. Drake, H. F. A. Kleinschmidt, W. W. Kingston, H. M. Keller, S. P. S. Ellis, A. S. Littlefield, S. P. McGoough, E. B. Entwisle, J. B. Heller, A. L. Verner and R. Clitz.

**THE BLAKE SIGNAL & MANUFACTURING COMPANY**, of Boston, Mass., exhibited a complete installation of signals of its manufacture. Four block signals were connected to an operating desk. Three of these had their working parts exposed in such a manner that the working of the mechanism of the system could be seen. A section of an operating desk was also shown. C. C. Blake explained the system to all visitors. He was assisted by E. J. Burke and George S. Hastings.

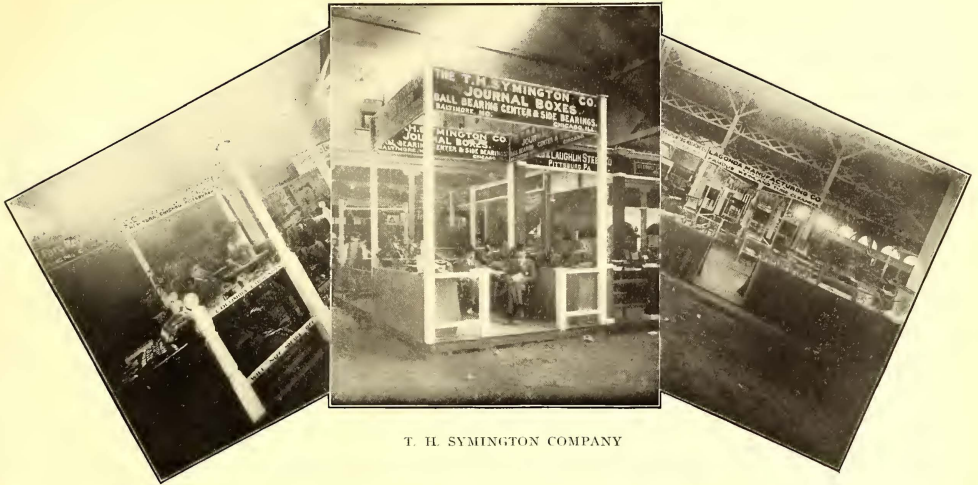
**THE COLUMBIA MACHINE WORKS & MALLEABLE IRON COMPANY**, of Brooklyn, exhibited a table for filling the brooms of snow sweepers. The rattan was laid on the table, and when the machine was operated the rattan was bent into shape for filling the brooms without breaking it. Another feature of the exhibit consisted of a new type of pinion puller, which was adjustable so as to take pinions varying in size from 14 to 36 teeth. John G. Buehler and W. R. Kerschner represented the company.

**THE AMERICAN WATER SOFTENER COMPANY**, of Philadelphia, had a working exhibit consisting of a model of a continuous type water softener. The flow of the water to the machine operated a device for mixing the chemicals added to the water to soften it. A. S. Garrett, general manager; W. H. P. Fisher, general sales agent, and A. W. Bartlett, engineer, represented the company.

**THE CHASE FOUNDRY & MANUFACTURING COMPANY**, of Columbus, Ohio, had an exhibit consisting of a general line of express and baggage wagons and trucks. S. M. Chase, secretary and general manager, and W. C. Stocklin, superintendent, represented the company.

**THE AMERICAN WIRE FENCE COMPANY**, of Chicago, exhibited wire fence used in its system of reinforced concrete construction. This fence is made from high car-





T. H. SYMINGTON COMPANY

U. S. METAL & MFG. CO.

LAGONDA MFG. CO.



BALDWIN LOCOMOTIVE WORKS AND THE STANDARD STEEL WORKS



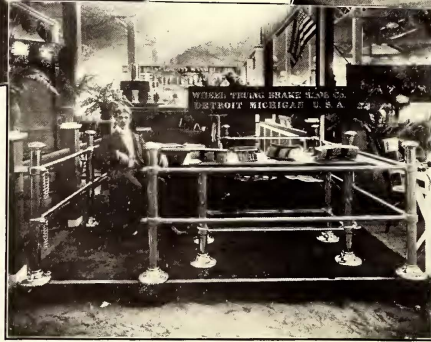
NATIONAL CAR WHEEL COMPANY



NEW YORK SWITCH & CROSSING COMPANY



R. D. NUTTALL COMPANY



AMERICAN RAILWAY SUPPLY COMPANY

THE KINNEAR MANUFACTURING COMPANY

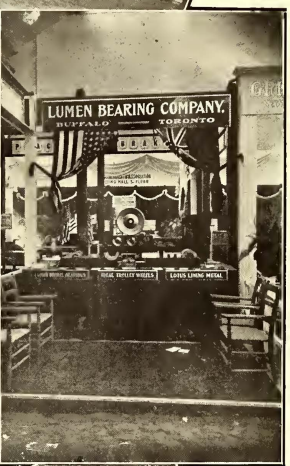
WHEEL TRUING BRAKE SHOE COMPANY



W. N. MATTHEWS & BROTHER



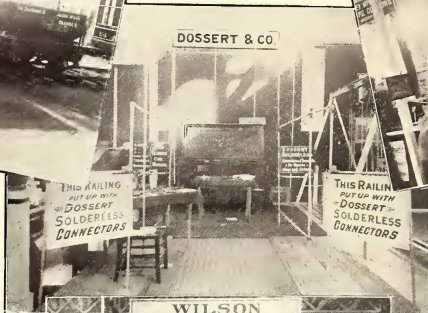
BUCKEYE ENGINE COMPANY



WALLACE SUPPLY COMPANY  
 CLIMAX STOCK GUARD COMPANY      BLAKE SIGNAL & MANUFACTURING COMPANY  
 THE STERLING VARNISH COMPANY AND      LUMEN BEARING COMPANY  
 THE PITTSBURGH INSULATING COMPANY      HEYWOOD BROTHERS & WAKEFIELD COMPANY



THE KILBOURNE & JACOBS MFG. COMPANY



DOSSERT & CO.

THIS RAILING  
MAY BE MADE  
"DOSSERT"  
SOLDERLESS  
CONNECTORS

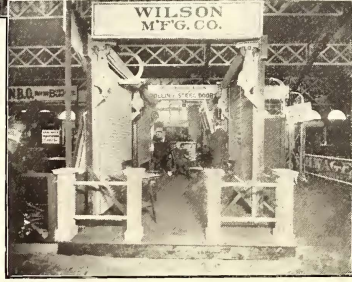
THIS RAILING  
MAY BE MADE  
"DOSSERT"  
SOLDERLESS  
CONNECTORS



HEANY FIREPROOF WIRE COMPANY



MACDONALD TICKET & TICKET BOX CO. AND NATIONAL TICKET CO.



DOSSERT & COMPANY  
JAS. G. WILSON MFG. COMPANY.



GIBBS COUNTING MACHINE CO.



ST. LOUIS CAR WHEEL COMPANY



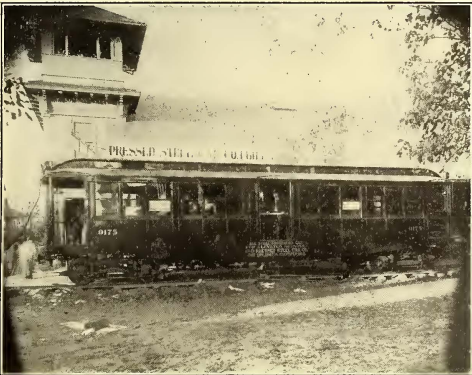
W. H. PONTIUS AND C. LEE COOK MANUFACTURING CO.



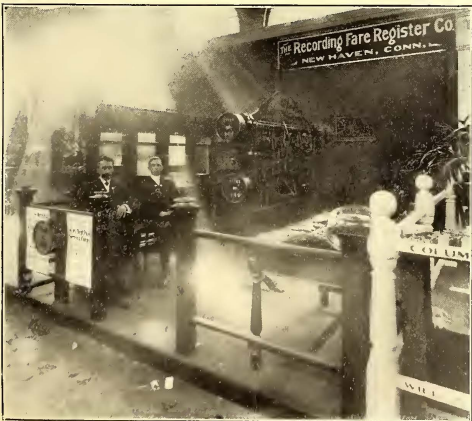
KEYSTONE BRAKE SHOE COMPANY



INTERNATIONAL REGISTER COMPANY



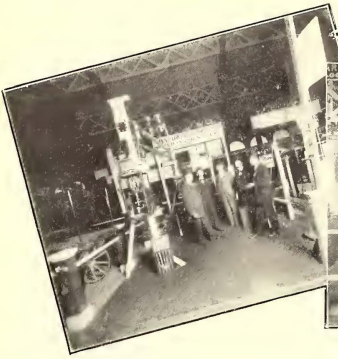
STEEL CAR FOR BOSTON ELEVATED RAILWAY COMPANY, EXHIBITED BY PRESSED STEEL CAR COMPANY



