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WEDNESDAY, OCTOBER 15, 1913

## PROGRAM FOR TO-DAY

CONVENTION MEETINGS

9:30 a.m. Joint Session of Accountants' and Transportation & Traffic Associations, Greek Temple, Convention Pier.
9:30 a.m. Session of Engineering Association, Engineers' Hall, Convention Pier.
9:30 a.m. Session of Claims Association, Claims Hall, Second Floor of Convention Pier.
2:00 p.m. Session of American Association, Greek Temple, Convention Pier.
4:00 p.m. Annual Meeting of Manufacturers' Association, Engineers' Hall, Convention Pier.

ENTERTAINMENT

Golf, Qualifying Round for A. E. R. M. A. Tournament, Country Club, Northfield, N. J.
11:00 a.m. Concert by William Fenrich and Orchestra, Lobby, Convention Pier.
3:00 p.m. Championship and Consolation Rounds, Ladies' Auction Bridge Tournament, Persian Garden, Convention Pier.
9:00 p.m. Steeplechase Night, Informal Dancing at Steeplechase Pier, Boardwalk opposite Haddon Hall.

### Address of President Harries

The address of President Harries before the American Association is a notable presentation of the current work and problems of the industry. It ought to be read thoughtfully by all who were not fortunate enough to be present at the meeting. Those whose daily activities are remote from the headquarters of the association and who are not in constant touch with the wide extent of its influence in the industry are in danger of forgetting what a strong force it is that represents them. President Harries, however, does not exaggerate when he describes the real association. Observers who appreciate its work know that he paints it as it actually exists and not as the idealist thinks it ought to be. General Harries did not want the fact to be overlooked that there is more serious work ahead of the association than it has had to confront at any time in the past. Its officials have met the demands placed upon them when acute situations have developed in other years and these precedents will be followed in the future. It has been characteristic of the American Electric Railway Association that men of large interest and responsibilities, like General Harries, have given their time freely to its needs and so the industry has continued to benefit from their experience year after year. New difficulties arise but the guiding minds under whose care the association has prospered and been of service to its membership do not lessen their interest in its cause. By his words General Harries will inspire the friends of the association to greater efforts in its behalf.

### Train Operation on Interurbans and on City Systems

Decidedly different degrees of optimism in regard to the advantages of train operation will be evident to those who read carefully the two committee reports on that subject which were presented yesterday. This is the perfectly logical outcome of the consideration of the same problem applied to two totally different sets of conditions, and the results in both cases, as might be expected, are also totally different, even though the matter is taken up under a common title.

In interurban service the stopping points are to a very great extent rigidly established, and the intermediate or cross-road traffic is a very small proportion of that which is carried between the small towns or hamlets along the line. Essentially the number of stops per mile is almost negligible. The number of interurban roads which average in cross-country runs more than one stop per mile is small compared to those which make less than one; hence passenger loading time and acceleration after stops are subordinate factors.

With the surface cars of the ordinary city system, however, these subordinate factors acquire a really vital importance. Anything which increases the time of passenger interchange, or anything which increases the number of stops, exercises a baneful influence on schedule speed except under the most extraordinary circumstances. In turn, anything which decreases schedule speed adds to the number of cars on the street, increases platform expense, involves greater maintenance and overhead charges and, in fact, causes a decrease in practically nothing but receipts. Indeed, it is safe to say that there are plenty of city systems to-day for which a 10 per cent slower schedule would spell bankruptcy.

Here, then, are two applications of the single problem of train operation in which the minor considerations in one become in the other features of the greatest magnitude. On the interurban road, where the stops are to all intents located at fixed points, the desirability of adding one or two cars to the original single unit becomes largely a question of whether the extra seats can be kept filled over the whole route or whether a less frequent service will cause a serious loss in business. With the city system, however, the stops have to be made at the will of the passengers so that this factor becomes a function of the capacity of the car or train, and if it together with the direct time loss due to passenger interchange be increased by doubling the size of the unit, the possibly disastrous effect on the schedule outweighs every other consideration.

On the interurban road the features peculiar to all train operation, such as reduction in platform expense, the introduction of a new type of control, the necessity for switching in making up trains and the like, may logically be treated on their merits, but in city operation it is impossible to base final conclusions upon them when, as shown by the curves accompanying the committee's report, the use of two-car trains in Newark added over 20 per cent to the number of stops if each car carried its proper load of seventy passengers, and when in the same city the time of passenger interchange on the trains, due to the transmission of bell signals, unequal loading of cars or what not, was approximately twice as great as on the single car.

### The Value of Safety Committees

The report of G. Carson on the safety committee work of the Puget Sound Traction & Light Company is an authoritative and welcome addition to the data already existing in this field. It is well known that the advisability of forming safety committees has been looked at askance in certain circles and that some of the larger companies are closely watching the practical working out of the plan before they adopt it. The various advantages claimed for the safety committee system, the fostering of the spirit of co-operation between the company and the men, the inculcation of more humanitarian feelings toward the riding public on the part of the employees and other similar virtues, have often been discussed. But in the end the all-important question to the ultra-conservative companies has been: Will the installation of a safety committee system mean the actual reduction of broken limbs and bruised bodies?

Now there have come to our hands data on this very point that will be interesting to such companies. In 1911 there were 5305 accidents reported on the Puget Sound Traction & Light Company, but in 1912 only 4193, a decrease of 1112. The number of accidents per 100,000 miles in 1911 was 43.15, in 1912, 33.24; per 1,000,000 passengers in 1911, 70.18, in 1912, 55.07. These are decidedly encouraging figures for the first year's safety committee campaign. It cannot be said with certainty, of course, that this entire decrease was brought about by the work of the safety committee, but to a great extent it doubtless was. During the first year's trial 431 reports were turned in by the committee men and others, covering in the main defects in car operation, platforms and landings and also general car defects. As a result of these reports seventy-eight platforms and landings were made safe, twenty-nine changes in operation were adopted, seventy trainmen were warned about mistakes and 102 defective cars were repaired. It can be said with the utmost truth, we believe, that every single one of these defects remedied had within it the potentiality of an accident, and that if it had not been corrected when it was more than one accident might have resulted therefrom. A mathematical equation of defects remedied and accidents decreased may not be possible, but the effect of the former upon the latter seems to be unmistakable. This safety committee work is more than an attempt to apply a theory of industrial co-operation; it is an effective means of preserving and protecting human life and health, giving evidence of this fact through concrete, tangible results.

An interesting point that may be mentioned in connection with the work of the safety committee is the time of service thereon. Companies in the East and in the West have generally adopted a uniform organization of a central committee of superintendents and division committees headed by the station masters and otherwise composed of employees. It has been noted, however, that some companies advocate a service of three months on the committees, others six months. It is asserted in some cases that the employees believe membership on the safety committee to make possible an easy expression of opinion regarding fellow workmen and that the suggestions of committee men receive the preference. This is probably an evil existing more in imagination than in reality, but where such a condition is found the shorter membership period is without doubt the better. In general, however, six months' time is not too long for the men to become well acquainted with the detail work of the system and to have imprinted on their minds and manifested in their actions a greater respect for human life.

One objection seriously raised by some employees against committee work is that it requires the making of reports concerning fellow workmen, or, as it is sometimes sneeringly called, "spying" on them. Evidently some companies have coddled this feeling on the men's part, but we believe not only that the best ethical teachings permit the giving of such information but also that there would be a far healthier state of mind on the part of the employees toward public safety were such information offered. At the worst, the question is one of comparative values, and there can be no hesitancy in placing the welfare of the public above any fancied allegiance to the fellow workman. There are undoubtedly workmen who cannot make this ethical distinction, but this fact should not have recognition by the company's insisting that no reports concerning employees be filed. The subsequent action of the safety committee is a sufficient check on the justification of these reports. The success of the safety committee campaign depends to a large extent upon the placing of the public interest above all else, and in view of this all reports, whether in an employee's own department or not, whether about other employees or not, should be insisted on, and then the safety committee, in an orderly, systematic and efficient manner, will work them out for the benefit of all concerned.

### Automatic Stops

The data submitted by the committee on block signals on the matter of automatic stops shows that a surprising amount of effort is being devoted by inventors to the subject and, at the same time, that the trend of ideas is not along any specific line. The list of devices presented in the report does not, of course, include all of the multitudinous schemes, mostly impracticable, which have been suggested or even patented, but in view of the acknowledged prominence of the members of the sub-committee handling this work it is safe to say that the list is thoroughly representative, so that the fact that no general type predominates is interesting.

An analysis shows that third-rail, contact-shoe systems with an external electric circuit have a slight advantage numerically, although they seem to be largely experimental in the present stages of development. Seven of these systems are listed against four of the mechanically operated track-trip type, the latter having the advantage of being used on two of the most prominent installations in the country, namely, the New York subway and the Hudson & Manhattan Railroad. This type of stop, it should be recalled, has also been installed on the inter-bridge loop of the Brooklyn Rapid Transit System. Its obvious field, therefore, appears to be on subways and other lines protected from external intereference, although the Hudson & Manhattan Railroad, as noted in the report, runs partly in the open country.

The mechanically operated trip which is mounted on the roof of the car appears on the list in three instances, and of these, two, the Washington Water Power Company and the San Francisco-Oakland Terminal system, are very prominent installations as regards both traffic and successful operation. This scheme appears to be well adapted to open-country operation, and the simplicity of its application gives it a distinct advantage in the question of cost. Like all of the foregoing types, however, it is inherently dependent upon the existence of a complete signal system. Here is, of course, the ground upon which so many signal engineers stand in condemning the automatic stop, the position being that until the approved forms of automatic block signaling have reached sufficiently general use to limit accidents due to poor judgment as well as carelessness any agitation in favor of automatic stops is, to paraphrase a revered ex-president, a "red herring drawn across the trail." Needless to say, we do not agree with this argument.

Of the inductive or Hertzian wave systems, three are mentioned, and all of them are in an experimental state. All appear to possess possibilities, but the handicap of complication in comparison with the mechanical trip, either on the ground or overhead, seems at present to be very heavy, although it is quite within their inherent capabilities to be operated without the necessity for the installation of a system of automatic block signals or the equivalent. In conclusion, it is well to mention, without comment, that the only commercial installations of automatic stops have been made by electric railways.

# Conventionalities

Ich gebibbil!

Attention, Cornellians! Look at page 755.

Badges 5356 and 5922 are lost. Finder please report at registration booth.

W. R. W. Griffin and his velour are with us to give the keynote to the style of convention week.

Some day someone will call Charlie Ellicott's bluff and there'll be a golf game before breakfast.

Did you fall for that "official A. E. R. A. dancing instructor's" sign before Pearce gave it the "bum's rush"?

Did you see "Association" Stocks ladied over the Boardwalk on Sunday by two peaches? O happy sandwich!

After looking at the blank left-hand pages on the new programs for the first time H. H. Adams wanted to know to whom the notes were to be sent.

Nick Le Grand is sore because we used a "D" in yesterday's comment about him. It was, of course, rather a strong expression, but he deserved it.

Two of the three busy "B's" of the Public Service Railway, Newark, N. J., Benedict and Bolen, were seen hitting the planks on Sunday, but Boylan arrived later.

The Buda "Marvel," otherwise known as Sembrich-Caruso, lost his voice between Chicago and the Convention Pier. Finder please return to the desk clerk at the Dennis, and no questions asked.

Did you see "Billy" Dee get into the more or less oval spotlight on Monday night when he got the impression that he was to take the place of the professional tangoist? Oh, Bill, this would never do for Bridgeport ears!

We're used to working under difficulties, but we looked forward with pleasure yesterday to the promised relief from the efforts of Fenrich's drummer and cornetist owing to the fact that the afternoon would be devoted to the ladies' card parties. Now we want Fenrich back.

The World's Series is over. A common, ordinary week is much too small for two such gigantic events as the interleague scrapfest and our own convention. Let us be thankful, therefore, that these doings were not in synchronism this year as they were in the Year of the Stockyards.

E. F. Wickwire, of the Ohio Brass Company, one of the two survivors of the automobile accident at Detroit last August, in which Louis Beilstein and J. P. Ross were killed and J. C. Collins was seriously injured, had the pluck to get up from a sick-bed Sunday to come to the convention.

J. A. Hanna, of the Niles Car & Manufacturing Company, is attending the convention this year with his wife and daughter. This is the twenty-sixth consecutive annual convention attended by Mr. Hanna. The first convention which he attended was held at the old Willard Hall in Washington in 1888.

Several members of the Ontario Railway and Municipal Board, Messrs. D. M. McIntyre, K. C., chairman; A. B. Ingram, vice-chairman, and H. N. Kitson, together with H. C. Small, secertary, arrived from Toronto on Tuesday, as also did Acton Burrows, secretary-treasurer Canadian Electric Railway Association.

Joseph Crawford, street railway inspector of Newark, N. J., who is vacationing here after a hard spell of work on the re-routing and terminal plans of the Public Service Railway, paid us an exceptionally pleasant visit yesterday. He also paid us his next year's subscription. Certainly! We intend this as a hint.

It was not Baker's mighty bat that caused the disturbance in the buffet car of the Chicago special as it approached Philadelphia Sunday night; it was caused by a side-swipe from a protruding door on a passing freight car. With the exception of the bad fright given some "night-owls" the only damage resulting was simply the caving in of the rear vestibule.

John E. Duffy, of Syracuse, came in on Saturday and realizes now what a lonesome place Atlantic City can be on an October morn. John is solicitous to have his first name spelled out in full to avoid confusion with James E. Duffy, the Socialist terror of Syracuse; neither does he wish to be confounded with the owner of the celebrated "Duffy—that's all."

Midgley has been decorated with the badge of the Royal Order of the Safety Pin, according to District Passenger Agent Bixby of the Pennsylvania Railroad at Chicago. He is the second Chicagoan to receive this honor, which is conferred only upon those who find it easier to misplace than to preserve their Pullman tickets. Frank Johnson also is said to be a member in good standing.

The Canadian Electric Railway Association is officially represented at this convention for the first time, the secretary-treasurer, Acton Burrows, having a desk in the A. E. R. A. booth at the entrance to the pier. The president, Patrick Dubee, secretary-treasurer Montreal Tramways Company, and the vice-president, C. B. King, manager of the London (Ont.) Street Railway, were reported to have arrived in the city yesterday.

James Dalrymple, manager of the Glasgow (Scotland) Corporation Tramways, who has been touring the United States and Canada studying electric railway practice, is a visitor at the convention. In reply to the questions of one of our unofficial interviewers he said that our famous Atlantic City ocean was fully equal, so far as its spectacular features were concerned, to that which bathed the shores of Great Britain.

Have you seen her? Chic, charming chauffeuse-chaperon! We never heard of one before, but imagine it's a new brand of peach. She's operating a private electric brougham service especially for the convenience of members and guests, and she says in the entertainment program that ladies will find her luxurious machine particularly desirable for shopping, sight-seeing or visiting. We believe it. But why discriminate against the masculine shoppers?

The broad and smiling face of our good French-Canadian friend Gaboury, general superintendent of the Montreal Tramways, is again with us to radiate good cheer on every part of pier and Boardwalk. This year he is accompanied by Mrs. Gaboury. Gabby's rotundity is ample evidence of the good care that the company is taking of its superintendent. The strain of escorting Gaboury to Atlantic City was undertaken by Messrs. Blair, Byrd and Shaw, of the same company. Messrs. Dubee and Smith arrived on Tuesday and General Manager Hutcheson will be on hand either to-day or Thursday.

On Monday night due recognition was given to the fact that it was the thirteenth of the month by forcing a dinner on Dana Stevens, vice-president of the Cincinnati Traction Company, at the Hotel Chalfonte. The non-superstitious thirteen at the table were Holmes and Pape of the Galena-Signal Oil Company, Stevens, Sundmaker, Benham and Healy of the Ohio Electric Railway, "Tom" Elliott, Berry and Slingluff of the Cincinnati Traction Company, Gaylord Thompson of the Bucks County Interurban Railway, B. J. Jones, formerly general superintendent of the Ohio Electric Railway, Brother Kasemeier of the Cincinnati Car Company, and W. E. Moore, West Penn Railways.

## ALWAYS IN GOOD HUMOR

A PROFUSION OF PERSPICACITY PRESENTED BY OUR POPULAR PRECENTOR AND PILLAR OF PROPRIETY

A poor little girl, who came to Atlantic City and the seashore for the first time, was asked what she thought of the ocean. "Gee!" she said, "it's the only thing I ever sea that there was enough of."

Visitors are advised that the seals may be homesick, but they are not seasick, regardless of the sounds from the tank.

"Cally," said the teacher. "how do you spell rat?" "R-A-T, rat." "Then how do you spell mouse?" "Jes the same only with a little smaller letters."

The hyphen in Marlborough-Blenheim recalls the lady who told her friend that Mrs. Bromley-Smith spelled her name with a syphon. Said the friend—a Congressman's wife: "She does, I know. I've seen it on her visiting cards."

"Colonel," said a man this morning, "I've got one of those 'never-agains.' You've had experience; does it pay?" I replied: "The man who wrote 'David Harum' was my personal friend and said to me the last time we met: 'My boy, as I recall the past, I seem very much more to regret the things I haven't done than the things I have done.'"

A man was visiting an insane asylum and, surprised at the flight of time as his eye caught the clock dial, he turned to a mild lunatic beside him on the corridor and said: "My friend, is that clock right?" "Right?" says Loony, "You d—n fool, if it was right, it wouldn't be here."

Speaking of lunatics—a man saw through the open fence of an asylum an inmate wheeling a wheelbarrow upside down and shouted: "Say, old man, turn that wheelbarrow other side up!" Scornfully came the reply: "I did that yesterday and they put bricks in it."

Mayor Ev—s dropped into the barber's chair in the Marlborough-Blenheim exclaiming "I want a hair cut". "No," said the barber, "you don't want a hair cut; you want a shine." J. H. Stedman.

## YESTERDAY'S CARD PARTIES

The first and second rounds of the auction bridge tournament were held yesterday afternoon in the Persian Garden, Convention Pier. These resulted in the selection of the following sixteen ladies to play at four tables for to-day's final round.

At table No. 1 will be Mrs. M. E. Latey, Mrs. G. L. Esterbrook, Mrs. William Heulings and Mrs. Newbury.

At table No. 2 will be Mrs. C. F. Crane, Mrs. L. M. Gallaher, Mrs. B. E. Bramble and Mrs. Warren L. Boyer.

At table No. 3 will be Mrs. F. C. Deming, Mrs. L. W. Shugg, Mrs. W. F. Ham and Mrs. R. B. Stearns.

At table No. 4 will be Mrs. F. D. Lyman, Mrs. C. S. Cook, Mrs. William Wampler and the winner of the play-off for sixteenth place. The tie for this place was between Mrs. N. M. Garland and Mrs. H. C. Evans, and they will play it off at 2 o'clock this afternoon, one rubber to settle the match. Partners for this rubber will be provided by the committee.

During the afternoon of play Mrs. Bramble had the highest score, 1736 points, and Mrs. Ham had the next place with 1211, Mrs. Evans and Mrs. Garland tying for sixteenth place with scores of 542 points each. While the play for the prizes this afternoon will be limited to the four tables listed above the entertainment committee has arranged for tables for any ladies who desire to play between themselves during the afternoon.

The euchre contest, which was completed yesterday afternoon, was won by Mrs. J. D. Augustus with a total score of 33 points, the first prize being a silver vanity box. The closeness of the contest will be indicated by the fact that the runners-up, Mrs. R. E. McDougall and Mrs. A. B. Metcalfe, both had total scores of 32 points.

The "500" contest, which was also completed yesterday afternoon, developed a great deal of enthusiasm. The first prize, a silver handcase, was won by Mrs. Henry George Salsbury, of Toronto, Canada, who had a final score of 1570 points. The second prize, a silver coin case, was won by Mrs. E. F. Gould, of Wheaton, Ill., with a total score of 1470 points, Mrs. A. Y. Evins having the next highest score with a total of 1270 points.

## THE NEW GARDEN PIER

If the American Electric Railway Association holds next year's convention at Atlantic City, a new amusement feature for visitors will be afforded by the completion at that time of the immense Garden Pier, situated a mile north of the Million Dollar Pier. The length of the pier when completed, 3200 ft., can be more readily appreciated by the fact that it is over 1200 ft. longer than the Convention Pier. In order to allow quick and convenient access to the outer end, an automobile drive, 35 ft. wide, surmounted by a concrete trestle bearing a trolley line, will extend the distance of over a mile around the edge of the pier.

At present only 1000 ft. of length has been built. The entrance is a spacious plaza with flower beds in the centre, flanked on each side by a long low structure of ornamented Italian style for housing retail stores. At the end of the plaza stands a large amusement palace, consisting of a fireproof concrete theater and a large amusement hall, which will rival Coney Island in containing "stunts" of the eyeglass-breaking and hat-losing variety.

Beyond the amusement palace the visitor's imagination will be recalled to Venetian shores by the presence of a fresh-water lake, 2000 ft. long and 75 ft. wide, lined with flower beds and gracefully bridged over at intervals of 300 ft. On the surface of the lake the overworked convention man may enjoy the languid pleasure of a gondola trip. At the end of the pier will be erected a cafe building. The construction of the pier is in the hands of the Pier Realty & Holdings Company, Atlantic City, and Alfred E. Burke, of Philadelphia, is the owner.

## ANNUAL CONVENTION OF THE RAILWAY SIGNAL ASSOCIATION

While the annual convention of the American Electric Railway Association is in progress at Atlantic City the convention of the Railway Signal Association is being held in Nashville, Tenn. A dispatch from the representative of the Electric Railway Journal who is at the Nashville convention states that the convention opened there yesterday morning with about 350 persons in attendance. No exhibits are being made at Nashville, but a large number of supply men are present.

The convention was opened with an address by Rev. Dr. James Ivance, who extended a welcome from the Industrial Bureau of Nashville.

President B. H. Mann, of St. Louis, in his opening address, pointed out that many railroads have not adopted the association's standards and specifications. He urged that less time be devoted to arguing relative importance of this or that committee and more to individual effort to induce all railroads to adopt the recommended methods of the association.

The report of the committee on signaling practice was then presented, the discussion centering upon the effect of treated ties on track circuits. The general opinion of those taking part was that the addition of creosote did not decrease the

insulation resistance of the tie. Some doubt was, however, expressed whether the zinc chloride treatment of ties increased danger of excessive track circuit leakage. It was stated that sometimes bonding or inherent defects in the circuit itself caused trouble which was ascribed wrongly to the treatment of the tie before it was used. After a general discussion the committee's report was received as information pending further investigation.

## STEEPLECHASE PIER TO-NIGHT

Have you ever been at the Steeplechase Pier at Coney Island? Well, we're glad you have, because that will give you a basis for a conception of the Steeplechase Pier in Atlantic City. This doesn't mean that the two piers are alike, however. Far from it! The Coney Island plant bears about the same relation as a fun-maker to the outfit on our own Boardwalk as an evening at Maxim's with your mother-in-law bears to one of McConnaughy's quiet little parties. Do you doubt this? All right, you'll find out to-night that it's true because the ever-active entertainment committee has invited us all to go there and spill ourselves over the bumps.

As the whole Steeplechase Pier and its attractions have been engaged for this evening and placed at the disposal of the delegates and guests we sauntered down there yesterday to give it the "once-over" in advance. At the door we were met by the suave and polished superintendent, who escorted us through the mammoth building, one of the largest structures in Atlantic City. It seems that there are the well-known "human-roulette wheel" and "barrel of fun" near the entrance. These are, in fact, located so that everyone except members of the bum-sports club will naturally have to pass through them, and after looking over the situation we made a mental note to "can" our glad rags and top hat for Wednesday evening. This, by the way, would be a good bet all around, because, although the management furnishes bloomer overalls for some of the stunts, it is safe to say that the more venturesome among the visitors won't be able to resist the temptation of trying their luck and skill at getting into and out of difficult situations as soon as they arrive.

The "soup-bowl slide" is a considerable event. It is reported to be the highest and safest slide in existence. The trip from the top to the bottom is made at a mean speed of 93 m.p.h. by the average man and 71 m.p.h. by the average lady. The record number of revolutions made about the "soup-bowl" at the foot of the slide was established at twenty-one turns last August by a man named Smith. The superintendent says that he went around so fast that he appeared to be accompanied by the whole Smith family.

The "razzle-dazzle," "hink-a-link," "disperparberation" and "umpa" are also in evidence but the "human pool-table" is, unfortunately, out of order owing to a slight settlement of its foundations, Cyrus Ching, of the Boston Elevated, having walked over it on Monday afternoon.

There is a ballroom at the end of the pier and Fenrich will be there to-night with his orchestra, but for those who do not care about the new dances there has been provided a mechanical turkey-trotter which makes one go through the motions of that last year's step. This device should prove of educational value. For those interested it may be said that it is located near the "two-faced slide," which starts on the roof and ends in the cellar and which is across the hall from the "baby slide" for big babies who are afraid to hit the high spots. Incidentally the "Mississippi ball game" will provide an opportunity for any dancers to exercise their arms also.

The exhibitions and exposés will by no means be made before the vulgar gaze as no paid admissions will be accepted at the pier to-night. Only those may enter who wear the badge. Better run over after dinner, for you can take it from us that it's going to be some party!

## GET TOGETHER LUNCHEON FOR CORNELL

All Cornell men connected with A. E. R. A. interests in any way are requested to be at the Shelburne Hotel on Thursday at 12:30 p.m. to attend an informal Cornell lunch. It is hoped to make this an annual affair at future A. E. R. A. conventions. Those expecting to be present will kindly leave there names with H. C. Holloway, in care of the Rail Joint Company, space No. 350-355 on the Convention Pier.

## THE MAN IN THE CASE

In an article which he contributed recently to the *Interborough Bulletin*, published in the interest of the employees of the Interborough Rapid Transit Company, of New York, S. D. Smith, superintendent of the elevated lines, reviewed at length the steps taken by the company to safeguard its patrons. How the efforts of the company miscarried in one instance Mr. Smith tells as follows:

"We do everything to warn the public against the dangers in traveling. We have safety warnings on all the platforms in the most prominent places, and yet they are violated every day and many times a day. I have been informed that a device was installed under the edge of a station platform in the subway to call out 'Watch your step!' as persons were about to enter the cars. For some hours this was very effective, but in one evil afternoon, at the beginning of the rush, three women in the crowd about to enter the cars heard the warning wafted up from below. They suddenly backed up against the crowd and actually retarded the train movement on that track for some time, while they vehemently announced that they would never, never, step into the car until that man came up from under the platform."

## GET TOGETHER LUNCHEON OF THE ACCOUNTANTS' ASSOCIATION

The annual "get-together" luncheon of the Accountants' Association was held on Tuesday at the Marlborough-Blenheim Hotel. Following their usual plan the accountants went directly from the meeting to the lunch, which was successful in giving the opportunity that has been found desirable to enable the delegates to become better acquainted. An innovation was introduced in the luncheon this year. The presidents of the American and the affiliated associations were invited to be present. First Vice-president M. W. Glover of the Accountants' Association acted as toastmaster in introducing a few of the guests present. Those who responded were President Harries of the American Association, President Dana Stevens of the Transportation & Traffic Association, President Schreiber of the Engineering Association and President Heulings of the Manufacturers' Association. Mr. Glover also introduced as a "distinguished guest" James Dalrymple, manager of the Glasgow Corporation Tramways. F. W. Sweney, chief examiner of accounts, Interstate Commerce Commission, also responded to the remarks of the chairman.

With the resumption of work this fall by the Booster Club of New Albany, Ind., composed of employees of the Louisville & Northern Railway & Lighting Company, the Louisville & Southern Indiana Traction Company and other public service companies with offices in New Albany, H. H. Buckman, master mechanic of the railway companies, will continue a series of illustrated lectures on the design of electric cars and the methods of wiring. The talks are intended to acquaint the trainmen with the mechanical details of their cars, so that in case of emergency repairs becoming necessary they will be able to handle the situation. The talks have dealt with the mode of wiring, the operation of two-motor and four-motor cars and also with the design and operation of the air brakes.

## ADDRESS OF PRESIDENT HARRIES TO THE AMERICAN ASSOCIATION*

With hopes as high as they may rationally be elevated and with undiminished purpose to achieve, we have once more assembled in annual convention. Here we cement old friendships and make new ones. Here we discuss the ills we have and speculate, without gloom, as to the forms in which the adverse may sooner or later beset us. Here we plan for the constant betterment of every man and every device necessary to the liquidation of our great obligations to those whom we directly represent and to those who, not being of us and for us, take thoughtless pride in being against us. Here, without seeking, we find that comradeship which strengthens our faith, adds to our information, smooths our way and starts us homeward with determination renewed and the power to accomplish under difficulties wonderfully enhanced.