THE RECORDING FARE REGISTER COMPANY



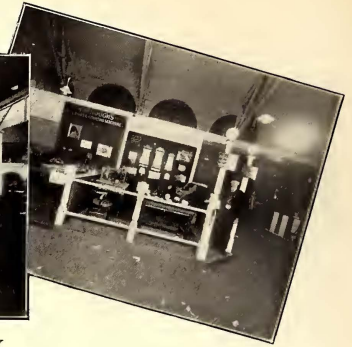
JOSEPH DIXON CRUCIBLE COMPANY



BALDWIN & ROWLAND SWITCH & SIGNAL COMPANY



JONES & LAUGHLIN STEEL COMPANY



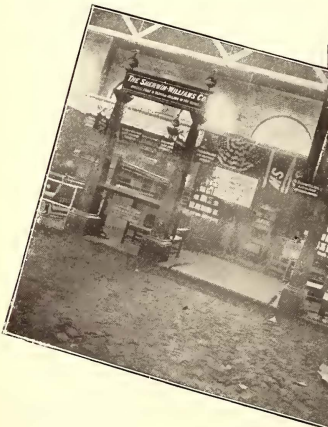
NEWMAN CLOCK COMPANY



STERLING-MEAKER COMPANY



CONSOLIDATED CAR HEATING COMPANY



THE SHERWIN-WILLIAMS COMPANY



THE DUFF MANUFACTURING COMPANY



J. A. FAY & EGAN COMPANY



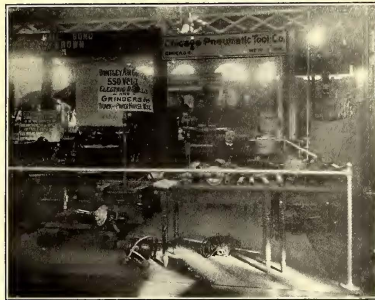
CONSOLIDATED CAR FENDER COMPANY



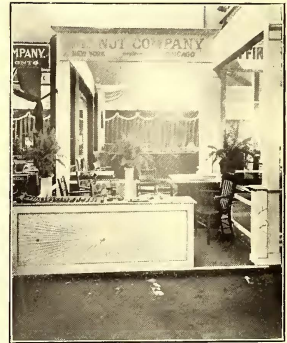
DEARBORN DRUG & CHEMICAL WORKS



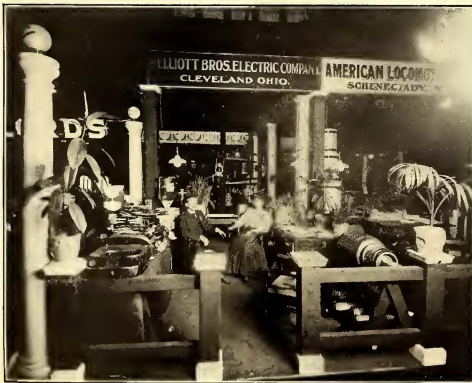
GENERAL SYSTEMS COMPANY



CHICAGO PNEUMATIC TOOL COMPANY



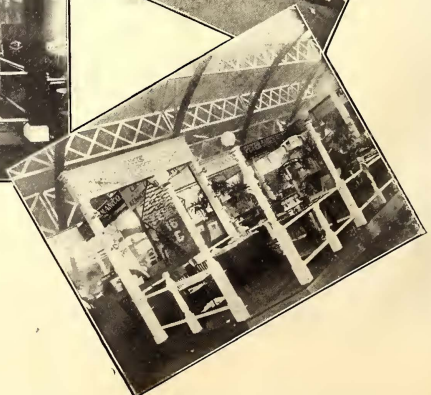
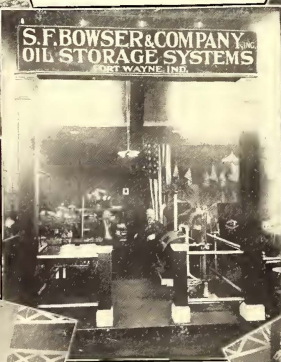
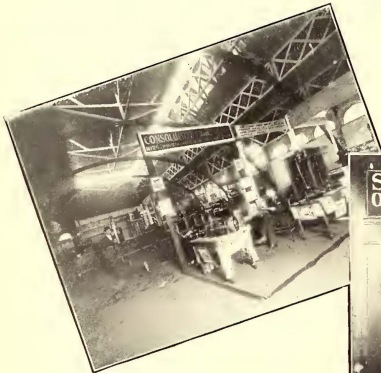
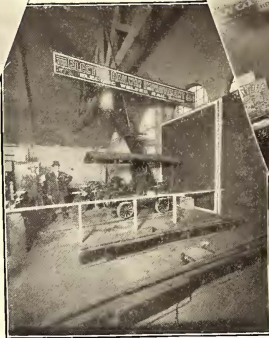
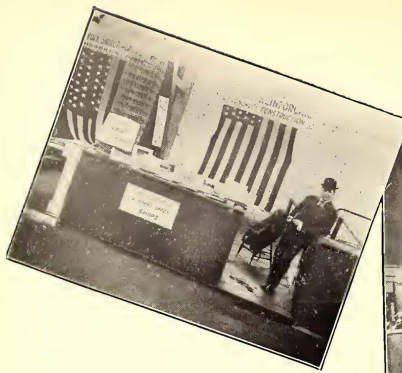
GRIP NUT COMPANY



THE ELLIOTT BROTHERS ELECTRIC COMPANY



THE WATSON-STILLMAN COMPANY, SPRAGUE ELECTRIC COMPANY, NATIONAL CARBON COMPANY



AMERICAN WIRE FENCE COMPANY  
 J. FRANK LANNING & COMPANY  
 CONSOLIDATED ENGINE STOP CO.  
 THE DAYTON MANUFACTURING COMPANY

THE ELECTRIC RY. IMPROVEMENT CO.  
 YALE & TOWNE MANUFACTURING CO.  
 S. F. BOWSER & CO.

FELT & TARRANT MFG. COMPANY  
 BURROUGHS ADDING MACHINE CO.  
 GEO. W. LORD CO.  
 THE FRANKLIN ELECTRIC MFG. CO.



bon steel, said to have an elastic limit of 120,000 lbs. and an ultimate strength of 150,000 lbs. Several photographs were exhibited showing the company's reinforced concrete construction in the building of the new shops of the Twin City Rapid Transit Company, at Minneapolis, Minn. C. C. Collins represented the company.

THE UNITED COPPER FOUNDRY COMPANY, of Boston, Mass., exhibited trolley wheels and sleet cutters made from pure copper. The metal is processed in such a manner as to make it exceedingly hard, and a long life is claimed for the wheels. Spring trolley harps were also shown. F. Harry Seavey represented the company.

THE JEWETT CAR COMPANY, of Newark, Ohio, exhibited a surface car of the type of which fifty are being built for the Brooklyn Rapid Transit Company. The car was of the semi-convertible type. The change from a closed to an open car was made by removing from between the posts frames containing a panel in the lower portion and glass above. The company was represented by E. Besuden; W. S. Wright, president; W. C. Gardner, treasurer, and W. B. Wingerter, general sales agent.

THE PRESSED STEEL CAR COMPANY, of Pittsburg, exhibited an all-steel car built for the Boston Elevated. The fish-belly side sills of this car gave it quite a distinctive appearance. The inside finish, which was of steel, was painted and grained in imitation of mahogany in such a manner that, at first inspection, it appeared to be of wood. The floor consisted of monolithic flooring composition supported by corrugated steel. The doors were provided with Burdett-Rowntree pneumatic door opening devices. The details of the car were explained by W. H. Wilkinson and P. M. Kling.

THE WAPAK HOLLOW WARE COMPANY, of Wapakoneta, Ohio, had a display of Wapak anchors in connection with the W. R. Garton Company's exhibit in Building No. 3. Attractive booklets, showing the great strength of these anchors, were distributed. The interests of the company were looked after by Hugh R. Hick.

THE L. M. JONES PHOTO. COMPANY, of 114½ South High Street, Columbus, Ohio, took excellent photographs of all the exhibits. The views of exhibits reproduced in this issue, as well as many of the photographs used in the Columbus Convention Souvenir issue of the STREET RAILWAY JOURNAL, were taken by this company.

THE RAND-AVERY SUPPLY COMPANY, of Boston, which is said to be the only house in America devoted exclusively to printing, engraving and light supplies for transportation companies, was represented by Jas. F. Wattles, secretary.

THE WALLACE SUPPLY COMPANY, of Chicago, Ill., and New York, made a very comprehensive display of its various specialties. Unusual interest was manifested in the line of fixtures for operating two doors reciprocally and simultaneously. These fixtures are the invention of Carl Metterhausen, secretary and treasurer of the Wallace Supply Company. A full-size end frame of a standard closed car, fitted with double doors and a Wallace operating mechanism was shown. The salient claims for the Wallace fixture are: Ease of operation; simplicity, and few parts; compactness and reliability. Cold-drawn racks and drop-forged steel pinions, machine cut, do not permit of any lost motion when properly interworking as in the Wallace fixtures, which are so designed by the employment of commercial channel-iron members assembled in an ingenious manner as to not only give the whole mechanism strength with minimum weight, but also compactness of design. The racks are guided between the channels, which also form the track for the supporting rollers. The hangers are so arranged that the doors can be easily broken down without removing any part of the operating mechanism, and there are no disfiguring hanger plates exposed to view, the natural wood finish of the door being left intact. The racks are connected to hangers through slots in such a manner as to make it impossible to get any binding strains. These fixtures can be used for many other purposes, such as operating gates, elevator doors, etc. The Wallace Supply Company, which aside from its own specialties is also general sales agent for the well-known Q. & C. Stanwood steps, Cheswick steel gongs, Shelby trolley poles, S. & W. couplers, draft rigging, car trimmings, etc., included many of these specialties in its exhibit. The company was represented by Wesley Meter, Carl Metterhausen and Burton R. Stare.

THE OHIO BRASS COMPANY, of Mansfield Ohio, went to the convention with the determination not only of making an attractive display, but also of putting forth every effort to have an exhibit that would be of the greatest practical value to all those interested in electric railway construction and operation, and in this effort it succeeded admirably. The company called particular attention to the following specialties: Nichols-Lintern sanders in operation on Christensen, Westinghouse and General Electric types of engineer's valves; Tomlinson car couplers; Aikman pressure annunciators; Armstrong journal oilers; headlights, hose bridges, bell metal bearings, complete single-phase brackets, standard pole brackets, and a full line of overhead material and "All Wire" rail bonds installed on rails. The exhibit also included a reception room as well as an office where writing material, etc., were at the disposal of visitors. Several of the private and regular cars in the outside exhibit were equipped with Nichols-Lintern sanders, Aikman pressure annunciators and Tomlinson couplers.

The following representatives of the Ohio Brass Company were present: C. K. King, vice-president; A. L. Wilkinson, secretary; A. B. Edes, A. L. Price, J. S. Hamlin, P. A. Hinds, E. F. Wickwire, J. E. Shimp, H. G. McDuffie and C. H. Tomlinson, of the sales division; N. M. Garland, S. H. Mattson and R. M. Campbell, of the New York office; F. H. Jameson, G. W. Cooper and A. L. Havens, of the Chicago office; G. A. Mead, W. H. Williams, F. S. Denneen and W. C. Starkey, of the engineering division; C. E. Young, advertising manager, and Wm. Lintern.

THE ELECTRIC SERVICE SUPPLIES COMPANY, whose name, by the way, is a particularly apt and fortunate choice, inasmuch as it covers exactly the company's scope and activities, deserves the palm for completeness of display and artistic treatment of its exhibit space. There were other close seconds, but the Electric Service exhibit was not surpassed by any of the displays at the convention. Four features connected with this company's exhibition stood out prominently: First, the wide range of specialties shown; second, the peculiarly pleasing effects secured in the decorations; third, the endeavors put forth by the company to cater to the comfort and convenience of its visitors, particularly of the ladies; and fourth, the small army of prominent supply men which the company now numbers among its representatives.

As to the range of supplies shown, these in themselves constituted a small educational exhibition, and the visitor by spending sufficient time in this one space could have secured a very comprehensive and accurate idea of the wonderful developments which have been going on in the electric railway field during the past year or two. To name all the specialties shown is impossible in the space here available. A partial list includes the following. In section No. 1, "Protected" rail bonds and bond appliances, as drills, hydraulic compressing tools, etc.; in section No. 2, "Keystone" overhead insulation, guy anchors, car signs, bond-testing sets; in section No. 3, car brooms and brushes, Brady motor bearings, conductors' badges and buttons, Dossier line connections, etc.; in section No. 4, complete lines of overhead materials. Locke high-tension insulators, eKarny clamps, armature and field coils, G. D. trolley pick-ups, all styles of Lyon gear cases, incandescent lamps, metal street signs, vestibule shades, etc.; in section No. 5, arc lamps and lamp accessories, tools of various kinds, alternating and direct-current Garton-Daniels lightning arresters, Noark fuses, car-lighting fixtures, headlights, tail lamps, lanterns, etc. The list also includes the well-known Automotoneer shown in operation on several types of controllers, car fenders, telephones, third-rail insulators, Sterling varnishes, and so on down a long schedule, which to be complete would have to include virtually every class of supplies used in the construction and operation of electric railways.

As to the artistic decorations, they would have to be seen to be appreciated. The treatment was in the mission style with red walls, Colonial yellow frieze and dark green floor. The frieze was entwined with Southern smlax, securing a refreshing and most satisfying effect. Above the frieze appeared the signs of the various companies represented, all illuminated by soft reflected lights. Throughout the space were palms and potted plants.

For the comfort of visitors the company had evidently spared no pains. A large reception room was arranged at one end of the exhibit where were a number of comfortable mission chairs, writing facilities, telephone and stenographic services, and last but not least, a fine piano. Many a tired "delegator" hailed this retreat as something almost as good as home. The company's

souvenir consisted of a handsome and serviceable leather notebook and pad. The Electric Service Supplies Company also maintained parlors at the Southern Hotel for the reception of delegates and friends.

Information and hospitality were dispensed by a representative force of home and field men, among which were the following: Charles J. Mayer, president; A. H. Englund, treasurer; J. W. Porter, first vice-president; Max A. Berg, secretary; J. V. E. Titus, second vice-president; G. W. Cox, Keokuk office; H. G. Lewis, Philadelphia office; John McSorley, Philadelphia office; William A. Armstrong, Philadelphia office; F. B. Massey, Philadelphia office; Benjamin Hayler, Jr., Philadelphia office; Robert Montgomery, Philadelphia office; James Steward, Philadelphia office; E. R. Mason, Chicago office; John M. Gallagher, Chicago office; W. P. Cosper, Chicago office; Edward Hammett, Pittsburg office; Henry R. Swarley, Jr., New York office; C. E. Watts, Atlanta office; Ernest Boehme, St. Louis office; H. L. Adams, Chicago office; Joseph B. Norros, Philadelphia office; C. H. Bristol, Chicago office, and S. F. Alden, San Francisco agent.

THE AMERICAN ADVERTISING INDICATOR COMPANY, of St. Joseph, Mo., was represented by Graham Burnham, Gerald Livergood and Clifton George, who explained the merits of the company's indicator.

THE CHASE-SHAWMUT COMPANY, of Newburyport, Mass., had samples of the well-known Shawmut soldered rail bonds which are now used extensively throughout the country. Frank D. Masterson looked after the interests of the company.

THE CONSUMERS' RUBBER COMPANY, of Cleveland, Ohio, makers of the linotape, fish paper, tarpon, paper, cotton tape, horn fiber and friction tape, was represented by S. R. Duffield, A. L. Dittrich, Robert Mathias and F. N. Hitchings.

THE "ELECTRICAL REVIEW," of New York, had space in Building No. 4 where copies of the paper were distributed. There were in attendance Charles W. Price, A. A. Gray and S. H. Goddard.

THE FLEXIBLE MESH RAIL BOND COMPANY, of Ypsilanti, Mich., had samples of its flexible mesh and rail bonds. J. G. Clark and J. L. Matson were in attendance.

THE "INTERURBAN RAILWAY JOURNAL," of Indianapolis, had good space opposite the main entrance. George W. Warmoth distributed copies of the paper.

THE OLESON-WILLIAMS COMPANY, of Toledo, Ohio, showed its lightning arresters for transmission lines. The company was represented by Albert Oleson, W. A. Williams, Charles C. Williams and Earl B. Hoff.

THE PITTSBURG INSULATING COMPANY, of Pittsburg, showed samples of insulating cloths and papers. Philip F. Nowell and Clifton F. Schmidt, Jr., looked after the company's interests.

THE QUINCY, MANCHESTER, SARGENT COMPANY, of Chicago, exhibited with the Wallace Supply Company in Building No. 4.

THE STERLING VARNISH COMPANY, of Pittsburg, had at the convention S. C. Schenck, W. V. Whitfield, C. L. Cool, A. S. King and Charles A. Baker, to talk insulating compounds. The compounds were shown in Building No. 1.

THE TROLLEY SUPPLY COMPANY, of Canton, Ohio, showed Knutson trolley retrievers, American catcher, Climax combination arc and incandescent headlight, Climax plain arc headlight and Globe dash headlight. The representatives included J. E. McLain, J. Hollis and E. Rhoads.

THE COMBINED EXHIBITS OF THE J. G. BRILL COMPANY, AMERICAN CAR COMPANY, G. C. KUHLMAN CAR COMPANY and JOHN STEPHENSON COMPANY occupied a large portion of a building to the right of the main entrance. As usual, the exhibit of these companies was comprehensive and complete. The exhibit consisted in part of five cars. One of the cars was from an order just completed for the Boston Elevated Railway Company for thirty-seven cars. This car measures 33 ft. 3 ins. over the body and has an all-steel under frame; it includes the Brill "grooveless post semi-convertible" window system. A combination passenger and baggage car, 42 ft. over the body, also including the Brill grooveless post semi-convertible window system, was one of six now being built for the Lexington Railway Company, of Lexington, Ky. The Brill "grooveless post convertible" type was represented by a car

of an order of four with 20-ft. 7-in. bodies, 4-ft. front platforms and 6-ft. "Detroit" platforms at rear, built for the Lincoln Traction Company, of Lincoln, Neb. Two cars with the "pay-as-you-enter" feature were also a part of the exhibit, one arranged for single-end operation with a 9-ft. platform at the rear and the other for double-end operation with 6-ft. platforms. All of these cars were mounted on Brill trucks. The truck exhibit included the various types built by the J. G. Brill Company, one of which was from an order for forty being built for the Italian Government Railways. This truck measures 11 ft. 11 ins. over the solid forged side frames and is mounted on 42-in. wheels. This enormous truck attracted a great deal of attention, particularly with regard to the huge solid forged side frames. A number of styles of the "Winner" type of seat, manufactured by the Brill Company, were shown, and rolls of rattan seat covering material, both lined and unlined, were critically examined by large numbers and received most favorable comments. At the office, which adjoined the exhibit and was commodious, well furnished and handsomely decorated, a great deal of interest was centered in the new type of brake hanger, known as the "Noiseless," which the Brill Company has put on the market during the last year and which appears to be a great success. Various types and sizes of springs of Brill manufacture were shown among the articles of car and truck equipment. The headquarters of these companies, in the city, was in a suite of parlors at the Southern Hotel, where models of trucks were exhibited and which was a meeting place for many of the prominent members who attended the convention. Large four-color reproductions of the three patented types of cars built by the Brill Company, mounted in gold mats, were distributed at the parlors and at the exhibit. The companies were represented by S. M. Curwen, George M. Haskell, D. B. Dean, George H. Tompurr, Frederick W. Brill, F. L. Markham, H. A. Heulings, J. Elwood Brill and Byron O. Brill.

WENDELL & McDUFFIE, of New York, were represented by Jacob Wendell, Jr., R. L. McDuffie and N. E. Oesterreichs.

THE ELMER P. MORRIS COMPANY, of New York, was represented by E. P. Morris, E. D. Hinman, W. J. Beckert and W. N. Sweeten.

JOHN LUCAS & COMPANY had at the convention H. A. Clark and Mr. Hunt.

THE MINIATURE SALES COMPANY was represented by Lewis C. McLouth, C. M. Tower, Harmon Wendell and Thomas Dillon.

THE EQUIPMENT PROTECTION COMPANY had in attendance J. M. Gibbons and H. J. Robbins.

THE CHICAGO VARNISH COMPANY had in attendance Fred L. Olds and Geo. S. Bigelow.

THE BALDWIN LOCOMOTIVE WORKS were represented by John R. Dickey and Warren Thorpe.

THE ACME WHITE LEAD AND COLOR WORKS were represented by the following: B. E. Brown, C. F. Elliott and H. N. Turner.

THE LOBDELL CAR WHEEL COMPANY was represented by Frederic A. Lex.

THE OLIVER MACHINERY COMPANY was represented by J. Herbert Armstrong.

THE WATTS & UTHOFF SUPPLY COMPANY, of St. Louis, Mo., sent to the convention H. G. Paro and J. B. Tower.

THE GLIDDEN VARNISH COMPANY sent to the convention J. B. Ludlow, F. B. Stage and W. E. Ludlow.

THE MCGRAW PUBLISHING COMPANY, of New York, was represented by the following: James H. McGraw, J. M. Wakeman, H. W. Blake, C. B. Fairchild, Jr., Cale Gough, George S. Davis, H. B. Abbott, C. A. Babtiste, Frank Meyers, W. K. Beard, C. B. Walker, Jr., and C. J. Doyle.

THE WILSON COMPANY, of Chicago, was represented by Hugh M. Wilson, Francis W. Lane, Daniel Royle, William Forsyth, L. E. Gould, John N. Reynolds, J. Boyd, Frank S. Dinsmore, Louis Pelletier, William Padgett, E. J. Hunt, J. N. Nind, Jr., Harold F. Lane, C. R. Mills, H. K. Stroud, J. A. Kucera, F. J. Phelps and C. Smith.

R. W. MARSHALL & COMPANY, of New York, dealers in electric railway supplies, were represented by R. W. Marshall. It will be remembered that this company recently secured the New York agency for Anderson line material.

M. A. SINGER, of New York, decorated many of the booths at the Columbus convention, including the space of the McGraw

Publishing Company, and the pleasing effects secured were the subject of much favorable comment from delegates and attendants.

WILLIAM LINTERN attended the convention in the interests of the Lintern Car Signal Company, of Cleveland.

THE HALE & KILBURN MANUFACTURING COMPANY, of Philadelphia, showed over a dozen different styles of seats in rattan, leather and plush coverings, with high and low backs, and with and without armrests. The new style "all-steel walkover" seat, made to special order for the New York Central & Hudson River Railroad all-steel coaches, of which 180 are on order, attracted universal attention from the opening to the close of the exposition, this being the first strictly fireproof seat put in active service on a large scale in America. The contract for this order involving 6000 car seats was practically completed on the contract date, Oct. 15, 1906. Other all-steel seats were also shown, including the new fireproofed "walkover" seat made for fifty new cars for the Boston Elevated Railway Company. A unique mahogany armchair, fully upholstered in leather, such as used on the highest grade of parlor cars on steam railroads, was shown as being especially adapted to interurban car service. The Hale & Kilburn Manufacturing Company is now filling an order for the seats for 250 new cars for the United Railways of San Francisco, making 300 cars in all that the Hale & Kilburn company has supplied with seats this year for service in San Francisco. A. F. Old, H. D. Bigelow and S. A. Walker were in attendance.

### PRIVATE CARS AT THE CONVENTION

The group of private cars on the loop near the main entrance to the exposition grounds formed one of the most interesting exhibits. Five of them brought parties from distant parts of the three States of Ohio, Michigan and Indiana.

H. A. Nicholl, general manager of the Indiana Union Traction Company, brought a party from Anderson and Indianapolis, and was one of the first to arrive. F. T. Hepburn, general manager of the Lima & Toledo Traction Company, brought a party of twenty-five from the vicinity of Ft. Wayne and Lima in the new car "Van Wert," designed for the limited service on that road. President Edward C. Spring, of the Central Electric Railway Association, brought a small party from Dayton in his private car, "Stillwater," and on the return trip he entertained a party of Eastern friends with a 250-mile trip over several lines from Columbus to Lima and back to Dayton. During the trip a speed test was made in which 3 miles were covered in 2 minutes and 50 seconds. The party was most enthusiastic over the trip, particularly over the scenery along the Dayton, Covington & Piqua. The party included Mr. and Mrs. E. C. Spring; James Adkins, treasurer; Frank R. Henry, auditor, and M. R. Griffith, chief electrician, United Railways Company, of St. Louis; Paul Winsor, chief engineer, H. L. Libby, superintendent of car shops, Clarence E. Learned, superintendent of inspection, Boston Elevated Railway Company; Charles F. Bigelow, superintendent Columbus Improvement Company, Dallas, Tex.; John W. Ogdin, general manager, H. N. Hammond, superintendent of track construction, and F. R. Persons, assistant superintendent, Concord, Maynard & Hudson Railway Company, Maynard, Mass.