We have brought with us the spirit of mutual helpfulness and activity and are, without doubt, thankful that the period of what may be conservatively termed "financial depression" has not wrought us more of injury. In common with all who have large responsibility in this land of ours, we have been beset by grave uncertainty for several months past and still find ourselves in such an inconstant magnetic field that the needle touches true north only at rare intervals. Yet the philosophy which our business hourly cultivates and the confidence we have in our "dead reckoning" make for that courageous optimism without which success may not be achieved. Some of us have borne the added burden of labor troubles and are still distressed thereby, but of that there is no visible sign; all seem to be cheerful of countenance and strong of heart. It is a great gathering bent upon doing great things, yet mindful of the fact that nothing is so small as to be really unimportant—and therein lies the title to greatness.

Unless there be well-nigh miraculous intervention—and miracles which we would deem desirable seem to have no affinity whatsoever with the electric railway business—there is promise that to many companies will speedily come the time when the financially "irresistible" will collide with the popularly "immovable." It will not be a synchronized general catastrophe, but a succession of more or less destructive experiences; now here, now there; resulting, on one hand, from the broadening of city borders and the consequent extension of lines, forcible multiplication of transfer points, compulsory wage increases, conscienceless taxation, arbitrary and unreasonable service requirements and growing cost of construction and maintenance, and, on the other hand, from the fixed, or rather the diminishing, fare.

Never was public transportation so cheap or of such excellence as it now is. Never has desire to render the maximum of service for the minimum of cost been more sincere or effective. Never has there been so much of expensive comfort for the patron or so much of costly discomfort for the companies.

With respect to the frictional elements of present conditions, there need be no uncommon concern, for they will always exist until the coming of that never-ending day when individual aerial transportation will prevail. The grouchy and garrulous few who assume to speak for the silent and satisfied many will always be in evidence. But it behooves us immediately to look the financial situation squarely in the face. The merchant who continually sells his goods below cost cannot continue in business very long and must lose reputation as well as money. How many of us have any right to criticise that form of commercial folly? What are we doing? Of course, we have no such standing in the public marketplace as has the merchant—we operate under franchises by which we are bridled, bitted and saddled and sometimes hobbled—but while we have no present power to demand at least living wages in return for our investand standing will compel respect for his testimony, and ment and labor, there is nothing to prevent our talking "right out in meeting" of the increased rate of fare which must surely come to many company treasuries if anything like justice is to prevail and we are to survive. Every element of cost has advanced by leaps and bounds while the fare has steadily decreased. The public cannot—unless it will remit taxes—do anything to reduce costs, but it can and should and ultimately must pay a reasonable price for its consumption of our product.

How to deal effectively with this evil of an unyielding fare is really our supreme question, the answer to which we shall be compelled to seek diligently. The methods of this time and this country are practically impossible, and anything like a general changing over to European practice is beyond hope.

### SUGGESTION OF MR. MORTIMER

An interesting compromise proposition comes from the ever-practical James D. Mortimer, president of The Milwaukee Electric Railway & Light Company, who, responding to my request, has furnished me the following:

"The rapid and continuous increase in operating expenses confronts the industries with new problems. The conflict of a fixed rate of fare and the increase in cost of providing service was never fiercer than it is to-day. With the limitations imposed by franchise obligations, the best we can hope to do is to stay the extension of the distance to which passengers shall be hauled for a single fare. To contract or draw in single-fare limits presents many difficulties which may be regarded as insuperable for the present at least. The next best approximation seems to lie in the fixing of single-fare limits at their present limits and arranging some system of fares outside this area that will permit the collection of additional fares proportioned to the distance traveled in the outer zones.

"The nickel zone system is to-day generally prevalent, but gives rise to serious and frequent complaints. The nickel appears to be too large a sum to charge for the short distance outside the inner zone that many passengers ride. With existing steam and interurban railroad fares of 2 cents per passenger mile there is little complaint. The smallest practicable zone, and the one that seems best generally suited to the conditions as they exist to-day, is one mile. The charge for a ride across such one-mile outer zone, if placed at 2 cents, would not be unreasonably high; in fact, it seems probable that in most suburban extensions the cost would justify a higher charge. Expediency, however, justifies a charge not in excess of 2 cents for a ride across such zone.

"Such a scheme would result in a central or city zone, surrounded by mile zones, the charge for a ride across each of which would be 2 cents when added to the city fare. Such a plan has heretofore been discussed before this association, but never, so far as I am informed, actually tried.

"The areas that are to-day included within single-fare limits are of sufficient magnitude to prevent any undue congestion of population such as has been attributed to the European zone system of car fares. While it is true that the zone system is generally applied in the European tramway system and that there is congestion of population in larger cities, it is also true that much of this congestion existed before the tramways were constructed."

The work of the committee on cost of passenger transportation service will be greatly aided by prompt and freely tendered suggestions such as this.

In searching for the remedy which must develop, we have taken a long stride toward hoped-for salvation by the organization (within the association offices) of a Bureau of Fare Research, soon to be of great importance. The plan is to place at the head of the bureau—whose work will be

*Abstract of an address delivered before the American Electric Railway Association, at Atlantic City, N. J., Oct. 13-17, 1913.

generally directed by our secretary—a man who is thoroughly versed in every phase of the rate question, whose experience whose services will be at the disposal of member companies engaged either in rate study or rate controversy. It would be impossible to compute the value of data thus acquired or to appreciate now the powerful influences it will set in motion and move in the right direction; but it may safely be alleged that nothing planned by this association ever gave promise of more beneficial or enduring results. The financing of the bureau—in which undertaking the association participates to the extent of $2500 annually for at least three years—has practically been completed under authority granted by your executive committee and approved by the midyear meeting of January last.

More of details as to this will be found in the complete report of the committee on cost of passenger transportation service, which is successor to the old committee for determining the proper basis of rates and fares.

That trite but undeniable truth, "In union there is strength," has an added meaning so far as we are concerned. The public policy committee of the National Electric Light Association invited our committee on public relations to a dinner in New York on Feb. 19. Frank interchange of opinions combined with harmony of desire, so that the outcome was an agreement to co-operate in the good work of public education. Pending the consideration of certain essential details, the joint committee has not until now been appointed, but the organization will at once be completed and, there is every reason to believe, be highly efficient.

### PUBLICITY A POTENT FACTOR

A potent factor in the broad field of public policy is publicity. As to this there has been and still exists an idea that national publicity is fundamental and that a campaign dealing with basic principles is the primary necessity. I deem that idea to be erroneous. Education of the mass, as a mass, is impracticable. We must work with the smaller units, the individuals and the communities. Country-wide argument in behalf of a doctrine in which there are as many variants as there are local situations could not, in a century, strike home at will "the word fitly spoken" in the many neighborhood controversies which are constantly being waged. No central committee, even with the best of logical literary talent at its disposal, could hope to do more than assist those who are responsible for the administration of companies that, for the time, are not on good terms with the people whom they seek to serve. Publicity is in its beginning, therefore, a local matter.

Each one of us, as necessity calls, must be an apostle. The Great Teacher once said: "Go ye into all the world and preach the gospel to every creature, beginning at Jerusalem." If the home conditions are not as they should be, it will profit the industry but little to know that there is in operation a publishing organization which, at best, cannot do more than superficially spread throughout the length and breadth of the land the outlines of principles which, to amount to anything, would first have to be applied to one or more purely local situations. It is, therefore, clear to me that we must be nearing the point where we shall agree that if effective publicity is to be achieved it will be through the executives of our member companies taking personally an active interest in the education of civic bodies, chambers of commerce, regulating commissions and the public generally, presenting the facts with respect to their own properties to those who have it in their power to right whatever wrong may have been done or might be in contemplation.

In such undertakings the association can render real assistance. The information bureau at headquarters has data files which contain a wealth of applicable facts, and where special details are needed they can be secured and furnished speedily. The machine is yours. Use it. Many a fight has been lost because the ammunition supply was insufficient for a prolonged engagement. Some of your own fights that went wrong might have terminated more to your liking had you known just what some other company did when its safety and comfort were imperiled. When in pursuit of corporate health and happiness, call for the data files and use *Aera!*

If members of the association ever had any doubt as to the necessity for *Aera*, that cloud must have long since disappeared. Each month makes more conclusive than ever before the success and value of that publication. This year it ceased to be an exceedingly heavy burden to the association's secretary; it achieved the dignity of an editor, who has proved himself to be a good editor and whose plans will add to the worth of the journal and enhance the editorial reputation—all under the wide-awake guidance and loyal care of the advisory committee, to whose members congratulations and gratitude are heartily extended. Gratitude, however, which takes material form and appears as contributions to the columns of *Aera* will probably be even more highly appreciated by the committee than mere verbal or written thanks.

And while in an atmosphere of thanksgiving, especial mention is made of the solid support given to *Aera* by the Manufacturers' Association. It would be difficult to overvalue the warm and keenly appreciated co-operative spirit and helpful deeds of our manufacturing brethren.

Incident to the creation and growth of association activities is the determination to make monthly publication of electric railway statistics, following generally the lines of statement found most useful by the Bureau of Railway Economics for the steam roads. This work cannot possibly be otherwise than of great value to our industry, for its showing of continuous growth must appreciably influence the market for our securities. The magnitude of the aggregated business is bound to be attractive to the investor who until now has looked far from home for his opportunities.

Our members will understand, of course, that the information which they furnish will be held confidential. Carefully tabulated statements will deal with totals and with the many unidentified properties represented in each computation. Willing and prompt co-operation, the best interests of our business being the only object, should therefore be a pleasant duty.

### WORK AT THE CAPITAL

Of continuing importance is official representation at the national capital, an agency through which the association can keep in touch with the many legislative, executive and judicial projects and acts that concern common carriers. During the year this highly essential adjunct to the committee on federal relations has been usefully active and has done well all things that could reasonably be required. The necessity for such representation is now recognized by all organizations such as ours and by every one of the standard roads and big steamship lines. We know that the work will be heavy during the coming year and through at least half a dozen of the years immediately succeeding, for the Interstate Commerce Commission is engaged in the preliminary planning of federal valuation of interstate properties. Methods adopted by the commission will be of as much importance to intrastate companies as to those whose operation crosses state boundaries, for the final rulings of the national commission will ultimately govern the practice of all state regulatory bodies. This and other closely affiliated matters will be dealt with in the excellent report of the committee on federal relations.

And there is much to be done, and will be, toward the enlightenment of those whom we (and in this case "we" means "the public") customarily mention as our representatives in Congress or in state legislatures. Some of us remember that when the Interstate Commerce Commission was created (and later, when its powers were greatly increased) we were frequently informed that there would be

no more of Congressional activity with respect to anything with which the commission was authorized to deal. Many more of us heard similar assurances as state commissions came into existence. It seemed as though we were nearing the place where the materially political would be compelled to give way to organizations of the expert, or reasonably expert, who, while ruling over us, would at the same time give to us our proper amount of protection. That hope is in process of realization—in spots—and its fruitage would be much more nearly universal were it not for the fact that the federal and many state legislatures are as disturbingly active as they were in the days when they supposedly deputized commissioners to relieve them of public utility matters. Has Congress accepted its own statutes? Is there any apparent willingness on the part of that body to let its chosen instruments do the work for which they were so solemnly ordained? Read the hundreds of directing and interfering bills introduced each session and note that when the Interstate Commerce Commission does not keep within the boundaries politically prescribed (or desired by individual members or groups) there is more and more of legislative pressure. And if we seek recent, definite and reliable information as to how Congress regards its instrumentalities when they proceed in accordance with law and equity, study, as part of a course in cause and effect, the birth, the brief existence and the approaching demise of the Commerce Court.

One of the minor matters of to-day may be of much importance to-morrow. In some cities the public motor bus already presents a serious proposition which if not considered promptly may develop into a problem the country over. The unfairness of competition between the cheaply licensed and mobile vehicle and the expensively franchised and restricted railway has awakened comment. Remedial measures should be framed by an association committee.

Of the midyear meeting in January it may truthfully be said that it was a marked success in every respect. It was a businesslike gathering of men who were intent on business, and the results of that assembly more than justified the time, money and energy expended upon it. As usual, there was that great event, the banquet given by the Manufacturers' Association, brilliant, of great value to the industry, satisfying.

### PROGRAM OF THE CONVENTION

The program to be presented for your consideration and participation is of undoubted excellence, fully equal to any we have known. For its planning much credit is due the indefatigable committee on subjects. The topics are of to-day and to-morrow, teem with life and invite, almost compel, general debate. And this suggests the desirability of our studying the papers (so far as may be practicable) in advance of their official appearance. The second thought frequently affords better permanent foundation than the first impulsive utterance.

An acceptable yet debatable contribution to convention literature is the report of the committee on joint use of poles. The conclusions reached, whatever criticism they may evoke, are not one-sided; they are the result of conferences with representatives of other, and for the most part allied, interests. Specifications and contract forms have been standardized, so that there is promise of peace in a matter which has generated a vast quantity of strife between brethren. The adoption by state commissions of this report or some other, in a broad sense, similar report, should it please you, would completely solve a vexatious problem. The practical application of such a report as this will, moreover, take us far beyond all technical considerations. Every city in the country is interested in any proposition which will diminish the number of poles that are now as forests on some of the main arteries of city travel. Everywhere there is a marked tendency toward the beautifying of our more important centers of population, and in that desirable work this report will do yeoman service.

Working steadily toward a complete understanding and ultimate team work, the committee on relations with other electric railway associations will, through its chairman, give us its views as to what should be done at this stage of the negotiations. This report conveys to us the outcome of discussions with the parties at interest and is deserving of our careful consideration.

Organization activities by some of us on the Pacific Coast must not go unmentioned. In an effort to bring about the closest possible kinship between the Pacific Coast association and this body, we accepted hearty invitation to official conference in the matter. Definite conclusion as to the affiliation method to be followed has yet to be determined.

We must endeavor to give ample time to the report of the committee on welfare of employees, an uncommonly interesting, liberal and important document, not to be read and disposed of in a few minutes. Some of the recommendations contained therein call for deliberation. Action upon the suggestions made will definitely commit this body to policies that have for their ultimate the solution of one of the greatest of human problems.

The committee on compensation for carrying United States mail has contributed very largely to our continued, but as yet unsuccessful effort to make the federal government pay a fair price for services rendered. The chairman's energy, up to the time when he resigned his chairmanship, was noteworthy. The association is indebted to him for his activity and for much useful data now on file.

Once more we are indebted to the committee on taxation matters for an illuminating treatise upon conditions which in so many places are grossly unfair. The association's indebtedness to this committee increases constantly.

In accordance with accepted practice, the committee on education has this year done much of its work in conjunction with similar committees of the Engineering and Accountants' Associations—co-operative effort that promises increased general efficiency.

The committee on insurance moves steadily along, demonstrating its value and making converts to its well-known methods. Its story is always worthy the consideration of a thoughtful audience.