The parlor car "Virginia," of the Toledo & Indiana Railway Company, made a very fast run over the Dayton & Troy and Western Ohio lines on its return trip from the convention last Saturday. The run from Dayton to Lima, 80 miles, was covered in about 2 hours and 20 minutes, and a speed of 67 miles an hour was made on certain stretches. E. E. Darrow, general manager of the company, was in charge of the car. His guests included ten ladies and fifteen gentlemen.

The longest trip to the convention was made by a party from the Detroit United Railways, of Detroit, in the new private car, 7500, of that system. This car, which was described in the STREET RAILWAY JOURNAL of Oct. 13, is equipped with all the conveniences of the finest home, and is, perhaps, the speediest electric car in the Central West. On the return trip the party was made up of Irwin Fullerton, auditor Detroit United, and wife; E. J. Burdick, superintendent of motive power Detroit United; H. S. Swift, secretary and auditor Toledo Railways & Light Company, and wife; Carl Wilcoxson, superintendent Western Ohio; M. M. Baxter, electrical engineer Western Ohio; C. C. Collins, general freight agent Western Ohio, and wife, and George S. Davis, STREET RAILWAY JOURNAL, and wife. The party left Columbus at 10 a. m., and enjoyed a delightful luncheon on board. The 80 miles from

Dayton to Lima were covered in the remarkable time of 2 hours 15 minutes, and over several short stretches a speed of 71 m. p. h. was reached. Friday evening the party were the guests of Manager F. D. Carpenter, of the Western Ohio Railway, at a box party, followed by a luncheon at the Lima Club. The Michigan members of the party remained over night in Lima, continuing on to Detroit Saturday, reaching that city in the afternoon. The Detroit car covered 604 miles on this trip.

The "Martha" was the Indiana Union Traction Company's car, and came from Indianapolis and Anderson with a party upon the invitation of H. A. Nicholl, general manager of the company. It has also been described in these columns.

To the end that the cars might be operated into the city, the Indiana, Columbus & Eastern Railway Company, controlling the entrances to Columbus from the east and west, extended the courtesy of its road and arranged for pilots, while the Columbus Railway & Light Company, operating the city lines, arranged for ample terminal facilities for the storage of private cars.

### THE ANNUAL BANQUET

The annual banquet of the American Street and Interurban Railway Association was held in the main dining-room of the Southern Hotel, and was attended by about 200 persons, including a large number of ladies. It was very successful in both menu and service and reflected great credit on the local committee and caterer. The tables were handsomely decorated, and at the head table was placed the statue of "Triumph," with its marble pedestal, the gift of the four associations to Mr. Ely. The menu cover was particularly tasteful and represented a young woman seated on the Ohio State Capitol, supporting the trolley wires by which a large number of electric cars were being run in every direction.

R. Grosvenor Hutchins, the chairman of the local committee and president of the Columbus Board of Trade at the time that the arrangements for meeting at Columbus were consummated, was the toastmaster of the evening, and was particularly happy in introducing the different speakers. The first on the list of toasts was "The Electric Railway and the Municipality," which was responded to by Hon. H. J. Booth, a prominent member of the Columbus bar and author of "Booth on Street Railway Law." Mr. Booth presented a scholarly address on the subject assigned to him, and offered an effective argument with statistics against municipal ownership of street railways under American conditions. The next address was upon "The Association and the Future," and was delivered by Mr. Ely. It was expressed in the speaker's most happy vein and awakened great enthusiasm and applause. The eloquent orator of the Columbus Board of Trade and its secretary, John Y. Bassell, was then called upon to reply to the toast "Columbus and the Convention," which he did to the satisfaction of all present. The name of Oscar T. Crosby was down on the program for the next toast, "Electric Railways in Foreign Lands," but owing to an unexpected and important business engagement, he was unable to be present. His place was taken by Hon. D. J. Ryan, of Columbus, who spoke on the same theme and showed by his speech that he had a broad knowledge of the subject. The final toast was the "Interurban Railway and the Commonwealth," and was delivered by Hon. H. M. Daugherty, of Columbus. Mr. Daugherty was introduced as "the next Governor of Ohio," and judging from the applause with which he was greeted, would certainly have been elected to that honor if it should have been left to the votes of those present. His address was replete with humor. The banquet closed at shortly after 1 o'clock.

In addition to the main banquet, an informal reception and dinner was held by the Accountants' Association in the small dining-room of the Southern Hotel, on Wednesday evening. The menu was printed on association buff and bore on the front cover an excellent portrait of President Brockway. The delegates sat at separate tables, and between fifty and sixty were present. There were speeches from the president, president-elect, all of the ex-presidents who were present, and from P. V. Burlington, secretary and auditor of the Columbus Railway & Light Company.

The Riggs & Sherman Company, of Toledo, Ohio, engineers for the proposed Toledo & Defiance Railway, has completed surveys from White House, on the outskirts of Toledo, to Defiance. The Riggs & Sherman Company has been engaged to take charge of the engineering and electrical work for the proposed Northern Michigan Traction Company, of Traverse City, Mich. The line will extend from Traverse City to Cheboygan, passing through Charlevoix, Petoskey, Harbor Springs and a number of less important resorts.

## SPECIALS TO COLUMBUS

Owing to the fact that many members of the Manufacturers' Association were obliged to be in Columbus during the week ending Oct. 13, and also because many of the delegates to the American convention did not care about reaching Columbus until the morning of Oct. 17, there were no special trains run to the convention this year, as has often been the case in the past. Special arrangements were made, however, by both the New York Central and Pennsylvania Railroads for handling passengers from the East, and special cars were assigned to the convention attendants on the Pennsylvania train leaving New York at 8:15 p. m. on Oct. 13, and on the "Southwestern Limited" of the N. Y. Central, leaving New York Oct. 14. The latter train met at Albany quite a large party which came by special cars from Boston and vicinity over the Boston & Albany division, and reached Columbus early Monday morning. They were joined by many delegates in the towns along the route, and altogether occupied practically all of five cars. Special cars were also attached to several of the trains leaving Chicago on the different routes running to Columbus on Saturday night and Sunday night.

## THE SOCIAL SIDE OF THE CONVENTION

The social events of the convention were in charge of the entertainment committee of the Manufacturers' Association and of the local reception committee. The latter consisted of R. G. Hutchins, chairman, and fifteen prominent residents of Columbus, with their wives. Special attention was given by both of these committees to the entertainment of the ladies.

The first social function was an informal reception, given Monday evening at the Southern Hotel. Music was provided by an orchestra, and the main hall and foyers of the hotel were a brilliant sight. This entertainment was followed Tuesday evening by the principal reception of the week, which was held at Memorial Building. The ladies and gentlemen of the local reception committee, with the officers of the association, received the delegates and others in attendance. The hall was handsomely decorated and dancing was continued to the music of a large orchestra until a late hour.

On Wednesday evening the entertainment committee of the Manufacturers' Association provided two theater parties, and delegates were enabled to make their choice between two plays. The entire seating capacities of the Shubert and Southern Theaters were made available by special tickets issued by the secretaries of the different associations. There were no reserved seats. The plays presented were "Fantana," at the Shubert Theater, and the William H. C. Jeffries combination at the Southern Theater, in the play "The Stoops to Conquer." Boxes were placed at the disposal of the executive committees of the different associations, and it is hard to tell which play drew the largest crowd or was most thoroughly enjoyed.

On Thursday evening a song recital and tea was given for the benefit of the ladies in attendance at the Arlington Country Club, some little distance out of Columbus, and in the evening the annual banquet of the parent association took place at the Southern Hotel.

On Friday night a vaudeville entertainment was presented by the Manufacturers' Association at the Great Southern Opera House, and although a number of the delegates had left the city enough remained to constitute a large and enthusiastic audience. The program included songs by the Third-Rail Glee Club, under the direction of Carl Koenig, with a solo by Henry Frillman, A. L. Havens, through the courtesy of the Ohio Brass Company, performed some mysterious tricks as a conjurer. Peter Small, of the Acme Automatic Street Indicating Company, then gave a performance on the violin. R. M. Campbell followed with some negro dialect anecdotes. John H. Thomas, of the Standard Paint Company, presented several vocal selections, and was followed by Thomas H. Bibber in some clever impersonations. Through the courtesy of Wendell & McDuffie, Mrs. William Nowland Amory gave a humorous monologue entitled "Behind the Curtain." Clarence E. Billings, of the Colonial Steel Company, followed with some dialect stories which were thoroughly enjoyed. The final entertainment was a sketch called "A Game of Cards," presented by E. J. Wendell, F. M. Verdi, W. M. Dennett and Miss Ella Denison, and was thoroughly enjoyed by all. A sketch outside of the regular program was the presentation to H. C. Pirrung, chairman of the Columbus entertainment committee, of a badge as a token of the appreciation of the delegates and others

in attendance, of the important part which had been taken in caring for the needs of the visitors. The presentation speech was made by Charles C. Peirce, of Boston.

Through the courtesy of members of the local reception and entertainment committees, cards giving the privileges of the Columbus Club and other social clubs of the city were sent to a large number of the delegates and other attendants at the convention. These privileges were used to a very large extent, and were thoroughly enjoyed and appreciated. Perhaps the special feature of the social side of the convention, if one could be so designated beyond the others, was the large number of very enjoyable private dinners given during convention week at the different hotels and clubs. There was a large number of these dinners every evening, and they added very much to the pleasure of the visit to Columbus.

## THE ANNUAL MEETING OF THE MANUFACTURERS' ASSOCIATION

The annual meeting of the Manufacturers' Association was held on the afternoon of Thursday, Oct. 18, in the main convention hall. It was called for the purpose of electing five new members of the executive committee to take the places of those made vacant by the expiration of the terms of office of Charles C. Peirce, W. M. McFarland, George J. Kobush, Edward H. Baker and John W. Nute, and also to fill the uncompleted term of two years made vacant by the resignation last spring of F. S. Kenfield. Messrs. Peirce and McFarland were elected to succeed themselves, and H. C. Evans, of the Lorain Steel Company; A. H. Sisson, of the St. Louis Car Company, and K. D. Hequem-bourg, of the Franklin Car Heating Company, were elected to fill the remaining three-year term positions. Hugh N. Wilson, president of the Wilson Company, of Chicago, who was appointed temporarily last spring to fill the position made vacant by the resignation of Mr. Kenfield, was elected to serve the two years remaining of that term.

President McGraw announced that the finances of the association were in good condition, and that instead of a deficit as last year, the association would carry over a balance in the neighborhood of \$1,000. The secretary announced that the association now contained 269 members and that there were 207 exhibits at Columbus. The new president of the American Association, Mr. Beggs, also made an address. He complimented the association on the excellence of the exhibits at Columbus, and assured them of his interest in their work.