We are still lagging behind with respect to company sections. Those sub-organizations have wonderful capacity for doing good, and it is surprising that there has not been more of sympathetic response to the faithful labors of the committee which is charged with the company section propaganda. Wherever such sections have been established the demonstrations made even lukewarm folks wonder why there wasn't a company section in every city in the land. Some of our member companies are missing a good thing.

### OTHER ASSOCIATION MATTERS

That baleful by-product, electrolysis, is receiving, thanks in the first instance to this association, the ameliorating attention it deserves. Following the lead of our special committee on that subject, however, came proffers of co-operation, and soon there will be opinions formulated by a joint committee in which are represented, among many technical and commercial organizations, the American Institute of Electrical Engineers, the National Electric Light Association, the American Telephone & Telegraph Company, this association and our Engineering Association. As to what has been done our committee will report briefly. Incidentally, the committee of our Engineering Association will present its very clear views in more of detail.

Useful to a large percentage of our membership will be the Engineering Manual, as yet not ready for distribution. The manual is a compilation of the standards and recommended practices of our Engineering Association—put in shape by the standards committee and our secretary. The publication is of such high character and wide range as to

make it of great value. It is an uncommonly fine work and does credit to the association.

Time would fail me were I to attempt to tell of the accomplishment or planning of the Accountants' Association, the Engineering Association, the Transportation & Traffic Association and the Claims Association. Separately or jointly they have done their work in fine constructive spirit. Their programs are attractively sound and their discussions will give added impetus to the enthusiasm with which every true association member approaches his task. Those of you who have heretofore given only slight attention to the affiliated bodies should no longer deny yourselves the profitable pleasure of attending some of the sessions of all the associations.

Figures as to our membership, nursed by the capable committees on company and individual membership, will be presented in the secretary's report. Sufficient be it to say here that there is not a single city of any size in the country that is outside our fold, and that despite losses through consolidations we show an increase. There has also been substantial gain in individual memberships. Several European companies have expressed a desire to join us. The executive committee has initiated a movement, upon which you will pass this week, likely to encourage transatlantic and transpacific affiliation.

Because proper demands upon our organization have steadily increased there has been corresponding increase in our expenditures. I believe the money has been spent wisely, and as our bank balance appears to be as satisfactory as it was a year ago, we have no present cause to be disturbed about association finances; but it is in me to say that work of such magnitude as ours must annually make greater demands than can be met out of membership dues as now assessed. Those who represent our member companies should ask themselves whether the companies are contributing as much as they should for the constantly extending service. Such an organization as this ought to be possessed of ample means. It should be able to do for itself things (it should do them anyhow) that are being done for it through the benefactions of a small minority. It will do those things when, at a suitable time, the matter is placed squarely before it.

### THE CHANGE IN SECRETARYSHIP

With the adjournment of this convention the association says farewell to Mr. Donecker as secretary. That he will undoubtedly serve the organization in other capacities may afford us future gratification, but just now we are intent upon regretting the loss we suffer. For more than six years he has given incontrovertible evidence of such alert efficiency, complete devotion and highly pleasing personality that the combination is cause for wonder. He brought to the often perplexing and always arduous duties of his most responsible office qualities which stamped him as the possessor of eminent fitness and which, developed by his successful labors, made our retention of him an impossibility. He takes with him the fully earned praise to which those of us who know him can give only insufficient expression and leaves us possessors of sunny memories of a capable friend who, diligent in his business, has been called to a field where personal efficiency will assure him ample reward.

Consequent upon the outgoing of Mr. Donecker is the secretarial incoming of Mr. Burritt, who has been our Washington representative. Years of intimate business relationship with Mr. Burritt have revealed him to me as a worthy successor. Possessed of characteristics which cannot fail to merit your approval and confidence, he fills to capacity the measure which we employ when we seek the true dimensions of the competent and the courteous. I commend Mr. Burritt to you and bespeak for him that helpfulness which you have in such large store and of which you make such open-handed use.

In order that there may be smooth transition in the secretary's office Mr. Donecker has consented to act as chairman of a new committee on ways and means and as such chairman will contribute liberally of his experience in those matters which might easily embarrass during the early days of a new secretarial administration. Mr. Donecker's action as to this is just what might always be expected of him.

My sincerest thanks, insufficient as they must be, are due and tendered to all my official associates, good men and true. Thanks, also, to the highly efficient force at headquarters.

For the honor bestowed upon me a year ago and for the many honors through the many years, for the confidence reposed, for hearty, unwavering support, for courtesy and consideration past telling, I give you my unbounded gratitude and the pledge of such service as I may hereafter render as one of the elder brethren.

## ADDRESS OF PRESIDENT NEAL OF THE ACCOUNTANTS' ASSOCIATION*

In this, our seventeenth convention, as you will presently learn from the report of the committee on a standard classification of accounts, we have practically reached a goal for which we started at the very first convention held by this association. Ten long years of arduous, painstaking work was performed by our committee before government regulation became a pronounced policy and the Interstate Commerce Commission began its conference with us, and now after seven years of further effort a system of electric railway accounting has been devised which is not only a complete exposition of the fundamental principles involved but is also a well-indexed, thorough reference guide of minute details. (This will later be referred to members for criticism before being promulgated.)

More than ever before in the history of railroading is such a position in accounting as we have attained desirable. Increasing regulation, the demonstration of proper rates of fare and the settlement of labor problems necessarily bring accounts more into prominence and the benefits derived from comparisons are invaluable.

Then, again, there is another feature. In all modern, big business it is gradually becoming a maxim "that a business is no better than its accounting department." This is because large employers of labor cannot come into intimate contact with their employees nor with the details of the business but are obliged to form their opinions and base their operations upon statistical and financial statements. We accountants of to-day must, therefore, keep in close touch with the various departments so that the scheme of accounting without unnecessary duplication lends itself readily to studies of efficiency. We have gained much in this respect, I believe, by our joint meetings with the Engineers' and Transportation & Traffic Associations, and the joint committees have done valuable work. I hope there will continue to be close co-operation between us, and that cost and confusion will be thereby avoided.

So many in number are the working committees of our association and so important are their reports that adequate mention cannot be made of them all in these brief remarks, but I take this occasion to thank warmly each and every one for the hard and conscientious work which they have contributed. Their reward I know will be the feeling of satisfaction which results in having participated in the creation of what is not only a working tool of business but also in reality a code of justice beneficial to the public, our stockholders and our employees alike.

*Abstract of an address delivered before the American Electric Railway Accountants' Association, at Atlantic City, N. J., Oct. 13-17, 1913.

## YESTERDAY'S MEETING OF THE AMERICAN ASSOCIATION

The opening session of the American Electric Railway Association was held in the Greek Temple yesterday afternoon and was called to order at 2:30. The president read his annual address, which is published in abstract elsewhere in this issue. The secretary then presented the report of the executive committee.

### REPORT OF EXECUTIVE COMMITTEE

The report of the executive committee consisted of minutes of the meetings of the committee during the early part of the year at which the work of the association for the year was decided upon and the various committees were appointed. The report also contains an abstract of the discussion on the location of the 1915 convention, when the executive committee voted that it would be desirable to hold the meeting at San Francisco in that year. The appropriations for the work of the different associations made at the beginning of the year were: Accountants' Association, $1,250; Engineering Association, $4,000; Claims Association, $1,250; Transportation & Traffic Association, $2,250.

The president then announced that he had received a telegram from Vice-president Beeler, who found it impossible to leave Denver because Mr. Evans had resigned as president of the company.

The secretary then presented the report of the secretary and treasurer. An abstract of this report appears below:

### REPORT OF THE SECRETARY AND TREASURER OF THE AMERICAN ASSOCIATION

In the report which Mr. Donecker presented yesterday as secretary and treasurer of the American Electric Railway Association he stated that there are now 401 member companies and 2997 individual members and that 450 individuals engaged in committee work during the past year. He also alluded to a new method for binding and distributing the Proceedings. This year the Proceedings will consist of six volumes, one for each of the associations and one a year book with membership lists, constitution, by-laws, etc. The maximum number of sets to which a member company is entitled has been reduced to five in the interest of economy. Another decision is to require non-member companies which have representatives in attendance at the convention to enrol their members. Another recent decision is that subsequent to this convention all individual members connected with non-member companies shall be notified that their membership will lapse unless the companies with which they are engaged shall become members of the association. Plans have also been considered for increasing the foreign membership.

The report also referred to *Aera*, for which the services of Harlow C. Clark as editor had been secured. Secretary Donecker urged the members to lend their assistance in keeping the columns of the magazine filled with material not only of interest to those engaged in the business but of the character of ammunition capable of use in publicity work.

The report then suggested that the association might with profit appoint a committee to consider possible changes in committees or else might extend the scope of the committee on subjects so that it would be empowered to suggest the formation of new committees or the consolidation or elimination of old ones.

In conclusion the secretary expressed his regret at severing his connection with the association. He referred to the work which he had performed during his term of office as most pleasant and agreeable and particularly so because of the lasting friendships it had been his privilege to make, and he thanked the members for their co-operation, support and kindness. Finally he referred to the appointment of Mr. Burritt as the new secretary and said that he hoped that to Mr. Burritt would be accorded an equal measure of assistance from all. If this was so, he felt that the new secretary would put new life, new energy and new and useful ideas into the organization.

The financial statement showed:

Receipts.

| | |
|---|---|
| Cash on hand, Oct. 7, 1912 | $17,634.21 |
| Receipts from Oct. 7, 1912, to Oct. 14, 1913 | 52,935.01 |
| Total | $70,569.22 |

Expenditures.

| | |
|---|---|
| Expenditures from Oct. 7, 1912, to Oct. 14, 1913 | $52,881.45 |
| Balance, cash on hand and and bills receivable Oct. 14, 1913 | 17,687.77 |
| Total | $70,569.22 |

The reports of the committees on company membership and on individual membership were then presented. They were as follows:

### REPORT OF COMMITTEE ON COMPANY MEMBERSHIP

This committee reported that during the year thirty-eight new companies had filed applications. The work of the committee was segregated into territorial divisions and a personal touch thus given to the efforts made. Continuing, the report said:

"It is gratifying to know that at this time, with the company membership well over the 400 mark, there is not a single city of any size which is not represented in the membership of this association. While the total of companies in percentage of the grand total or operating companies may seem small, the facts are that our members operate about 80 per cent of the track mileage of the country. It can therefore be seen that the companies still unenrolled are, in almost every instance, the very small ones which would pay small amounts of dues and would receive correspondingly greater benefits from their memberships. The work that the association is doing, however, and its continual broadening scope, its recognition by the federal government and the co-operation extended by other large associations lead your committee to the belief that the non-member companies will soon see the light and extend the support that they should. It is not the question of dues involved that is important in the case of these non-members, but the extensive influence that they can wield and which should be exerted along with that of the other members.

"Your committee would suggest the great desirability of each officer of every member company storing away in his mind the thought that it is his duty to put the association and its work before the non-members in his vicinity. If a consistent campaign of this sort were conducted, your committee feels sure that the outcome would be extremely helpful."

### REPORT OF COMMITTEE ON INDIVIDUAL MEMBERSHIP

"The committee on individual membership desires to report that in the fiscal year 1912-1913 it has in many ways endeavored to increase the individual membership of the association. Various methods have been utilized to put before individuals connected with the electric railways and allied businesses of the country the privileges afforded by this individual membership class. Hundreds of personal letters have been written and folders and attractive pamphlets have been utilized, and in this work your committee has been favored with the hearty support of the presidents of the different associations. The result of the campaign has been that 599 new members have been enrolled during the year. Your committee desires to recommend that the campaign be vigorously pushed to the end that the association may count among its members a great many more thousands of those who should be identified with it. The dues are nominal and hardly commensurate with the returns afforded, and because of this the committee feels that the consistent following up of the matter and the enlighten-

ment of prospective members as to just what is afforded should bring about many additions to the present rolls."

Professor Norris then presented the report of the committee on education. This is published in abstract elsewhere in this issue.

THE CLEVELAND SITUATION

C. N. Duffy, vice-president and comptroller The Milwaukee Electric Railway & Light Company, then presented his paper on "The Cleveland Situation." This is published elsewhere in this issue.

F. W. Hild, Portland, Ore., said that it is often argued that a reduction in fare will increase the riding. He believed that there were many other much more important factors. One was the topographical condition of the city. Another was climatic conditions. Another was the temperamental habit of the people. He had statistics of seven or eight cities where the riding habit was very much higher than in Cleveland, and he did not think that the rate of fare had an important effect on the number of riders.

Mr. Duffy said that his paper related purely to Cleveland and as a general proposition he believed that Mr. Hild was correct.

J. H. Alexander, chief engineer for the city street railroad commissioner of Cleveland, also discussed the paper.

OTHER PAPERS

A paper on "Valuation: Franchise Values" was then presented by William M. Wherry, Jr., of Wherry & Mygatt, New York. An abstract of this paper is published elsewhere in this issue.

John J. Burleigh, Public Service Corporation, Newark, N. J., said that he felt that the convention was greatly indebted to Mr. Wherry for his address. On the motion of Mr. Burleigh, appreciation of the address was shown by a vote of thanks.

C. M. Rosecrantz, general counsel The Milwaukee Electric Railway & Light Company, read a paper on "Valuation: Other Elements of Value". An abstract of this paper will be published in a later issue of the Electric Railway Journal.

Announcement was made by the chair of the following committee on the president's address: Frank Hedley, Percy Warner and R. E. Danforth.

The meeting was then adjourned.

## TUESDAY SESSIONS OF CLAIMS ASSOCIATION

The Tuesday session of the Claims Association was called to order at 10 a.m. The proceedings followed the program very closely. The first order of business was papers on "The Prevention of Accidents," by H. V. Drown, general claim agent Public Service Railway, and J. H. Handlon, claim agent United Railroads of San Francisco. On these written discussions were contributed by P. C. Nickel, claim agent New York Railways, and E. H. Odell, secretary Pacific Coast Claim Agents' Association. This subject was also discussed at considerable length by other members present. H. K. Bennett, chairman, then read the report of the committee on uniform forms and records. Following this business a paper on "The Value of Safety Committees" was presented by George Carson, claim agent Puget Sound Traction, Light & Power Company. This was followed by written discussions which were presented by R. E. MacDougall, claim agent New York State Railways, and H. K. Bennett, claim agent Fitchburg & Leominster Street Railway. The meeting concluded with a felicitous address by President Harries of the American Electric Railway Association, who expressed his gratification at the large attendance and the great interest shown by the claim agents in their work. He also discussed the ways and means whereby claim agents could assist their brethren in the other associations to make the "safety first" movement most effective.