## CHICAGO COMPANIES SUBMIT TRACTION ORDINANCES

The traction companies of Chicago on Thursday, Oct. 25, submitted an ordinance to the local transportation committee of the City Council for the settlement of the traction question. The ordinance covers the lines of the Chicago-City Railway Company and the Chicago Union Traction Company. It provides that instead of a permanent franchise for twenty years the companies shall be licensed during satisfactory service; that the companies shall pay a fixed percentage from their receipts as compensation to the city; that the companies shall be required to pave, repair, clean and sprinkle the streets occupied by their tracks; that they shall bring their lines up to modern standards and give first-class service; that they shall abandon the train system and operate single cars of modern construction. Universal transfers between companies, except in the downtown district, are provided for. The city may require constructions of subways in the downtown districts in accordance with plans and specifications to be approved by the board of engineers. The companies agree to expend \$5,000,000 for that portion of the subway used for street railway purposes. After a five-year period extension of the subway may be ordered by the city, and the companies are to bear their portion of cost as determined by the board of engineers. The city may require the installation of underground trolleys after five years. The lines may be extended every year under order of the City Council. The right of the city to purchase, at any time, all of the street railways within the city of Chicago is among the provisions of the measure. A percentage of net receipts to be fixed during the negotiations is to go to the city, but the city, in lieu of receiving the compensation, may require the fares to be reduced.

## FINANCIAL INTELLIGENCE

WALL STREET, OCT. 24, 1906.

**The Money Market**

There has been a decided change in the monetary situation during the past week, rates for money here and abroad ruling materially higher than those prevailing a week ago. The recent advance in the Bank of England discount rate to 5 per cent was followed by a further rise to 6 per cent this week, a rate that has been equaled only twice since 1890. The action of the Bank of England in advancing the rate to the present high level was due entirely to a desire to keep the present gold holdings of that institution intact. Since Sept. 10 American bankers have succeeded in withdrawing about \$45,000,000 gold from the foreign market. The decline in sterling exchange last week threatened to result in further withdrawals of the precious metal, and this, together with the heavy demand upon the Bank of England in connection with the Egyptian cotton crop movement, made it necessary for that institution to adopt measures that would effectually check the inroads being made upon its gold holdings. The advance in the minimum rate to 6 per cent resulted in a sharp rise in local rates for sterling exchange to a point which makes further imports of gold from London out of the question, at least for the present. This, together with the heavy withdrawal of funds by the interior institutions for crop moving purposes, brought about a sharp advance in the rates for money in the local market. Money on call, which was in abundant supply at the close of last week at  $\frac{3}{4}$  and  $\frac{3}{8}$ , advanced to 7 per cent, while the rates for time loans advanced about  $\frac{1}{2}$  per cent. Sixty days to four months money commanded  $\frac{6}{8}$  per cent, while for the longer periods 6 per cent was paid for accommodations. Another factor working in favor of higher rates in the local market was the poor showing made by the clearing house banks on last Saturday. Loans increased \$16,700,700, due in part to the shifting of accounts from London to New York. The decrease in cash was \$3,934,300, and as the reserve required was \$2,889,150 larger than in the preceding week, the surplus reserve was reduced by \$6,823,450. The surplus now stands at \$6,200,950, and is considerably smaller than that held by the banks in the corresponding periods of recent years. In the corresponding week of 1905 the surplus was \$12,583,150, as compared with \$17,853,925 in 1904, \$17,944,450 in 1903, \$17,781,475 in 1902, \$14,713,175 in 1901, and \$2,947,700 in 1900. The heavy decrease in the bank reserves and the prospects of a continued heavy outward movement of funds for crop and general business purposes made further relief by the National Treasury almost imperative. Secretary Shaw announced that no further advances would be made on gold engaged for import to this side but that he would extend further relief to the money market by allowing the banks to increase circulation to the amount of \$18,000,000. According to the plan of the Secretary of the Treasury, national banks may take out new circulation to the amount noted above by depositing approved securities, other than Government bonds, for deposits already made, the bonds thus released to be used immediately as a basis for new circulation. When taking out circulation the banks must agree to retire the full amount between March 15 and Aug. 10, 1907. At the close of the week the money market reflected the new relief plan adopted by Secretary Shaw in a slight easing off in money rates, especially those for fixed periods. It is not expected, however, that there will be any material decline in rates in the near future. The shipments of currency to the inland cities has been upon an enormous scale, the transfers for the week ending Oct. 20 being larger than in any one week since the beginning of the crop moving season. In addition to these heavy shipments, provision must also be made for the Nov. 1 interest and dividend disbursements, which will be quite heavy.

**The Stock Market**

The speculative situation continues to be governed by monetary and political conditions, and the rather serious developments in connection with the money market were responsible for the material decline in prices for stocks during the week. Heavy liquidation followed the action of the Bank of England governors in advancing the minimum rate of discount to 6 per cent on

Friday, after having failed to make any change in the rate at their regular meeting on Thursday. It was at once believed that this unexpected increase was significant of changed conditions affecting both the money and security markets, and this belief led to heavy selling of stocks for both home and foreign account. Prices broke violently on Friday and Saturday, and although there was a substantial rally on Monday, the feeling was very unsettled, and a renewal of the selling movement is among the probabilities. Sterling exchange scored a sharp advance, with an urgent demand for cable transfers, indicating that heavy remittances were being made from this side in payment for securities sold by London and to take up maturing obligations. Our bankers had borrowed heavily in London, and the heavy withdrawals of gold from London left the Bank of England in such a position that the adoption of measures to check the outflow of the yellow metal became necessary, and if the 6 per cent rate proves ineffective a further advance will certainly be made. The situation abroad is clearly indicated by the cabled statement that the Bank of France has offered to release from £6,000,000 to £8,000,000 gold to strengthen the position of the Bank of England, something that has not been done since the Baring failure.

The political developments appear more favorable than otherwise, but these will continue to exercise a deterrent influence on speculation until after the election. A political scare does not appear at all probable, as practically all weakly-held stocks were shaken out in the sharp break of the past week. Favorable developments received scant attention, and the increase in the dividend on Amalgamated Copper had been discounted before the announcement. General business conditions have not materially changed, and the activity in all lines means a continued demand for money and its employment in industrial and commercial channels. The movement of the crops has augmented the demands upon New York, and with the weaker foreign situation there is less money available for speculative purposes until such time as funds begin to return to this center from the inland cities. Railroad earnings are large and increasing, and there is complaint of an insufficient equipment, notwithstanding the enormous increase in rolling stock during the past years. So far as the fundamentals are concerned there does not appear to be any warrant for pessimism, and with the elections out of the way, a resumption of the campaign on the long side seems certain.

The local traction stocks have acted much better than many of the high priced issues, but speculation in them is not likely to broaden until all political uncertainty is removed. On the basis of present and prospective earnings the traction shares are more attractive than many of the railroads which have been conspicuous market features during the past few months.

**Philadelphia**

The market for local traction stocks has been fairly active during the past week, but prices have displayed more or less irregularity. Interest in the market shifted to Philadelphia Rapid Transit, which was actively traded in, about 16,000 shares changing hands from 29 to 28 and back to 28 $\frac{3}{8}$ . Lehigh Valley Transit issues, which were conspicuously active and strong in last week's dealings, reacted rather sharply, the common declining from 16 $\frac{1}{2}$  to 15 $\frac{1}{2}$ , on the exchange of 1000 shares, while the preferred broke from 27 $\frac{3}{8}$  to 25, and rallied later to 25 $\frac{3}{8}$ , about 13,000 shares changing hands. Union Traction was decidedly firm, about 400 shares selling from 64 $\frac{1}{8}$  to 64 $\frac{3}{8}$ . Other sales included American Railways at 52 and 51 $\frac{1}{2}$ , Consolidated Traction of New Jersey at 78, Philadelphia Traction at 97 $\frac{1}{8}$  and 97 $\frac{1}{2}$ , Railways General at 6, Rochester Railway & Light preferred at 95, United Companies of New Jersey at 255 $\frac{1}{2}$ , Philadelphia Company at 49 $\frac{3}{4}$ , and Philadelphia Company preferred at 48 $\frac{3}{8}$ .

**Baltimore**

Trading in the traction issues at Baltimore has been quiet, and although prices moved with more or less irregularity, the net changes for the week were confined to the fractions. United Railway common advanced from 15 $\frac{1}{4}$  to 15 $\frac{1}{2}$ , on the purchase of about 2000 shares, while the certificates representing deposited stock sold to the extent of 3500 shares, from 15 $\frac{1}{2}$  to 16 $\frac{1}{2}$  and back to 15 $\frac{1}{2}$ . The 4 per cent bonds held steady, about \$50,000 selling at 89. The income certificates were active, upwards of

\$120,000 changing hands from 69¾ to 70½, and back to 69¾. The new refunding 5s sold at 89¾ and 89¾. Other sales were: Baltimore City Passenger 5s at 105¾, Lexington Street Railway 5s at 101¾, Norfolk Railway & Light 5s at 100½, and Atlanta Street Railway 5s at 105¾.

**Other Traction Securities**

The Chicago market for traction stocks was dull and featureless. Dealings consisted largely of odd lots, and price changes were insignificant. Chicago & South Park Elevated sold at 5½ and 5¼, and the preferred at 16½ and 16; Metropolitan Elevated common brought 26, and the preferred sold at 68½; South Side Elevated was a trifle easier, sales being made at 93 and 92½; Union Traction sold at 4¾, and the preferred at 16½. Very little activity developed in the Boston market. Boston Elevated, after selling at 155½, ran off to 154¾, and later rallied to 155. Odd lots of Massachusetts Electric common sold at 18½ and 18¼, and small amounts of the preferred brought prices ranging from 71 to 69½. Boston & Suburban common sold at 15, and Boston & Westchester common brought 30. West End common sold at 94 and 94½, and the preferred at 108½.

Cincinnati, Newport & Covington common stock was very active throughout the past week, but the meeting of the stockholders without action on a recent proposition and the reiteration by President Ernst that there would be no dividend on the common stock caused the securities of that company to sag to 79 for the common and 96¾ for the preferred. Toledo Railways & Light sold at 32, a decline of ½. Cincinnati, Dayton & Toledo had a fractional advance to 27¼. Cincinnati Street Railway sold at 121, even with previous figures.

Lake Shore Electric preferred showed considerable strength, selling at 66 for the old issue and 60½ for the new. This is due to the report that the company may soon place this issue on the dividend list. Northern Ohio Traction & Light was very active at 28½ on the consummation of the Canton-Akron deal. Cleveland & Southwestern common has been quite active at 13 to 14, and several lots of the preferred sold at 66. Cleveland Electric shows no improvement, selling at 66 and 67, declining the early part of this week to 65¼.

**Security Quotations**

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

	Oct. 17	Oct. 24
American Railways .....	52	51%
Boston Elevated .....	156	153
Brooklyn Rapid Transit .....	79¼	78¼
Chicago City .....	—	140
Chicago Union Traction (common) .....	4¾	4%
Chicago Union Traction (preferred) .....	16%	15½
Cleveland Electric .....	—	65¼
Consolidated Traction of New Jersey .....	76	76
Detroit United .....	95½	92
Interborough-Metropolitan, W. I. .....	37%	36½
Interborough-Metropolitan (preferred), W. I. .....	71½	76
International Traction (common) .....	69	69
International Traction (preferred), do. .....	79½	79½
Manhattan Railway .....	145	142
Massachusetts Electric Cos. (common) .....	18½	18
Massachusetts Electric Cos. (preferred) .....	79	69½
Metropolitan Elevated, Chicago (common) .....	26	27
Metropolitan Elevated, Chicago (preferred) .....	66	66
Metropolitan Street .....	105	104
North American .....	91¼	89
North Jersey Street Railway .....	27	27
Philadelphia Company (common) .....	49	49
Philadelphia Rapid Transit .....	29	28
Philadelphia Traction .....	97¾	97½
Public Service Corporation certificates .....	66	65½
Public Service Corporation 5 per cent notes .....	95	94¾
South Side Elevated (Chicago) .....	93	92
Third Avenue .....	125	123
Twin City, Minneapolis (common) .....	112½	111½
Union Traction (Philadelphia) .....	64¾	64½
West End (common) .....	—	—
West End (preferred) .....	—	—

\* Ex-dividend.

**Metals**

According to the "Iron Age," the urgency for pig iron continues, and there has been an advance all along the line and in all sections of the country. Steel is scarce over the country and Eastern billets have actually been sold in the Pittsburg district for \$32, delivered. There have been further large sales of steel rails, including 85,000 tons additional for the New York Central, thus nearly doubling the former purchase for 1907. The Texas Pacific has contracted for 30,000 tons, and the Northern Pacific for 10,000 tons additional. Lake shipbuilders have ordered 30,000 tons of material.

The position of the copper metal market continues strong. The demand is still urgent, but no change in prices have taken place during the week. Electrolytic is in heavy demand at 21¼c to 22c. Lake is quoted at 21¼c to 22½c, and castings 21¼c to 21¾c per pound.

**A COMPANY INCORPORATED TO CONNECT HUDSON RIVER TOWNS NEAR NEW YORK**

The West Shore Traction Company was incorporated Saturday, Oct. 20, with a capital of \$250,000 to operate a street surface line from Orangetown, Rockland County, to Piermont, to Grand View, South Nyack, Nyack, Upper Nyack, Congress, Haverstraw and other places in Rockland County. The directors are Frank J. Whan, A. J. Whan, E. J. Welsh, N. E. Heine, G. P. Fall, G. S. Fulton, of New York City; A. S. Brown, Brooklyn; E. G. Roff, Jr., Orange, N. J., and E. A. Hilton, Paterson, N. J.

**OHIO COMMISSIONERS MAY HAVE CONTROL OF CITY LINES**

It has been generally supposed that the Ohio State Railroad Commission, whose jurisdiction was recently extended to cover electric railways, was to have control only of the interurban lines, but experts who have been studying the law creating the Railroad Commission have reached the conclusion that the commission may have control over many of the street railway systems of the State. It was clearly the intention of the State Legislature to exempt these lines from the operation of the law, but the very clause inserted to that purpose, because of its lack of proper specifications would seem by implication to give the commission control of these lines. The clause in question is as follows: "This act shall not apply to street and electric railways engaged solely in the transportation of passengers within the limits of cities." The facts of the situation are that practically none of the large city systems in Ohio operate exclusively within the limits of municipalities, having many lines extending beyond the corporation limits, while nearly all of these roads handle package freight and U. S. mail. There is some question, therefore, that the commission may not be obliged to extend its authority over such city lines.

**THE EXTENT OF THE LAKE SHORE FIRE**

The Lake Shore Electric Railway suffered a loss of about \$60,000 by a fire which partially destroyed the company's repair shop and contents last Wednesday, to which brief reference was made in the STREET RAILWAY JOURNAL of Oct. 20. The car, machine and carpenter shops were completely destroyed and the armature room was badly damaged. The stock room, train dispatcher's office and master mechanic's office were saved. The large car sheds adjoining the building were saved by a fire wall. All of the machinery in the repair shop, including a new wheel turning lathe, wheel press and other tools, was destroyed. Four large interurban cars, one of them new, which was just being equipped with motor equipments for the limited service, were totally destroyed, as were six new motors. The walls of the building were left standing, and a contract has already been placed for erecting a new roof and rebuilding the shop as it was. The company has been planning to erect a new and much larger repair shop either at Fremont or Sandusky, and there will probably be no change in these plans. Repair work is being taken care of temporarily at the company's shops at Sandusky and Beach Park. The loss was fully covered by insurance.

## A STEP TOWARD THE SOLUTION OF THE CHICAGO PROBLEM

President T. E. Mitten, of the Chicago City Railway, and W. W. Gurley, general counsel for the Union Traction Company, returned to Chicago from New York Oct. 18, and reported that there were no objections to the general principles for a settlement of the traction situation as laid down by Mayor Dunne and his advisers in the "Werno letter." The indeterminate license plan with the right of the city to purchase any time it has the disposition and the money was conceded by the New York men who are expected to furnish the money, and all that was asked was that the city would agree to terms on which a fair return could be expected on the investment. The amount of money needed had been roughly estimated at \$4,000,000.

"The reason for that," explained Mr. Mitten, "is that under the plan proposed the work shall be left to a board of engineers, one to be selected by the city, one by the company, and the third by the other two. Bion J. Arnold, an engineer for the city, has estimated the cost of putting the lines into good condition at this figure. It is not an absolute one, however, but subject to the decision of the engineers."

It is possible, however, the city may ask for a smaller expenditure. Under the terms of the proposed agreement, whenever the city elects to purchase the properties it must pay not only their present values, but in addition the cost of rehabilitation, and the less the last item the less the purchase price. It is understood Mayor Dunne will insist on A. B. Dupont, of Detroit, as the city's representative on this engineering board, and Mr. Dupont has made his reputation as a street railway builder by doing work cheaply.

"The preliminary draft of the proposed ordinance prepared by the companies' representatives was in the main found acceptable to the Eastern stockholders," continued Mr. Mitten. "Such minor changes as were found necessary are now being made, so that it is expected the corrected draft of the proposed ordinance will be ready for the Council committee on local transportation some time next week."

Mr. Gurley explained the changes suggested were mainly those of wording suggested by the Eastern lawyers to safeguard possible legal technicalities.

"We made some changes," said he, "but the principles remain the same. We propose to show the Council the new company can finance any fair ordinance the city is disposed to give us. Of course, if we meet with obstacles we cannot overcome then there will be no trade. If we can come to a satisfactory settlement it is all right. If not there will not be any settlement now."

"The tentative ordinance, drawn on the lines of Mayor Dunne's 'Werno letter,' was submitted to our New York principals. On the main points they declared it satisfactory, and gave assurances that if it passed the Council they would finance the reconstruction work. Of course, this is based on the belief that the Council will allow us a fair valuation for our present property and concede a fair division of the profits. The great item of encouragement is that an ordinance framed on the indeterminate license plan can be financed."

The main points for dispute when the ordinance gets before the committee are expected to be over the present valuation of the railway properties, fixing part of the price the city would have to pay if it purchased, and the percentage of the profits which would go to the city and the percentage to the companies. The financiers are understood to be more concerned about the latter item than the former, and it is probable the valuation will be made a subject of trading when the division of profits comes to be settled. The ordinance will have blanks for the figures to be filled out by the committee.

On the subject of whether the Easterners would accept Mueller loan certificates in place of cash for their properties if the city bought, the word brought from the East was that that is a problem yet to be met. If they are sustained by the courts they probably would be.

As to the subway, the desire of the companies, if they build one, is to own it and hold it as a part of their properties. It might be possible, however, to make some arrangement whereby a joint ownership with the city would be possible.

If an ordinance which the Union Traction Company can accept is passed it will be in the name of the Chicago Railways Company, which was formed some time ago for the purpose of taking over the Union Traction holdings. The design is to buy the stock of the individual stockholders in the underlying companies so as to eliminate friction.

## TEN RIDES FOR 25 CENTS IN DETROIT

Announcement was made Oct. 18, by President Hutchins, of the Detroit United Railway, that early in the week beginning Monday, Oct. 22, the company would put into effect for long enough to give all voters an opportunity to judge of them the rates of fare provided in the new franchise which the company seeks and which the voters will pass on at the November elections. The rates of fare are ten tickets for 25 cents during five hours of the day when workingmen ride, and six tickets for 25 cents the other nineteen hours. Present fares are 5 cents each on all but a few of the old Detroit Railway lines, on which eight tickets are sold for 25 cents.

Mayor Tom L. Johnson, of Cleveland, on behalf of himself and associates, including A. B. Dupont, has made a proposition to the city of Detroit for the building of street railway lines to enter into competition with the Detroit United Railway. The proposal has been summarized as follows:

The proposed company offers to accept a franchise providing for straight 3-cent fare (tickets or cash) with universal transfers.

The franchise to be revocable at the will of the City, and at any time.

The revocation may be for the purposes of taking over the property by the city under municipal ownership, or to turn the property over to any other individual or company upon the failure of the original company to comply with Council regulations, or to follow the pledges in the original franchise, or for any other reason; and this Council order cannot be contested in court.

The franchise to cover any unoccupied territory in the city where car lines are now needed, and to extend into the territory of the Detroit United as fast as existing franchises may expire.

The company shall be financed in the following way: A syndicate composed of Mr. Johnson and A. B. duPont, together with a number of other men whose names will not be made public at this time, will be formed to underwrite or guarantee this enterprise.

The stock in the new railroad shall be open to public subscription, and in allotting stock Detroit subscribers shall have the preference, and the smaller subscribers shall be preferred over the larger ones.

The books of the company shall at all times be absolutely open, not only to the inspection of public officers, but to the general public as well.

It shall be provided in the franchise that no bonds shall ever be issued, nor debts contracted, and that only so much stock shall ever be issued as shall represent at a selling price of not less than 90 per cent of par the actual cash invested in the construction of the road—not operation.

The franchise shall further provide that only 6 per cent on par shall ever be paid in dividends, and the any surplus earnings shall either be invested in betterment (on which no additional securities can be issued) or divided in the form of liquidating dividends, which will reduce the capital stock of the company and so steadily reduce the fixed charges. In other words, the property will be paying for itself.

Upon revocation of the franchise by the Council, either for municipal ownership or to turn it over to some other interest, not one penny shall be paid for franchise value, good will, or other intangible assets, nor for construction paid for out of profits.

The only payment shall be for actual physical value estimated at cost of reproduction, less depreciation, and plus 10 per cent as profit.

This proposition to be reduced to writing first and then put into ordinance form, and to be accompanied by a deposit of \$50,000 as a guarantee that such franchise, if granted, shall be accepted, the forfeit money to go to any fund which the Council may direct.

## INTER-BRIDGE LOOP PLAN SAVED

The Rapid Transit Commission defeated a motion Thursday, Oct. 18, that would have prevented further consideration of the proposed elevated loop to connect the Williamsburg and Brooklyn bridges. The motion to substitute a subway was presented by Vice-President J. H. Starin following a lively public session. It was plainly evident at the meeting that the people of Brooklyn favored the loop and were strongly against any more delay in solving the question of bridge congestion.

Lawrence Veiller, representing the City Club, was roundly castigated by Controller Metz for his opposition to the loop, which, the Controller declared, the people wanted, and at once, no matter what the City Club might think to the contrary.

"I represent the city of New York," he replied to Veiller, "and not the Brooklyn Rapid Transit. I was born here and reared in Allen Street, and was always pretty healthy at that. These same reformers who are now objecting to the loop are always objecting to something."

President Orr, Acting Mayor McGowan, Controller Metz and Commissioner Ledyard voted against Mr. Starin's motion.