## TUESDAY'S MEETING OF THE ACCOUNTANTS' ASSOCIATION

In the unavoidable absence of President Neal of the American Electric Railway Accountants' Association, the annual meeting was called to order at 10 o'clock yesterday morning by the first vice-president, M. W. Glover, Mobile Light & Railroad Company. Mr. Glover stated in opening the meeting that all who knew Mr. Neal realized that his absence was a great loss to the association.

The annual address of the president, which had been forwarded by Mr. Neal, was then read by the secretary, M. R. Boylan, Public Service Railway, Newark, N. J.

Mr. Boylan read the report of the executive committee and afterward his report as secretary and treasurer.

F. J. Pryor, Jr., American Railways Company, presented the report of the committee on education, of which he was the chairman. An abstract of this report is published elsewhere in this issue. Supplementing his written report, Mr. Pryor said he thought some action should be taken by the convention looking to the establishment of a course of study. The committee had received letters from fifty or sixty companies asking when the course would be started. Mr. Pryor thought that the association should ask the parent association for an appropriation sufficient to begin the work. He believed that about $200 would be adequate for a beginning.

Chairman Glover said he thought that the association ought to take definite action.

The matter was discussed by T. P. Kilfoyle, Cleveland Railway; C. N. Duffy, Milwaukee Electric Railway & Light Company, and W. F. Ham, Washington Railway & Electric Company.

The association voted to recommend to the executive committee that a request be presented to the parent association for an appropriation in order that the work of education outlined may be started.

On motion of Mr. Duffy the association sent to President Neal a telegram of greeting and expressions of regret at his enforced absence. A telegram was also sent to W. H. Forse, Jr., Union Traction Company of Indiana, expressing the sympathy of the association in the death of his mother.

No report was presented by the committee on the destruction of records. A report was received that the report of the previous year be discussed, but on account of the number of other matters on the program this was not done.

H. L. Wilson, Boston Elevated Railway, chairman of the committee on the standard classification of accounts, was not able to be present and the report of that committee was read by Mr. Ham. An abstract of this report is published elsewhere.

F. W. Sweney, chief examiner of accounts Interstate Commerce Commission, was introduced by Chairman Glover and was asked to speak to the members. He said that this was the fifth convention, which he had attended. While he had appreciated the co-operation given by the committee on the standard classification of accounts in the past, he appreciated it more fully this year than ever before on account of the work on the pending new classifications. It was important that these classifications should embody the best electric railway practice. He hoped that when they were revised and definitely issued by the commission they would stand for twenty or twenty-five years. The commission would send copies of the tentative classification to the companies, and when the criticisms and suggestions had been returned the committee had promised to meet representatives of the commission again for the purpose of going over the accounts.

George Geekie, examiner Interstate Commerce Commission, was introduced to the members and referred briefly to the work of the new classification. He said that a number of changes had been introduced, which he thought would meet the approval of the accountants and also of the managers.

It was hoped to have the classification in tentative shape before the close of the year.

H. S. Lyon, Board of Public Utility Commissioners of New Jersey, was then introduced and said that that commission would be very glad to adopt any system of accounts that was prescribed by the Interstate Commerce Commission.

James Adkins, United Railways of St. Louis, made the suggestion that the new classification be sent to all member companies of the association.

Mr. Sweney said he thought it was very important to get criticisms from the companies that did not do an interstate business as well as from those that were under the jurisdiction of the commission. If a list of the companies in the association was given to him, he would be glad to send the tentative classification to them.

Mr. Ham, chairman of the committee appointed to represent the association at the 1912 meeting of the National Association of Railway Commissioners, presented the report of that committee. An abstract of this report is published elsewhere in this issue.

In compliance with the recommendation of the committee the association passed a resolution directing the incoming president to appoint a committee to attend the 1913 convention of Railway Commissioners, which is soon to take place in Washington, D. C.

### INCOME TAX LAW

Chairman Glover said that it had been suggested that the income tax law would require attention on the part of the companies and that if anyone was sufficiently familiar with the terms of the law to give information concerning it the association would be benefited.

C. L. S. Tingley, American Railways Company, said he did not want to be quoted as speaking authoritatively because the subject was a large and difficult one. He had given it some study, however, and had discussed it to some extent with counsel. He was advised that where a mortgage provided that the income should be paid without deduction for any present or future tax the company would be required to pay the tax. As far as dividends were concerned the only difference between the income tax and the present excise tax was that the $5,000 exemption on net earnings had been taken away. The corporation was taxed 1 per cent on net income. In the definition of net income, taxes were deducted but not the taxes fixed under this law. The law was not specific as to the deduction for depreciation, and the language provided for a due allowance for depreciation. An expert in the Internal Revenue Department had issued a pamphlet saying that companies would be allowed to deduct only the depreciation actually shown on the books. According to this expert, the company would not be taxed on any increment in value unless it was reflected in the books. If such increment was reflected in the books that would be taxed as income, and by analogy the expert applied the same reasoning to depreciation.

Mr. Adkins said that while the new income tax commenced from March 1 corporations would have to pay the old excise tax from Jan. 1 to March 1.

S. C. Stivers, American Cities Company, asked whether the amount retained at the source should be considered as a tax or as a deduction from net income.

Mr. Ham said he thought it ought to be considered as a tax.

Mr. Tingley said that he would be inclined to think that so far as bonds already issued, which had been put out free of tax, were concerned, it might almost be possible to charge up the tax to interest or discount on the securities because such a provision in the mortgage had been reflected in the price of the bonds. In Pennsylvania tax-free bonds sold from two to five points higher than bonds which were taxable.

Mr. Tingley added that the tax on salaries was certainly not a tax on the corporation.

### A UNIT COST WORK ORDER SYSTEM

As announced in yesterday's issue of the Daily Electric Railway Journal a change in the program was made necessary by the inability of W. H. Forse, Jr., Union Traction Company of Indiana, to be present at the first session. For this reason the paper of G. W. Kalweit, auditor Milwaukee Electric Railway & Light Company, on "A Unit Cost Work Order System" was advanced from the place fixed for it in the program of Friday and was presented yesterday.

Mr. Kalweit in presenting the paper illustrated it with lantern slides, showing the forms comprising the records of the system and the use thereof. An abstract of the paper is published elsewhere in this issue.

T. B. MacRae, auditor of the Chicago elevated railway companies, said that the paper was very interesting and he would like to supplement the knowledge of the system, which he had obtained from it by personal investigation. He was especially interested in the final analysis down to unit costs. He could see that work of that character would afford comparative figures that would be invaluable. In the Chicago elevated lines the system used was known as the "a. f. e." system or authority for expenditure system. When authority was issued under this system the engineers could not exceed it without special authority.

Mr. Kalweit said that under the Milwaukee system if it was found that the amount authorized was being exceeded, authority was asked for more.

N. E. Stubbs, United Railways & Electric Company of Baltimore, said that his system followed in the main the principles of the Milwaukee system.

H. A. Gidney, Charles H. Tenney & Company of Boston, asked if uncompleted orders would be held on file against jobs as in the case of direct purchases.

Mr. Kalweit said that the work was always covered by orders.

R. J. Clark, Metropolitan Street Railway of Kansas City, said that he followed a similar system. He was sorry that the paper had not been presented before the joint meeting with the Engineering Association, as it was a matter that concerned so largely the members of both parties. He was trying in his department to establish more co-operation between his organization and the engineers. He liked the arrangement governing timekeepers in Milwaukee and thought that he would try to put something like that in force, although Kansas City was so large that they would not find it practicable to get over the ground four times a day.

In answer to a question, Mr. Kalweit said that the engineers made the separation between the different accounts. After the completion of the work order necessary adjusting entries could be made.

Mr. Glover asked if this would not mean that sometimes large amounts would be added to operating expenses in certain months.

Mr. Kalweit said that the charge was made to the depreciation reserve account and not to operating expenses.

Mr. MacRae, describing his practice, said that in case large amounts were to be charged to operating expenses in connection with work of this character, accruals were charged as the work progressed.

Mr. Pryor said that the system his companies used was based somewhat on that described by Mr. Kalweit but that they did not go as closely into the unit cost system.

C. N. Huggins, Portland (Ore.) Railway, Light & Power Company, said that except in one respect his system did not differ materially from that of the Milwaukee lines.

Mr. Ham said that no company, however small, could afford to continue keeping accounts without maintaining a detailed record of capital expenditures. It was not necessary to go into details or unit costs as the Milwaukee company had done. It would be a tremendous asset for the electric railway companies to-day if they had a record of their

expenditures from the beginning based on a system like that of the Milwaukee company. Another great advantage of such a system was that its development frequently showed where inefficiency existed. In his company savings had been made in one line of work as a result of analysis of this character. Errors had also been discovered.

Mr. Tingley said that the knowledge that the details were checked had a salutary effect on foremen and superintendents. With such a system a company could be in possession of essential facts which could not be controverted.

P. S. Young, Public Service Corporation, Newark, N. J., said in discussing overhead charges that it seemed to be desirable to have some estimate in connection with this factor. If an estimate was to be made the time to do it was when the work was done. He thought that so far as it was possible to do so it was desirable to divide the charges in work orders each month.

Mr. Glover said that in his system work orders were used for all important jobs but were carried as separate accounts. The cost of jobs was charged to the regular accounts and in addition work orders were shown against the charges. A work-order ledger was kept separate from the other books.

Mr. Duffy said that Mr. Kalweit had stated that a controlling account was used. It was known as work orders on the general ledger and bore the same relation to each work order, of which there were 350 or 400 on the books now, as the operating expenses as a controlling account on the general ledger bore to each of the individual operating expense accounts.

Estimates rarely worked out and usually there was a good reason for this. Sometimes a job was undertaken and for good and sufficient reasons the extent of it was increased or decreased. Sometimes there was something wrong with the charges. Sometimes the estimate had not been correct. If there was a proportion of 5 per cent over or under the estimate, taking into account all of the unpaid contracts, freight bills and various other charges that the construction departments knew nothing about, an investigation was started immediately. In Milwaukee the company was able to have the benefit of the knowledge that it obtained from its work orders. This was a great advantage now and would be a greater advantage in the future. Under the system that was in use, if the Milwaukee company was under consideration in any way ten or fifteen years from now, the work orders would show the exact facts.

Chairman Glover appointed as the committee on nominations: C. L. S. Tingley, H. B. Cavanaugh, H. J. Jumonville, L. T. Hixson and C. B. McCourt.

The following committee on resolutions was appointed: E. D. Gault, G. B. Cade and H. L. Sanders.

The association then adjourned to meet this morning in joint session with the Transportation & Traffic Association.

## ACTION OF TRANSPORTATION & TRAFFIC ASSOCIATION ON PROPOSED REVISION OF RULES

At the adjourned session of the Transportation & Traffic Association held yesterday morning the discussion of the proposed changes in the standard codes of rules was taken up at the point where it was dropped on Monday evening. Summed up, the final action of the association was that the proposed changes in the present standard bell signals were not to be made and that the suggested modifications of the present codes for city and interurban lines in order to make them similar were not desirable. The revision of the city code, which included changes in diction and provided for the interpolation of those rules which applied to special types of cars in the general code, was, however, approved by the association. The major objection to the proposed bell signals was the use of three bells for backing as well as for the emergency stop signal, thus affording an opportunity for confusion when starting backward.

## JOINT SESSION OF ENGINEERING AND TRANSPORTATION & TRAFFIC ASSOCIATIONS YESTERDAY

There was a joint session of the Engineering and Transportation & Traffic Associations, yesterday morning at the Greek Temple. President Schreiber, of the Engineering Association, called for the report of the joint committee on block signals. It was presented by the Mr. Waldron, who, at its conclusion, moved the adoption of the recommendation of the committee for the use of continuous track circuits for the control of automatic signals for high-speed interurban service.

C. P. Nachod, Philadelphia, objected to the adoption of this recommendation as he feared it would restrict the development of the art of signaling. He said that at the present time the assumption that any particular system is the only one adaptable to certain conditions did not seem warranted. He mentioned particularly the intermittent control signals, which he believed would be so developed as to be adaptable for high-speed operation in the near future.

Charles L. Henry, Indianapolis & Cincinnati Traction Company, moved to amend the recommendation of the committee to read as follows: "For high-speed interurban service, where automatic signals are controlled by continuous track circuits, that expenditure be concentrated on the form of indication in preference to a more expensive form of signal and less reliable control."

J. W. Brown, Public Service Railway, cited an example to show the value of the continuous track circuit system. It prevented an accident, which would have occurred without it.

Upon request Mr. Henry explained the reasons for requesting the amendment to the recommendation of the committee. He stated that his motion should not be construed as a thrust or an argument against the continuous track circuit control but was meant to put the association in a position of advocating the development of something better if possible. He stated further that it was only within the past year and a half that anything had been done along the line of a signal with continuous track circuits other than the semaphore type. At the present time the light signal alone without the semaphore is being tried. Mr. Henry believed that the committee had misconstrued one of the assigned subjects in that the association had not asked the committee to report what was the best signal for high-speed interurban roads. To substantiate his position he cited the instruction, which read: "To continue the study of signaling constructions and methods and make recommendations." This did not mean that the committee was to report recommendations that continuous track circuits be adopted as against all other signals, but that it should report on instructions and methods for the use of continuous track circuits. In closing Mr. Henry cautioned the association members that the signal business was in its infancy and it would appear ill advised to recommend or adopt any particular standard at this time.

Mr. Waldron replied to Mr. Henry that he would never think of recommending anything where automatic appliances are used for the protection of human lives unless it was the best the art had developed up to that time. In view of the recommendations and reports recently handed down by the Interstate Commerce Commission regarding certain accidents and wrecks, it was not advisable to recommend any automatic device which was not considered by those versed in the art of automatic signaling as being the safest.

Mr. Emmons also replied to Mr. Henry and stated that he believed that 90 per cent of the actual signaling that is being done at the present time for high-speed service is the continuous track circuit signal. He also stated that the Interstate Block Signal Train and Control Board had gone into this matter thoroughly, and its report is exceedingly favorable to control of the continuous track circuit type.

C. N. Wilcoxon, Chicago, Lake Shore & South Bend Railway, expressed himself as being heartily in favor of certain recommendations of the committee. He believed it would be unwise to make a positive commitment to any particular signaling system as recommended in the report. In explanation of his position he said that he was a strong advocate of the continuous track circuit signals, as he was at the present time installing 60 miles, but he did not believe that the amendment offered by Mr. Henry would harm anyone. It permitted those who desire track-circuit signaling to use it and it did not handicap those who were trying to develop something that is all that could be desired in the future.

Mr. Waldron again replied that the committee's recommendation did not interfere with anyone developing a new device but simply offered what was now considered by signal engineers to be the best protection known.

Mr. Henry stated that the Indiana law regarding automatic signals had been changed to meet all types. It included a provision that any kind of signal which may be approved by the Railroad Commission of Indiana that would reasonably protect the public might be installed in place of the automatic signal.

H. H. Adams suggested that this entire recommendation be referred back to the committee for further consideration. Before putting the amendment to vote President Schreiber put the whole proposition as follows: First, whether the continuous track circuit is the best means of protection to be used or not? Second, if it is the best at this time, does the association want to recommend it, especially if there is any possibility of hardship on any of the member companies?

Mr. Henry's amendment was then put to vote and adopted.

Mr. Waldron then explained that the committee had tried to answer subjects No. 2 to 6 inclusive as well as it could, but every railroad manager knew that the questions were in a sense local to his particular property. This being the case, the committee simply presented different schemes for handling traffic under the conditions asked for by the executive committee. He did not attempt to read all the sections but quoted the essentials, conclusions and recommendations.

Following a brief discussion President Schreiber put the motion that the report of the committee be accepted and approved as amended. Before the vote was taken, Mr. Nachod inquired whether the report would take care of the aspect as recommended, and upon advice that it would he stated that the recommended indication "proceed by contactor to operate signal" was given as a green light, which was an unrestricted clear signal. This aspect was for intermittent control signals and required a check indication. President Schreiber explained that the matter of indications would always be under the supervision of a standing committee which would look after it each year and make such revisions as were necessary as the art progressed. At this point the motion that the report of the committee as amended be accepted and approved was put and adopted.

COMMITTEES ON TRAIN OPERATION

President Stevens took the chair as H. H. Adams and W. H. Sawyer, co-chairmen, presented the report of the joint committee on train operation for city service.

The discussion was opened by E. T. Munger, who said that he considered the two-car trains of the Public Service Railway a great improvement for rush hours. The fact that the loading of passengers could be done on the train as quickly as on a car, and for twice the number loaded, was a strong point in favor of two-car trains. He favored the near-side stop as a help toward reducing accidents and believed the coasting register was valuable not only in reducing energy consumption but also in reducing the cost of car maintenance.

C. H. Hile discussed conditions which affected train and single-car operation in Boston. No conclusion had been reached, but so far as his personal studies extended the final decision tended rather to the two-motor car service. In reply to H. H. Adams, Mr. Hile said that his company was now operating some six or eight trains of articulated cars made up of two 20-ft. closed cars but without the stepless features. It would soon have thirty in operation. A number of modifications might be made to advantage in future equipment. They were now changing from the folding step to the stepless car as the middle unit is only 15 in. from the street. The company has not yet gone far enough to feel that it would use this type of car for its 25-ft. closed cars.

L. P. Crecelius, Cleveland, called attention to the importance of voltage studies in connection with train operation. In reply to his query on this point, J. W. Brown, Public Service Railway, said that on account of their bulk voltage records had not been included in the report but they were available for the investigation of anyone interested.

Upon motion the committee's report was adopted and a vote of thanks was tendered to it for its work.

The next order of business was the report of the joint commitee on train operation for interurban service. In the absence of E. C. Faber, chairman, the report was submitted by C. N. Wilcoxon. Mr. Wilcoxon said that at a meeting of the committee on Monday night it had been decided to create a new committee to handle train operation as applied to interurban railroads as it was believed that a division of the work as between city and interurban lines would bring the matter to the attention of the railroad fraternity in a more advantageous way.

Mr. Wilcoxon then abstracted the report of the joint committee on train operation for interurban service.

E. F. Gould summarized the report of the committee but noted that it had made no investigation as to difference in maintenance between single car and train operation. In the instruction originally given to the committee it was asked to look into the effect of car design on the duration of stops. While variations in car design undoubtedly have great effect on the duration of stops when single car units are concerned or in the case of train operation in cities, it did not seem that this subject furnished a very fruitful source of investigation for interurban service. Outside of ample width of entrance doors and easy steps there seemed to be little in car design which would have any bearing on the duration of stops.

Upon motion of Mr. Boutelle, the report of the committee was adopted.

The meeting then adjourned.

## SAFETY ALWAYS

An international exposition of safety and health is to be held in New York at the Grand Central Palace, Dec. 11 to 20 inclusive, under the auspices of the American Museum of Safety. Dr. Tolman, director of the Museum, is in attendance at this convention to interest representatives and manufacturers to exhibit what they are doing to safeguard the lives of the public and their employees. A jury of award will decree five grades of distinction, viz.: Grand prize, gold, silver, bronze and honorable mention. Acceptances on the jury thus far include Hon. Elbert H. Gary; John H. Patterson; J. B. McCall, president National Electric Light Association; Hon. Joseph H. Johnson, fire commissioner of New York, and Hon. John H. Finley, New York State Commissioner of Education. At this convention Dr. Tolman is accompanied by F. W. Payne.

The Department of City Transit of Philadelphia has established the geographical center of Philadelphia at Sixth Street and Erie Avenue and the center of population at Seventeenth Street and Girard Avenue.

# A UNIT COST WORK ORDER SYSTEM

BY GEORGE W. KALWEIT, AUDITOR THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY

In order to account correctly for all expenditures made in connection with new construction and equipment, reconstruction or re-equipment, so that the total cost of a specific piece of work as well as the unit costs of same may be accurately determined, a unit cost work order system is necessary, comprehensive in its scope and practicable in its workings. Such a system should embody the following:

(1) Classification of Accounts.—The classification of accounts should be in sufficient detail to keep in touch with the work while it is in progress and insure correct charges being made to the proper accounts. Every employee of the company having anything to do with the charges or credits and their distribution should thoroughly understand the classification of accounts and its application.

(2) Timekeeping System.—The timekeeping system should be simple enough to be fully understood and readily applied by the average timekeeper, this being absolutly necessary for the accurate reporting of labor charges and their distribution, as well as the "man hour cost."

(3) System for Recording Material and Supplies Used and Distribution of Charges.—The system for recording material and supplies used, the unit quantities thereof, as well as the distribution of charges and credits, is of the greatest importance, as it is in this part of the work that the liability of errors is most likely to occur and most difficult to detect and adjust. The system should comprehensively cover the ordering, delivery and receipt of material and supplies, also the record of material and supplies rejected, returned or transferred from one work order job to another.

(4) Unit Quantities.—The unit quantities used to ascertain unit costs should be the actual unit quantities determined by measurement of the completed work. The actual unit quantities are not necessarily the estimated unit quantities or the unit quantities built up from the distribution of labor charges and the distribution of material charges. The use of the actual unit quantities determined after the work is completed in compiling the analysis of the charges and their unit costs is an invaluable check against the cost of the work as well as the unit quantities shown on the books.

(5) Analysis of Charges and Unit Costs.—An analysis of the charges and their unit costs should be prepared and finished immediately after the work is completed and the work order is closed, or the analysis loses its value and the work order system fails to accomplish the purpose for which it was devised. It is therefore important that the accounting system be so planned and the record of the work performed as it progresses be so kept that the preparation of the analysis upon the completion of the work will not involve anything more than the assembling of the data as recorded on the books.

The "unit cost work order system" of The Milwaukee Electric Railway & Light Company has proved practicable in its application and satisfactory in attaining the desired results. The company has made it a practice to issue "specific work orders" for each piece of work undertaken, covering charges to capital expenditure accounts or reserve fund expenditure accounts, or special charges in operating expense accounts (work order charges), unless such charges would be covered by "general work orders."

### INSTRUCTIONS COVERING WORK ORDER CHARGES TO CAPITAL, RESERVE OR OPERATING ACCOUNTS

The company's classification of accounts prescribes:

(A) Capital expenditure accounts (work order charges) should include charges constituting expenditures for construction and equipment, additions and betterments, including intangible capital expenditures properly chargeable to "property and plant."

These charges are to be carried on work orders either through a "specific work order" or a "general work order," issued to cover charges properly chargeable to capital expenditure accounts.

Charges and credits to capital expenditure accounts must be in accordance with the classification of capital expenditure accounts (work order charges) as follows:

(B) Reserve fund expenditure accounts (work order charges) should include charges constituting expenditures for reconstruction, re-equipment, betterments, or uncurrent and extraordinary expenditures, properly chargeable against "maintenance and depreciation reserve fund," as distinct from construction and equipment, additions and betterments, or intangible capital expenditures, properly chargeable to "capital expenditure accounts," or current ordinary maintenance charges, properly chargeable to "operating expense accounts".

These charges are to be carried on work orders either through a "specific work order" or a "general work order" issued to cover charges properly chargeable against "maintenance and depreciation reserve funds."

Charges and credits to reserve fund expenditure accounts must be in accordance with the classification of reserve fund expenditure accounts (work order charges).

(C) Operating expense accounts (work order charges) should include work order charges properly chargeable to operating expenses, separated from regular charges to operating expenses for the purpose of ascertaining the cost of a specific job, the cost of the job to be transferred monthly to the appropriate operating expense accounts.

### CLASSIFICATION OF WORK ORDERS

Work orders are divided into two classes: (A) specific work orders; (B) general work orders.

A "specific work order" should carry the charges for a specific job, for example:

(1) Construction of 1 mile of double track in Twenty-seventh Street from North Avenue to Burleigh Street, 7-in. 95-lb. T-rail; 350 cast-welded joints; 205 splice joints; necessary special work; brick and granite paving; necessary electric line construction work.

(2) Remodeling of 300 standard city cars into P—A—Y—E cars.

A "general work order" should carry the charges for certain general work during a current year, for example:

(1) Purchase or construction and installation of new and additional shop equipment—year 1913.

(2) Cast welding joints on various Milwaukee city lines—year 1913.

### WORK ORDER REQUISITIONS

For the guidance of department heads, the accounting department issues the following instructions regarding work order requisitions covering capital expenditures or reserve fund expenditures:

(A) All work properly classified as a "capital expenditure," or a "reserve fund expenditure," as distinct from a "maintenance charge" (properly chargeable in "operating expense accounts") must be authorized through "work order requisitions."

(B) "Work order requisitions" should describe the work to be done, the reason for doing it, the estimated cost of same in detail. "Work order requisitions" should be sent to the accounting department for the proper distribution and charge, to be in turn passed to the properly authorized official for approval, and then returned to the accounting department for the issuing of the "work order notification."

(C) "Distribution of estimated cost" must be drawn up to conform with the distribution prescribed by the classification of accounts. This distribution is carried by the accounting

*Abstract of paper read before the American Electric Railway Accountants' Association, Atlantic City, N. J., Oct. 13-17, 1913.

department for all "capital expenditure work orders," but not for other work orders, unless a request is embodied in the "work order requisition" to do so.

(D) "Details of estimated cost" must be drawn up in accordance with classification of capital expenditure accounts (work order charges), or reserve fund expenditure accounts (work order charges).

WORK ORDER NOTIFICATION

When the approved "work order requisition" reaches the accounting department, it is carefully scrutinized and the calculations of "details of estimated cost" checked. If found to be properly drawn, the serial number is assigned, the "work order notification" issued, and a copy of same sent to all the departmental heads.

The "work order notification," with proper identification number assigned, shows the department from which the "work order requisition" originated, the title of the work order, the description of the work, the estimated cost, as well as the distribution and charge.

WORK ORDER INDEX

The accounting department's copy of the "work order notification" is entered on the work order index which shows the date issued, work order number, description, distribution and charge, sub-index page and date completed. The work order index thus combines a ready reference and record.

WORK ORDER DISTRIBUTION SHEET SHOWING COST OF EACH JOB

The accounting department's copy of the "work order notification" is entered on a loose leaf distribution sheet, to which charges are posted from day to day as the work is in progress, the charges being carried according to the distribution and charge prescribed, separated as between "labor" and "sundries."

"Labor," according to the classification of accounts, is defined as:—"Pay roll charges," covering manual labor, clerical work, engineering and superintendence.

"Sundries," according to the classification of accounts, is defined as: "Sundry charges," other than "pay roll charges," covering material and supplies, tools and expenses.

The charges segregated as between vouchers or journal entries, the latter including charges for material and supplies, disbursed from stores, charges from special account reports, such as horse and vehicle service, cast welding, gravel pits, etc., are carried in a controlling account on the general ledger called "work orders."

RECAPITULATION OF WORK ORDER CHARGES FOR GENERAL JOURNAL ENTRY

A recapitulation is made at the end of the month summarizing the total charges to each work order; from this recapitulation the total work order charges are transferred to the proper general ledger accounts by general journal entry. All charges to the controlling account "work orders" on the general ledger, are closed out monthly.

CLASSIFICATION OF WORK ORDER CHARGES

The charges to each work order are recapitulated in accordance with the classification of "capital expenditure accounts", "reserve fund expenditure accounts", or "other accounts", as previously described. The total of these charges to the respective accounts affected, are then transcribed on the "monthly financial and operating report."

MONTHLY WORK ORDER REPORT

All work orders are scheduled monthly, showing the work order number, date issued, description, charges current month, year to date, total to date, separated as between "labor" and "sundries", estimate, company and account as between "capital expenditure accounts", "reserve fund expenditure accounts," etc. The monthly work order report is forwarded to all departmental heads, thereby giving them an opportunity to follow the work as to charges and costs.

The foregoing outlines the system followed in obtaining the total costs of various pieces of work or jobs properly classified in accordance with the classification of accounts.

WORK ORDER UNIT COSTS

In order to ascertain the costs of the various items entering into a work order or job, to determine unit costs, an amplification of the classification of capital expenditure and reserve fund expenditure accounts previously referred to is necessary.

WORK ORDER UNIT COST RECORD (SUB-DISTRIBUTION)

A loose-leaf sub-distribution sheet is used for recording the distribution and unit cost data for each work order. The charges appearing in total on the work order distribution sheet are posted in detail on the sub-distribution sheet giving the date, reference, unit, description of the item, unit rate, separated as between labor and sundries, and the total, agreeing with the amount shown on the work order distribution sheet. This, of course, entails a great deal of detail work, listing the items under the various distributions, but after the data are assembled, it is comparatively easy to draw off accurate unit costs. The sub-distribution sheet further provides facilities for working out "specific unit" costs and "common unit" costs, as shown by the following:

Group I. Grading. This is subdivided as follows: Excavation (labor).—The specific units applicable to excavation labor would be "man hours" and "cubic yards," whereas the common unit would be "lineal foot of track."

Group II. Ballast. This is subdivided as follows: Crushed stone (material).—The specific unit applicable to crushed stone would be "cubic yards," whereas the common unit would be "lineal foot of track."