## HOW THE CAMPAIGN WAS CONDUCTED WHICH DEFEATED MUNICIPAL OWNERSHIP AT SEATTLE

An interesting account has just been made available of the successful campaign against the proposed municipal trolley scheme at Seattle, Wash., of which mention has been made before in the *STREET RAILWAY JOURNAL*. The plan submitted to the people was made up of three elements: (1) A proposed system of 20.17 miles of track, to be constructed as soon as possible, and to be paid for from an issue of \$1,272,036 in bonds; (2) a trackage of 58 miles, to be constructed as soon as practicable, provided the initial system could be made to produce a revenue sufficient to induce investors to purchase bonds based on a percentage of gross earnings, involving an additional bond issue of \$3,000,000; and (3) subway and elevated systems at a further cost of \$3,307,904. Although the people were asked to authorize bond issues to the amount of \$4,272,000, it was only proposed to build at once the 20.17 miles of trackage. Nevertheless elaborate maps, showing the proposed system, in its entirety, including elevated tracks and subways, the present building of which was in no way contemplated, were at once circulated by the advocates of municipal ownership. By such arguments it was sought to show how Seattle could acquire this great system "without costing the municipality a cent."

Many conditions favored the side of the opposition. Probably a greater portion of mechanics, artisans and workmen of Seattle own their own homes than in any other city in the United States. As a result of this the influence of labor organization is not as great there as elsewhere. Moreover, the city had numerous important and insistent needs straining her financial resources. Her debt already reached the constitutional limit. The valuations were about to be raised fully 50 per cent, thus providing a greatly augmented borrowing capacity, but even this would only furnish a fund barely sufficient for carrying out necessary improvements, including the enlargement of water supply, paving, sewer extension, and other improvements.

Another factor which favored the opposition was that half a dozen years ago Seattle was served by no less than thirteen separate street car lines, most of them operated by receivers. The Seattle Electric Company, the majority of stock in which was owned by Stone & Webster, consolidated these lines, put them under one central management, inaugurated a complete transfer system, renewed and improved the equipment, and as a result immeasurably improved the service. The population of Seattle is officially estimated at 176,000, and the trackage of the electric company amounts to 114 miles, or 1 mile for every 1540 persons, a trackage far above the average to residents of American cities. The service is as nearly perfect as the rapid growth of the city will permit. It is not difficult, therefore, to show that Seattle might be a good deal worse off in its street car service than was actually the case.

But the opponents of municipal ownership had to combat a sentiment in its favor which had been fostered for many years. This sentiment had crystallized in the nomination for Mayor in January of this year of William Hichman Moore, a Democrat and a prominent lawyer. The platform on which he stood was devoted exclusively to the advocacy of municipal ownership and operation of the street railways of Seattle. The platform declared that no new franchises or renewals should be granted, except after submission to the direct vote of the people; that no further grants should be made to the company now operating in Seattle, except for minor connections and necessary extensions to residence districts, and that there should be submitted to the people at the earliest date practicable a plan for a system of municipal lines to be constructed from money raised on bonds, based on the credit of the system and its revenues. Mr. Moore was elected, so that when the referendum was presented the opponents of municipal ownership had to start with the initial verdict of the people already apparently against them.

Thus handicapped, the first step was to organize the opposition. This was done by the formation of the Seattle Economic League. J. M. Frink, a former Mayor of Seattle, and a man of wealth and high standing, was elected president, with John H. McGraw, former Governor of the State of Washington, as right-hand man. The league decided on a campaign of education, and although it was late in the field it pressed its work with great vigor. It first issued an address to the voters, in which it clearly set forth the reasons of its opposition to the street railway proposition. Enclosed with the address was a postal card addressed to the league. This the recipient was asked to sign and return. About 20,000 of these were sent out and 1500 favorable responses were received.

A statement of the financial condition of the city was prepared, showing the debt which it already carried, the debt which it would have to carry in order to have adequate water facilities, and the debt which was proposed to fix upon the city in addition, for an unnecessary experiment. The tremendous increase of Seattle's debt within three years was set forth by this debt statement, which was mailed to all the registered voters of the city. The league next secured the services of several prominent speakers and these it furnished to local improvement clubs and other bodies considering the municipal ownership problem. A pamphlet was prepared, showing the improvements which the city's growth rendered imperative, and it was pointed out to the voter that because of the debt limit choice would have to be made between these and the municipal railway experiment.

Conferences were held with the editors of a local newspaper to systematize the newspaper campaign. The Seattle "Times" entered heartily into all plans for a systematic campaign of education, and for two weeks preceding the election practically gave over its news and editorial columns to arguments furnished by the league or prepared by members of its own staff. The league also purchased space in the newspapers and began therein a series of "Daily Talks to Voters," which continued until election day. In these talks it was aimed to simplify the arguments and to present each day one good, conclusive reason for voting against the municipal street railway proposition.

Sets of cards, or "throw-aways," were devised—six in number—showing on the reverse a large square indicating the amount of territory to be mortgaged to produce the municipal street car system, and a much smaller square indicating the territory which would be served or possibly benefited by the proposed lines. On the face of the cards various suggestions, calculated to set the voter thinking, were printed. In all the league circulated during the campaign over 250,000 pamphlets and cards, not including matter published in the newspapers.

The friends of municipal ownership were very active, but the Economic League continued to present its facts undaunted and relentlessly. It was a campaign of education pure and simple, no personalities entering into it. The result disclosed what can be accomplished by an appeal to reason and sober judgment. When the ballots were counted they showed 5856 in favor of municipal street cars and 7336 against. The opposition majority was thus 1480. As a three-fifths vote was required to carry the scheme, it fell short of success by about 2100 votes, an astonishing percentage, in view of the vote of only a few months before.

## PLANS FILED FOR THE BOSTON-PROVIDENCE SERVICE

Some novel ideas in electric railroading are among the details of plans for a new interurban line between Boston and Providence as a part of a prospective fast-service electric line from Boston to New York, filed with the Massachusetts Railroad Commissioners Friday, Oct. 19. The promoter is the Boston & New York Electric Railroad Company, made up chiefly of business men, including a number of members of the Boston Chamber of Commerce. The new company has obtained no options on land for its private right of way between the two cities, but if it secures its certificate from the Railroad Commission, under the new electric railroad law passed by this year's Legislature it can take the land needed by eminent domain, as a steam railroad would do. The proposed route touches few centers except at its terminals; but it crosses numerous existing street railways, all of them so-called local lines, which could easily afford connection between the proposed through line and the centers of towns.

The company proposes to make an arrangement with these existing companies whereby it may run through cars from Boston to any center or group of centers, giving such cars the advantage of through express facilities while they are on the main line, but running them for house to house accommodation while they are on the tracks of connecting companies. Few stops would therefore be made on the main line by any cars, with the result that while there would be only one through car every hour from Boston to Mansfield, or Franklin, these cars would get on to the branch connections soon enough to allow two cars per hour to run through at express speed from Boston to Providence.

The largest blocks of stock are owned by A. B. Leach and James C. Campbell, of 149 Broadway, New York, the former owning 1500 and the latter 1415 shares out of a total of 3000. The company asks the Railroad Commission to certify that public exigency requires the building and operation of the new line.



## SUGGESTIONS FOR OPERATION FROM THE MASSACHUSETTS COMMISSIONERS

A special warning to street railway companies to prevent accidents on curves and grades made specially slippery by moisture and fallen leaves, was issued Oct. 11 by the Massachusetts Railroad Commission. It refers particularly to a recent accident, and states an important policy, but it is intended to serve as a call for special precautions on all lines at this particular season. It reads as follows:

Oct. 11, 1906.

To Massachusetts Street Railway Companies:

Attention is called to a finding of the Board in connection with the investigation of the recent accident upon the Worcester & Holden Street Railway.

Upon the assurance of an employee that a car had not yet passed a certain place, the superintendent directed the crew of another car which was to meet it to proceed beyond the point where it would otherwise have waited. The first-named car had in fact passed the place in question, and could not be reached in season to prevent a disastrous collision.

The employees had unintentionally misinformed the superintendent, but the responsibility for the accident is plainly chargeable to the fault of the management in not having established a rule requiring an understanding between the despatcher and both crews as a preliminary to the change in the movement of these cars.

Whenever a telephone system of despatching cars is in use no change in the regular schedule should be authorized until a complete understanding of such change has been established with the crew of every car affected by it, and such understanding made a matter of record.

This occasion is also taken to call attention to the need of making every effort to keep tracks in a condition to prevent accident from slippery rails; and we again urge the necessity of enforcing rules for the testing of brakes and for the reduction of speed in running cars around curves and down grades. For the Board,  
JAMES F. JACKSON, Chairman.

## LAST CABLE CAR OPERATED IN CHICAGO

At last cable traction has been entirely abandoned in Chicago. The last cable cars were operated over the lines early Sunday morning, Oct. 21. At this time cars were operated for the last time over both the Cottage Grove Avenue line of the Chicago City Railway and the Clark Street line of the Union Traction Company. In order to prevent damage to the cars by souvenir hunters, the new cars were put in service an hour or more previous to the time publicly announced.

## RAILWAY COMMISSIONERS WANTED FOR AUSTRALIA

The Australian Government is about to appoint for the New South Wales Railways & Tramways a chief commissioner, with a salary at the rate of £3,000 a year, who will have supreme authority in the management and maintenance of the railways and tramways of the State; an assistant railway commissioner, at a salary of £1,500 a year, and a tramway commissioner, at £1,500 a year, who will control, under the chief commissioner, the street and other tramways (chiefly electric) the property of the State. Gentlemen desirous of receiving an appointment to any of these positions must apply in writing (stating age) to T. A. Coghlan, agent-general for New South Wales, 125 Cannon Street, London, E. C., on or before Nov. 19. Particulars as to the extent of the railways and tramways of New South Wales may be obtained on application to R. W. Cameron & Company, 23 South William Street, New York. Appointments in each case will be under the provisions of the New South Wales railways acts and for a term of seven years, renewable for like periods. It is distinctly to be understood that the agent-general will deal with none but principals, and all communications will be treated as strictly confidential.

## LAKE SHORE NOT TO BE REFINANCED

President E. W. Moore, of the Lake Shore Electric, says there is no truth in the report that the company is to be refinanced in the near future and that the preferred stock will be converted into bonds. The company will not make any financing changes until the improvements now under way are completed. These improvements include the double-tracking from Lorain to Celon Junction, the completion of the Sandusky, Fremont & Southern line and the construction of a large addition to the Fremont power station, with probably a new line from Fremont to Genoa, which will reduce the mileage of the main line.

## AFFAIRS IN CLEVELAND

Mayor Tom Johnson was subjected to a long examination before a notary public, as a preliminary to the two suits brought by the Cleveland Electric Railway Company to show that the Mayor had a financial interest in the new low-fare company. Mr. Johnson, while strenuously denying that he stood to secure any of the profits that might accrue from the business of the Forest City Railway Company, admitted that he stood bound to the extent of about \$160,000 on the obligations of the Forest City Railway Company and created a decided sensation by announcing that he stood ready to guarantee all stockholders of the company against financial loss in the enterprise. The responsibility thus assumed amounts, according to his own statement, to between \$300,000 and \$400,000. Mr. Johnson said, however, that he had never rendered financial aid to the several other low-fare projects which had been started during his administration, but admitted he had assisted them in other ways. It was pretty well demonstrated during the examination that the parties who took up the low-fare project after John Hoefgen withdrew from it were not practical street railway men, and Mr. Johnson admitted that he supplied them with suggestions as to the proper procedure in getting the franchises and building the lines. Prominent jurists who have had the matter laid before them are at present of the opinion that it will be held the Mayor had a financial interest in the property. It would seem that upon a decision on this point depends the entire future of the legality of the Forest City Company's grants.