TIME BOOK

A very important factor in order to be able to assemble the labor items accurately so as to ascertain the "specific" and "common" unit costs, is the manner in which the timekeepers report the distribution of the labor. All timekeepers are supplied with a copy of the classification of accounts, showing only the labor accounts. The timekeeper on the job checks his gang four times a day, twice in the morning and twice in the afternoon, indicating the account number in the little square opposite each man's name, to record and show the work that he is doing. Each timekeeper recapitulates daily the total hours worked by his gang, showing the hours under the various rates and the various charge accounts. This information is reported on a daily labor distribution sheet.

CLOSING OF WORK ORDERS

(A) When the work covered by a given work order is completed the coupon attached to the "work order notification" is sent to the accounting department by the department in which the "work order requisition" originated, as a notification to close said work order.

(B) Upon receipt of the notification described in (A) the accounting department makes an investigation of the work order charges on the books, compares same with the estimates, and if found to be in order the work order is closed. Differences between actual cost and estimated cost are sometimes accounted for by reason of balances to be paid on contracts or certain credits to be applied which have not been taken on the books and which the other departments may not know of. If the cost does not vary from the estimate more than 5 per cent, the work order is closed, otherwise the accounting department holds the work order open, notifying the department drawing the work order to investigate the charges and furnish an explanation. The accounting department sends out a notice in the form of a letter to all departments, listing the work orders that have been closed. Work orders are always closed as of the end of the month.

UNIT COST ANALYSIS AFTER COMPLETION OF WORK ORDERS

After the completion of a work order a unit cost analysis is prepared for each work order, showing the group number, item number, item, unit, quantity, specific unit cost, common unit cost, item cost, group total, remarks. Remarks

cover the following: Date work was begun, date completed, weather conditions, soil conditions, labor conditions and reconciliation of estimated cost with actual cost.

SUMMARY

It may be argued, especially by the smaller electric railway companies, that, from a financial standpoint, the cost of a work order system, particularly the keeping of unit costs, would be too great to warrant the expense involved. In answer to this, it should be understood that while it might be desirable to have the unit costs of every piece of work, it is not necessary, provided unit costs are determined for each class of work.

Unit costs are extremely valuable, in fact absolutely necessary, in making or checking valuations of properties. For this purpose, unit costs have an asset value, worth all, and many times more than, the expense incurred in ascertaining them.

The importance and necessity of a unit cost work order system is of special significance at this particular time, in view of the fact that there is to be a valuation made of all the interstate electric railway companies of the United States by the Interstate Commerce Commission, and also because of the increasing number of state commissions, exercising supervision over electric railways within their respective states and of the increasing number of valuations of electric railway properties being made by such commissions.

The usual experience of an electric railway company when a valuation of its property is made is that data are not available with which to substantiate the various charges made to "capital" or "maintenance and depreciation." This results in estimated valuations, usually far below actual costs, due principally to extraordinary and unforeseen conditions encountered during construction, greatly increasing the normal or estimated costs, which costs engineers' estimates do not cover.

In my opinion, there is no work performed in the accounting department of an electric railway company of greater importance or value than the work covered by a unit cost work order system.

## REPORT OF DELEGATES TO THE CONVENTION OF THE NATIONAL ASSOCIATION OF RAILWAY COMMISSIONERS*

BY C. N. DUFFY AND W. F. HAM

The twenty-fourth annual convention of the National Association of Railway Commissioners, held in Washington, D. C., from Nov. 19 to Nov. 22, 1912, was most successful and dealt with some very important topics, such as taxes and plans for ascertaining fair valuation of railroad property; rates and rate making; railway capitalization; telephone and telegraph rates and service.

The report of the committee on accounts and statistics of electric railways, in the absence of the chairman of the committee, was presented by Mr. Duffy at the request of the president of the association.

Certain features of the above report were discussed by Mr. Duffy, particularly its importance with respect to the other topics under discussion.

Emphasis was laid upon the importance of the electric railway industry and the policy of the American Electric Railway Association as the representative of the industry.

A new constitution and by-laws were adopted, incorporating certain revisions and changes, but not in any way affecting the affiliation of the American Electric Railway Association with the National Association of Railway Commissioners, except possibly to make it stronger and of more importance. This was brought about by a conference between your delegates and the executive committee of the National Association of Railway Commissioners, and the importance of maintaining the affiliation previously existing between the two associations was emphasized by your delegates and approved by their executive committee.

It is of great importance that a representative standing committee of his association should be appointed to attend the annual conventions of the National Association of Railway Commissioners and we earnestly request that such action be taken.

The next convention will be held in Washington, D. C., Oct. 28, 1913, which will not conflict with the date of our convention as was the case in 1911.

*Abstract of a report read before the American Electric Railway Accountants' Association, Atlantic City, N. J., Oct. 13-17, 1913.

## MEETING OF MANGANESE OPEN-PRICE SOCIETIES

The Manganese Steel Founders' Society and the Manganese Track Society are two recent "open-price" associations formed on the basis of a new theory of price agreement and co-operation among competing manufacturers. Each of these associations has a standardization committee, and the two committees are substantially one in that they are working jointly toward the development of standards for track work in which manganese steel castings and manganese special work are used. This joint committee had a meeting yesterday in one of the parlors of the Marlborough-Blenheim for the discussion of certain proposed standards. The two societies will hold a luncheon and meeting to-day. These open-price societies, of which several are in existence, are the outgrowth of ideas promulgated by Arthur J. Eddy, the author of a work on industrial and economy problems, entitled "The New Competition." Mr. Eddy is in attendance at the convention, and he delivered a brief address at yesterday's meeting of the standards committees.

The plan under which the societies operate is substantially as follows: Instead of having a secret compact controlling prices, there is no attempt at control of prices and no attempt at secrecy. The members file with the secretary of the society such bids or information about prices as they see fit, and each receives from the secretary of the society like information filed by other members. The more information a member files the more he gets. If, after receiving advice as to the prices made in a given case by others, a member desires to reduce his price he is at entire liberty to do so, even to the extent of making a reduction, which gives him the order before the necessary time has elapsed for his latest price to be filed. The limits of space preclude a full explanation of this very interesting development in trade agreements, but in future issues of the Electric Railway Journal the subject will receive more extended attention.

The following members were present at yesterday's meeting of the standardization committees: L. G. Parker, Cleveland Frog & Crossing Company; W. S. McKee, Edgar Allen American Manganese Steel Company; C. A. Alden and B. L. Weaver, of the Pennsylvania Steel Company; J. H. Stedman, St. Louis Steel Foundry Company; A. G. Smith, Morden Frog & Crossing Company; Victor Angerer, William Wharton, Jr., & Company; W. L. Jones, Taylor-Wharton Iron & Steel Company. The following were present as guests: John C. Jay, Jr., G. S. Vickery, R. W. Gillispie, and R. L. Gillispie, Pennsylvania Steel Company; W. H. Hunt, W. G. Nichols and Walter Brinton, Edgar Allen American Manganese Steel Company. B. M. Fosgate, secretary of the societies, was also present.

The Compania del Tranvia de San Sebastian, San Sebastian, Spain, asks for a concession to extend its electric tramway. The Sociedad La Maritima, petitioner for a steam tramway from Motril to the port of the same name, will only be granted this concession after an open letting.

## REPORT OF THE COMMITTEE ON A STANDARD CLASSIFICATION OF ACCOUNTS

BY H. L. WILSON, CHAIRMAN; W. H. FORSE, JR., W. F. HAM AND F. E. SMITH

During the past year your committee has held three meetings—one in New York in January, lasting three days; one in Atlantic City in April, lasting four days, and one in Boston in June, lasting five days. At no time have there been less than four members of this committee present, and at the New York and Atlantic City meetings there were three representatives of the division of carriers' accounts of the Interstate Commerce Commission in attendance, and at the Boston meeting there were two representatives.

The matters taken up have been a revision of the classification of expenditures for road and equipment, and this new classification will also include instructions covering charges for improvements and betterments, a revision of the entire classification of operating expense accounts, a revision of certain of the text of operating revenue accounts, a tentative classification for income and profit and loss accounts, and a proposed classification for balance sheet accounts.

You can readily understand that these subjects have required a great deal of thought, and outside of the twelve days that the members of this committee have devoted to them at the meetings named, they have spent much time and thought on these matters.

It is the intent of the Interstate Commerce Commission to submit to electric carriers a tentative text of all of these classifications with the request that they shall be carefully examined and that all those who have any interest in these subjects shall offer any criticism or suggestions that they may have to the schedules as submitted, and it is hoped that when these schedules are received they will receive prompt consideration from all, and if anyone has any suggestions to offer he will at once submit them to the Interstate Commerce Commission, which will take them up with the members of this committee. Careful consideration will be given to all suggestions submitted.

It is the hope of the Interstate Commerce Commission that all of these classifications may be completed and promulgated for the use of interstate carriers commencing with July 1, 1914.

It is, therefore, imperative that prompt consideration be given to the subject matter that this may be accomplished as planned.

The importance of having these classifications as perfect as possible must be evident to all, as they will completely round out the entire system of accounts, and it is hoped to make them so perfect that they will not require any revision for many years to come.

The committee has had the usual number of questions submitted through the bureau of statistics and accounts of the Interstate Commerce Commission or direct to the committee, and these questions have received prompt attention, but as the members of the committee are so widely separated and the bureau of the Interstate Commerce Commission which considers these matters is so extremely busy, there has necessarily been some delay in giving prompt answers, but every endeavor has been made and will continue to be made to reply to questions as promptly as possible.

Our very cordial relations with the Interstate Commerce Commission have continued. Mr. Fred. W. Sweney, who represented the commission when the present classifications were prepared, is in charge of the division of carriers' accounts, he having succeeded, since our last annual meeting, Charles A. Lutz in that position.

*Abstract of report read before the American Electric Railway Accountants' Association, Atlantic City, N. J., Oct. 13 to 17, 1913.

## "HERE'S WHERE WE HELP OPEN SOMETHIN'"

Judd Mortimer Lewis contributed the following in a recent issue of the Houston *Post*: "To-morrow I am going to help my good friend David Daly open the Central Park street car line and some other things. The Central Park street car line will be opened at Central Park, and the other things will be opened at the Country Club. The more I go away and get yanked onto and pushed off the street cars of other cities the more I admire Houston's street car service. I might have acquired wealth at the expense of the Houston Electric Company, but my love for it was too great. One morning when the streets were coated with slickery mud I swung gracefully from a car platform in front of the *Post* building, rolled over twice, then getting my bearings slid gracefully to the gutter on my stomach and came up alongside the curb like an ocean liner warping into her slip at the Turning Basin. Just as I said: 'Toot! Toot!' and stopped, George P. Brown, who was on the car, yelled out loud enough to be heard across the city: 'Oh, there goes the Texas Mocking Bird!' Of course, such is my shy and retiring nature, I wanted nothing so much as an opportunity to crawl off and hide, but the conductor remained right beside me all the way and insisted upon holding me until he had my name and address and the addresses of witnesses. He was certainly onto his job! I went to my sanctum and scraped the mud off myself with George Bailey's hat, the little green one with the bow behind, in which he used to take such pride, and wrote the Houston Electric Company a letter explaining that I left the car while it was in motion, that the conductor warned me against so doing and tried to restrain me, that I was entirely to blame, was not hurt, and that it would have served me right if I had been hurt. The claim agent of the company wrote me that he was going to frame my letter and hang it above his desk. He ought to. There is no doubt in my mind that I could have gone into court with my weeping children and two or three borrowed ones and convinced any jury that the conductor pushed me off the car and followed me to the curb and kicked me in the face. There's no telling how much damages the jury might have allowed me, and my lawyers might have let me have some of what the jury awarded; you never can tell. And the Poet Carleton died the other day worth $75 less than nothing. The Electric Company *ought* to open something!"

## SHOWING OF PUBLIC UTILITIES FOR THE YEAR

Public utility corporations of the country for the year ended June 30, 1913, made an excellent showing of increases in gross, net and surplus earnings, according to a statement compiled by the *Wall Street Journal*. Not including any of the public utility corporations in the large cities of the country, or the holding companies, reports have been received for the fiscal year ended June 30, 1913, from seventy-five operating electric railway, electric light and power, gas and hydroelectric corporations, operating in various sections of the country. These companies may be considered as typical of the hundreds of such corporations in the smaller cities and towns of the United States. The utility companies in the important cities have been reporting large increases for the fiscal year and these reports from the smaller companies show that this gain was general in the last year. Almost without exception these seventy-five companies report gains, although in several instances there were decreases due to some local conditions. For the fiscal year there was an average increase in gross earnings of 17.21 per cent over the gross of the preceding year, with a gain of 16.70 per cent in net and of 20.30 per cent in surplus after charges.

## THE ENGINEERING MANUAL

An important feature this year of the work of the committee on standards of the Engineering Association is the Engineering Manual, mentioned in the report of the committee on standards. The convenience of a book of this kind is evident because at present anyone who wishes to find the existing standards and recommended practices of the association can do so only by going through the printed proceedings of the association for a number of years back. For this reason the committee on standards appointed a sub-committee, consisting of Paul Winsor, H .H. Adams, J. H. Hanna and H. C. Donecker, to prepare such a manual. As important matters connected with standardization are to be settled at this convention the committee on standards decided not to publish the Manual for general distribution until after the convention, but some ten copies of the existing standards have been bound up and can be seen at the secretary's office to the right of the entrance. The leaflets describing each standard or recommended practice are printed separately, and the collection is contained in a flexible binder with space for the addition of further standards as they may be adopted.

The collection is arranged so as to make the subject matter easy of reference. In the first place, two different colors of paper are used. Blue indicates a standard or recommended practice, and white indicates recommendations. The page is the same size as the pages of the Transactions. The illustrations, where possible, are full size and are printed on thin paper so as to permit of blueprinting. All sheets are systematically numbered, and the Manual is divided into six general classifications; namely, buildings and structures, power distribution, equipment, power generation, miscellaneous and way. Each of these divisions is further subdivided, and a distinguishing letter or series of letters has been assigned to each division and subdivision. Manual contains a comprehensive index.

It is the purpose of the association immediately after this convention to hasten the compilation of the complete Manual embodying the 1913 recommendations and to have copies ready for distribution not later than Jan. 1, 1914. At that time a binder, complete with all printed matter, will be furnished to each member company. Arrangements will also be made to sell the Manual to others who wish it, and the price will be fixed as near the cost price of the association as possible. The association will also furnish flexible binders for holding the sheets, when desired.