Last week the Forest City Company was enjoined from laying tracks at the corner of Lorain Street and Fulton Road. In spite of the injunction the company went ahead and laid part of the tracks, claiming indefiniteness of the injunction. The Forest City Railway Company was called into court and fined \$200 and costs for contempt, and ordered to restore the street to its former condition. This is the second time that the low-fare company has been fined for contempt.

On Tuesday, Oct. 23, the Cleveland Electric Railway Company won another important decision, through the holding by the Common Pleas Court that the Detroit Street line is not free territory, and that the Forest City Company cannot use it for a route to the Public Square. The low-fare company is already completing a line on Bridge Street as an alternate route to reach free territory.

The Forest City Railway Company has started a counter suit to require the Cleveland Electric Railway to show how much money it has spent in fighting the low-fare company, and to whom it has been paid. It will be asked to testify as to campaign contributions and to show how much money has been spent in securing franchises.

The board of elections has refused to submit the propositions of the contending companies to a vote of the people, on the ground that no legal plan for a vote could be found. The board will show reports to the Council.

## STREET RAILWAY PATENTS

[This department is conducted by Rosenbaum & Stockbridge, patent attorneys, 140 Nassau Street, New York.]

UNITED STATES PATENTS ISSUED OCT. 9, 1906

832,652. Railway Block Signal System; Abram L. Bower, Boyertown, Pa. App. filed Oct. 22, 1902. Relates to block signal system wherein home and distant signals located along the track may be operated electrically by a moving train, the rails being insulated from one another between the sections.

832,650. Automatically Operated Switch; Charles F. Eldridge, Herrin, Ill. App. filed July 8, 1905. Includes a tripping device positioned beyond the heel of the switch and adapted to be engaged by a wheel of a car after passing over the switch to throw the same to connect the main line and siding.

832,709. Apparatus for Insuring Safety of Traffic on Single Lines of Railway; Edward Tyler, Dalston, England, and James H. Hamilton, Cape Town, Cape Colony. App. filed Jan. 5, 1904. An automatic visual signal in which the indicator is controlled by a pair of steel magnets each surrounded by a separate magnetizing coil. One of these coils is arranged to be influenced by outgoing currents only, while the other is subject to incoming currents only.

832,712. Trolley; Henry West, Galesburg, Ill. App. filed July 20, 1903. The trolley wheel is ball-bearing on a stationary axis which is provided with a drum on which spring blades electrically

cally connected to the tread of the wheel bear. The harp is capable of lateral yielding movement.

832,765. Trolley Wheel and Support; B. G. Young and Charles N. Pickering, Cedar Grove, W. Va. App. filed Nov. 13, 1905. The tread of the wheel is a ring or disc separable from the flanges so that it can be replaced when worn.

832,813. Brake-Shoe; William V. H. Rosing, St. Louis, Mo., and Frank L. Gordon, Chicago, Ill. App. filed Feb. 17, 1906. The brake-shoe is in two parts, separated opposite the rail-wearing portion of the wheel tread and united by bridges which extend upwardly and beyond the back of the shoe.

832,847. Lock for Signals; Fred B. Corey, Schenectady, N. Y. App. filed Feb. 7, 1906. In order to obviate the danger of a semaphore arm falling by the weight of sleet or snow, an electrically operated latch is provided.

832,945. Tie-Plate; Benjamin Wolhaupter, Chicago, Ill. App. filed June 26, 1905. The tie-plate is provided at one side of the rail seat with a rib forming an inwardly facing bearing-shoulder for contact with the base-flange of the rail, with a hole for a screw-spike, and with an elevated bearing outside of the spike-hole and separate from the bearing-shoulder, adapted for contact with the head of the screw-spike.

832,959. Step Holder for Cars; Joseph Edwards, New York, N. Y. App. filed July 25, 1906. A hook loosely mounted in a sleeve and adapted to swing to engage and hold the car step. The sleeve has an inclined lip which engages the hook when it is released from the step, affording means for swinging the hook inward.

832,997. Rail Joint; William Nolan and Charles H. Pearce, Aspen, Col. App. filed June 21, 1906. A tie-plate for rail joints stepped on its upper side forming shoulders for engagement by a fish-plate and a rail-base and having a rail-brace projecting inwardly over the shoulders.

833,017. Electric Railway; Miles E. Bailey, Washington, D. C. App. filed May 27, 1905. A toy railway on a straight track in which the car is adapted to automatically reverse itself at the ends of the track.

833,020. Insulated Rail Joint; William F. Bossert, Utica, N. Y. App. filed Jan. 11, 1906. A sheet of insulating material completely surrounds the base and sides of the rail and the bolt-holes in the fish-plates are provided with insulating bushings.

833,039. Rail Joint; Charles Gibson, Coraopolis, Pa. App. filed June 29, 1906. Provides a lateral projection on each fish-plate adapted to underlap the rail, said projections being keyed together.

833,040. Fare Register; Charles E. Gierding, Newark, N. J. App. filed March 14, 1905. Details of construction.

833,041. Fare Register; Charles E. Gierding, Newark, N. J. App. filed Aug. 3, 1905. Relates to that class of fare register which makes a printed record at the end of each trip.

833,076. Brake; Stephen Marco, Terco, Col. App. filed Feb. 13, 1906. A power-lever operatively connected with the brake beam, an oscillatory toothed member, a rotary shaft having a pinion in mesh with said member and a traction-rod connecting the toothed member and lever, said rod comprising a pair of sections adjustably connected one with the other.

833,080. Trolley; Elijah D. McDonald, Los Angeles, Cal. App. filed Nov. 28, 1905. The trolley is provided with harp prongs which are beveled to form sloping faces that terminate in edges extending alongside the trolley wheel.

833,140. Car Brake; Joseph A. Stowe, Arlington, N. J. App. filed Jan. 8, 1906. The brake-drum has a gear at its top which meshes with a gear on the brake-staff. The drum is provided with a peripheral enlargement to which the brake chain is attached in a peculiar manner.

#### UNITED STATES PATENTS ISSUED OCT. 16, 1906

833,152. Circuit Closer; Walter B. Beilak, Gresham and Barney W. Belock, Cleveland, Ohio. App. filed July 14, 1906. A pin hinged in a slot in the tread of the rail has connections with a supply circuit and engages the contact of a signal circuit when depressed by the car wheels.

833,161. Fluid Pressure Brake; Richard Fitzgerald, Chicago, Ill. App. filed July 7, 1903. A device of the type in which a movable abutment-actuated release valve and a movable abutment-actuated service valve are independent of each other. A feed-groove arrangement of by-pass valve is governed by the service valve abutment, and a valve interposed in a passage between the service valve abutment and the auxiliary reservoir for governing the feed thereto and governed by the abutment of the release valve.

833,312. Trolley; Andrew H. Dreijer, New York, N. Y. App. filed June 6, 1904. The tread of the wheel is made up of a plurality of small rollers. Also comprehends a double wheel for engaging two conductors.

833,353. Trolley; Gestavus Troxler, Jr., Newark, N. J. App. filed Oct. 10, 1905. A plurality of radially extending fingers mounted on each side of the trolley wheel, and which are adapted to yield when gu wires, etc., are encountered.

833,505. Trolley; Henry B. Burke, Windber, Pa. App. filed Dec. 28, 1905. The harp is connected to the pole by a goose-neck spring which affords great resiliency.

833,524. Switch; Markus Holpfer, Coraopolis, Pa. App. filed Aug. 8, 1906. The car is provided with a shifting bar which may be projected from either side of the car to engage levers in the roadbed whereby the switch is thrown.

833,545. Metallic Tie and Rail Fastener; Lewis H. Pflughardt, Fayette City, Pa. App. filed July 2, 1906. A channel-shaped metallic tie having fish-bars at each end to embrace the outside of the rail and pivoted blocks engaging the inner side of the rail.

833,550. Trolley Harp; William K. Richardson, Leavenworth, Kan. App. filed Sept. 1, 1905. Contact blades mounted in the harp and spring pressed against the trolley wheel to insure good electrical connection therewith.

833,601. Automatic Safety Railway Switch; James W. Hubbard, Eau Claire, Wis. App. filed Dec. 19, 1905. The switch may be operated automatically or by hand, and novel means are provided whereby it may be operated either way to the exclusion of the other.

833,702. Automatic Fluid Coupling; Charles H. Tomlinson, Denver, Col. App. filed Sept. 22, 1905. Relates to improvements in automatic fluid-couplers adapted for use with radiating draw-bars.

#### PERSONAL MENTION

MR. HAROLD S. BUTTENHEIM, business manager of the STREET RAILWAY JOURNAL, was married Oct. 9, to Miss Margaret Stoddard, of Madison, N. J.

MR. A. A. ANDERSON, formerly general superintendent and purchasing agent of the Indianapolis & Cincinnati Traction Company, on Oct. 15 assumed the duties of general manager of the Indianapolis & Columbus Traction Company.

MR. GEORGE H. SOUTHARD, president of the Franklin Trust Company, and MR. CHARLES D. YOUNG, president of the National City Bank, of Brooklyn, have been elected directors of the Coney Island & Brooklyn Railroad Company to succeed Mr. Alvin W. Kreech and Mr. Duncan B. Cannon.

MR. BENJAMIN H. WARREN died very suddenly Saturday morning, Oct. 20, at the Hotel Collingwood, New York City, from apoplexy. The son of an officer who was killed in the Civil War, Mr. Warren graduated in the engineer corps at the United States Naval Academy in 1874, and was in active service in the United States Navy at sea and on shore until 1878, when he resigned from the service to find larger opportunities for his energies. From 1878 until 1890 he was with the Hancock Inspirator Company, Boston, Mass., as mechanical engineer, manager of the London office for years, and as superintendent six years. From 1890 to 1895 Mr. Warren was manager of the hoisting and pulley block department at the Yale & Towne Manufacturing Company, Stamford, Conn. He went thence, when the business of that department was sold, to the Pratt & Whitney Company, Hartford, Conn., serving temporarily as assistant secretary and treasurer. Mr. Warren was next, from 1896 to 1902, with the Westinghouse Electric & Manufacturing Company, Pittsburg, Pa., as assistant general manager, in charge of manufacturing for ten months, then as second vice-president, in charge of both the manufacturing and commercial branches of the business. After a brief interval, Mr. Warren was appointed president of the Allis-Chalmers Company, and he remained in that capacity until the growing burdens overtaxed his health, whereupon he resigned. He then formed an engineering firm in this city with two old friends, Capt. John C. Kafer and Mr. A. M. Mattice, and upon the death of the former continued in the practice of his profession with Mr. Mattice. He was a member of the American Society of Mechanical Engineers, the Engineers' Club, the University Club and a number of other kindred bodies. Mr. Warren leaves a widow, son and two daughters. His home was at Albene, Va.