## REPORT OF THE COMMITTEE ON EDUCATION OF THE ACCOUNTANTS' ASSOCIATION*

BY F. J. PRYOR, JR., CHAIRMAN; F. B. LASHER, J. H. NEAL, W. H. FORSE, JR., AND N. E. STUBBS

The first effort of the committee on education was directed toward the investigation of the field to determine whether there was a demand for a correspondence course in electric railway accounting, and to this end a circular letter was mailed to each of the member companies. The replies were in such number as to encourage and warrant a further step toward securing the services of a practical director employed in the industry, who would give his personal attention to the preparation and the supervision of the course. It was concluded, however, that a competent person could command greater compensation for his services than would accrue from this source; furthermore, it was impressed upon us that we could not look for the desired co-operation from a committee of supervisors within the association, since their duties were at the sole disposal of their companies.

*Abstract of a report read before the American Electric Railway Accountants' Association, Atlantic City, N. J., Oct. 13 to 17, 1913.

It had been expected that a course could be established at a minimum fee of $5, which sum was fixed in conjunction with the knowledge that many of the prospective subscribers were already members of company sections and this might add a burden upon their income. This figure can readily be recognized as inadequate, however, so much so that it does not permit of a reasonable profit after the deduction of the cost of the printing, the necessary stationery and the postage on mailing of the lectures and the return of the corrected papers, rent, and an investment in a small plant.

We therefore took up the question with the recognized professional schools, with the thought that railway accounting could be made an adjunct to their curricula. An objection was offered that this would be out of harmony with the real policy of such organizations and might tend to conflict with their general policy. We succeeded, however, in interesting the officials as individuals. After much correspondence and a number of personal interviews, we were informed that a course such as we demanded could not be sold for less than $10 per term of ten months, extending over a period of two years; in addition, we were expected to guarantee a fixed income. It was felt that the committee was not empowered to enter into a contract, especially when the proposition to the vender was one of prospective profit.

Negotiations were taken up from another viewpoint, and a tentative agreement reached whereby the association was to bear the preliminary expenses in the announcement of the course and its publicity. The course was operative upon the enrolment of 400 subscribers for the first year. Unfortunately, we were not in possession of funds to carry on the initial campaign, and the matter is now in abeyance. It is sincerely hoped that some ways and means can be devised to secure financial aid and furnish an avenue for the education of our fellow-workers. The group of studies as submitted was to cover a period of two years, extending from October to May in each year. The first year was outlined "to embrace the theory of accounting with special reference to electric railway work, interspersed with applied theory tests and simple problems, and accompanied by the law of contracts and agencies and the principles of finance. The work of the second year was to comprise a series of corporation problems built upon electric railway organizations and also the principles of corporation law."

The complete outline follows:

FIRST YEAR

THEORY OF ACCOUNTING, LAW AND FINANCE

1. The purpose and scope of accounting.
2. The relation of accounting to allied subjects, such as economics, law, finance and organization.
3. The methods of keeping books and the media for recording financial transactions.
4. Accounts; their philosophy, construction and classification.
5. Discussion of the balance sheet accounts.
6. Discussion of the revenue and expense accounts.
7. Preparation, interpretation and use of balance sheets, income statements, etc.
8. Graphs, charts and statistics as aids to operation and management.

SECOND YEAR

ADVANCED CORPORATION PROBLEMS BUILT AROUND STREET RAILWAY ORGANIZATION AND CORPORATION LAW

1. Organization and development.
2. Operation.
3. Merger.
4. Consolidation.
5. Holding company.
6. Receivership.
7. Reorganization.
8. Dissolution.

The general trend of public utility corporations is to establish a course of instruction and to train the employee to apply the knowledge thus gained, which reacts as an advantage to the employee as well as to the company. The times do not admit of any dispute as to the necessity of a business education. The association can, by the inauguration of a course of instruction in financial and commercial subjects, add to its present usefulness.

Beaumont (Tex.) Traction Company has entered upon a "safety first" campaign. The movement is under the direction of Alves Dixon of the Stone and Webster organization.

# ECONOMICS OF THE CLEVELAND RAILWAY SITUATION AS DEVELOPED IN THE 1913 ARBITRATION DECISION *

BY C. NESBIT DUFFY, VICE-PRESIDENT THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY AND ARBITRATOR FOR THE CLEVELAND RAILWAY

The questions involved in the controversy and their disposition were and are still of the greatest importance, not only to the Cleveland Railway, but to every electric railway company in the United States.

### THE CLEVELAND RAILWAY ORDINANCE

Otherwise stated, the ordinance expressly declares its fundamental principles to be:

1. Maintenance of the company's property, unimpaired.
2. The certainty of a fixed return thereon.
3. Transportation at cost "consistent with the security of the property and the certainty of a fixed return thereon."

The "securing to the public the largest powers of regulation in the interest of public service, and the best street railroad transportation at cost, consistent with the security of the property and the certainty of a fixed return thereon, and no more," were presumed to be accomplished by the appointment of a "city street railroad commissioner" to "act as the technical adviser of the council of the city of Cleveland in all matters affecting the interpretation, meaning or application of any of the provisions of the ordinance and of action thereunder affecting the quantity or quality of service, or the cost thereof, or the rate of fare."

To carry out these provisions of the ordinance, it is the duty of the city street railroad commissioner to prescribe the service, keep informed as to the cost or quality or quantity of service furnished, the receipts and disbursements of the company, the rate of fare, the vouchering of expenditures of the company, with the right to take up with the company the vouchering of expenditures, the manner of keeping accounts, or other matters affecting the bookkeeping of the company, if he disapproves of same.

This creates and maintains a dual control over the operation of the property, the company being obliged to furnish the service prescribed by the city.

The "capital value" which was to represent "to the owners of the property invested in street railroads, security as to their property", fixed as $24,091,600, made up of $8,128,000 of bonded indebtedness, $1,288,000 of floating indebtedness, and $14,675,000 of stock, wiped out approximately 45 per cent of the capital stock of the Cleveland Railway, therefore the "fair and fixed rate of return" on the "capital value," fixed at 6 per cent per annum and no more, yielded only approximately 3.30 per cent per annum on the capital stock of the Cleveland Railway after "a complete readjustment of the street railroad situation" was made.

Under the provisions of Section 35 of the ordinance, at the expiration of the grant, the city has the right to purchase the property of the company, within the city limits, at its capital value, as determined by the ordinance, and the property of the company outside of the city limits at a value to be determined by agreement or arbitration.

There is no assurance, however, to the company, that the city will purchase the property of the company, nor is there any obligation on the part of the city to do so; under the terms of the ordinance, therefore, the capital value of the property, as this has been determined by the ordinance, is not safeguarded.

In the event that the city should not make a new grant to the Cleveland Railway, the property of the company, at the expiration of the grant, would have only a "scrap value" as compared with the "capital value," as determined by the ordinance. Furthermore, the probabilities are that the company would be declared a trespasser in the streets and be obliged to expend large sums of money in removing its property from the streets, or it would be obliged to sell its property to the city, or some other purchaser, under a forced sale, at a great sacrifice.

This brings up the question of the necessity for provision for the amortization of the capital value of the property, as determined by the ordinance, and the requirement, either of the city being compelled to purchase the property of the company at the capital value determined by the ordinance, or that the cost of the amortization of said capital value be included in the cost of the service.

This is absolutely necessary if there is to be secured to the Cleveland Railway unimpaired the capital value of the property, as determined by the ordinance, and the rates of return thereon, as provided for by the ordinance, and to the city of Cleveland, adequate and efficient service at the cost thereof, the fundamental principles upon which the ordinance is based and as set forth in Section 47 thereof.

The only protection the company has for the safeguarding of its capital value, under the terms of the ordinance, is the right, whenever the unexpired term of the grant or any renewal thereof shall be less than fifteen years, to charge the maximum rate of fare provided for in the ordinance, 4 cents cash fare, seven tickets for 25 cents, 1 cent transfer, no rebate, and the right to control the schedules for the operation of cars.

It would be a safe prediction to make that even with a 5-cent cash fare and no commutation ticket fares, as compared with the maximum rate of fare provided for in the Cleveland ordinance, neither the Cleveland Railway nor any other street railway could maintain its property up to proper standards of physical efficiency, furnish adequate and efficient service, earn even as little as 6 per cent return on its capital value, and properly safeguard the same by providing an adequate reserve for the amortization of the loss in capital value, a situation any company would be forced to meet, at the end of a fifteen-year franchise period, judging the future by the present, with respect to the cost of furnishing street railway transportation, and the past, with respect to the loss in capital value, by the experience of the Cleveland Railway itself.

The low rate of fare in Cleveland has probably increased the "riding habit," or number of rides per capita of population, over that obtaining prior to the enactment of the Cleveland ordinance.

### LIFE OF THE GRANT

The recognition of the necessity for provision for the amortization of loss in capital value, bound to be sustained by a public utility company operating under a franchise for a definite and limited term of years, is responsible for the "intermediate permit" feature of the public utility law of Wisconsin, the intent and purpose of said law being that the "intermediate permit" should grant to public utility companies the privilege to operate their properties until acquisition by the municipality or termination according to law.

The interpretation and effect of various sections of the ordinance relating to the duration of the grant would appear to be as follows:

"(1) Under Section 1, the maximum duration of the grant would be twenty-five years, unless the entire street railway system would be purchased and taken over by the city, as provided for in Section 32, in which event the duration of the grant would be indefinite, but if the property was not purchased by the city, the duration of the grant would be twenty-five years.

"(2) Under Section 33, if the city's licensee exercises the right to purchase the property, the duration of the grant to the Cleveland Railway Company would be limited to practically only eight years, from Dec. 18, 1909, to Jan. 1, 1918.

"(3) Under Sections 40 and 41, it would seem that the intent and purpose thereof was, if the city or the city's li-

*Abstract of a paper read before the American Electric Railway Association, Atlantic City, N. J., Oct. 13-17, 1913.

censee did not purchase the property of the company, as provided for in Sections 32 and 33, or if the city did not desire to have the company exercise its right to charge the maximum rate of fare provided for in the ordinance during the last fifteen-year period of the duration of the grant, that, at the end of a ten-year period, the city would pass an ordinance in renewal of the rights granted by the ordinance passed Dec. 18, 1909, for a period of twenty-five years to May 1, 1934, for another twenty-five year period, from the date of renewal, subject to like terms and conditions.

"This would make the maximum duration of the grant, after the renewal of the original grant, twenty-five years, subject to such limitations as would result from the application of the various provisions of the sections of the ordinance, previously referred to in (1) and (2)."

The service furnished by the company, as prescribed by the city officials, is inadequate and unsatisfactory, if measured by the standards prevailing in many other cities where the rate of fare is higher, the effort apparently being to resort to every means possible to prevent an increase in the rate of fare existing as of April 1, 1913, (3 cents cash fare, 1 cent transfer, 1 cent rebate).

This was accomplished in part, with respect to the service prescribed, by re-routing cars on various lines, increasing the speed schedules, cutting out stops, and by other means, the controlling consideration of the city officials in prescribing the service evidently being to keep down the cost thereof, rather than to prescribe adequate service, measured by the usual standards.

The service measured in car miles, making allowance for increase in the size of cars, has not kept pace with the increase in fares or the growth of the city and its suburbs. In 1912, there was an increase of 3.64 per cent in car miles over the year 1911, while the number of fares increased 7.45 per cent and the number of rides 9.56 per cent. The average number of passengers carried per car mile in 1912 was approximately 10, the exact figures being 9.946.

In the operation of the property during the first three ordinance years, March 1, 1910, to March 1, 1913, there has been no substantial addition to the track mileage or increase in the car equipment, there being approximately only 2¼ miles of single track added and a net increase in the number of cars of only thirty-nine.

With respect to the exercise of the control which the city has over the vouchering of expenditures, the manner of keeping accounts, or the other matters affecting the bookkeeping of the company, as prescribed by the ordinance, the city further prevented an increase in the rate of fare by holding in abeyance the necessary approval for making needed renewals or replacements of property, or the authority to wipe off the books' in "capital account," the value of abandoned property consisting of track, cars, and power equipment, aggregating, at the time of the arbitration proceedings, approximately $1,000,000, as these charges would further increase the over-expenditure in "maintenance, depreciation and renewal account," and correspondingly increase the cost of the service.

The reason for this, from the standpoint of public policy on the part of the city, or rather political expediency on the part of the city administration in power, is plain, as the result of making needed renewals or replacements of property, or wiping off the value of abandoned property from the books of the company, would of necessity cause an increase in the existing rate of fare.

The policy and methods of the city officials in their exercise of control over the operation of the property of the company are of special significance and importance, in view of the fact of the charge being frequently made that electric railways furnish inadequate service, charge excessive rates of fare, fail to maintain their property in accordance with proper standards of maintenance, make no provision for depreciation, carry the value of their property in "capital account" at a figure greatly in excess of the real value thereof, and distribute the so-called profits from operation in excessive dividends on over-capitalization of the real value of the property.

RESULTS UNDER DIFFERENT FARES

For a period of fifteen months, from March 1, 1910, to June 1, 1911, the rate of fare defined in the ordinances as "(e) 3 cents cash fare, 1 cent transfer, no rebate" was in force.

For a period of twenty-two months, from June 1, 1911, to April 1, 1913, the rate of fare defined in the ordinance as "(f) 3 cents cash fare, 1 cent transfer, 1 cent rebate" was in force.

The financial results of the operation of the property for the period of thirty-seven months, March 1, 1910, to April 1, 1913, showed that it was an impossibility for the company to furnish the service prescribed by the city (inadequate and unsatisfactory as the service was), and meet the cost of same at the rates of fare in force, and secure to the company the capital value and the rates of return thereon provided for in the ordinance.

On April 1, 1913, there was an over-expenditure in the "operating fund" (including approximately $60,000 for insurance reserve and approximately $144,000 for accident reserve) of over $286,000, based on an allowance of 11½ cents per revenue car mile for all operating expenses, exclusive of maintenance, depreciation and renewal, and taxes, notwithstanding the city increased the allowance for operating expenses from 11½ cents to 12½ cents per revenue car mile from May 1, 1911, to Jan. 1, 1912, said increase amounting to approximately $193,000.

Taking this $193,000 into consideration, the over-expenditure in the "operating fund" for the period of thirty-seven months was approximately $479,000, including reserve for fire insurance to take care of the company's co-insurance liability and the reserve for accidents to take care of the company's liability for unliquidated and unpresented damage claims, said reserves aggregating approximately $204,000, and approximately $275,000, disregarding the $204,000 of reserves.

On April 1, 1913, there was an over-expenditure in the "maintenance, depreciation and renewal fund," without adequate provision for depreciation of property used in the service or for properly abandoned, of over $359,000, based on an allowance of approximately 5 cents per revenue car mile.

From this it will be seen that the financial results of the operation of the property for the period of thirty-seven months, March 1, 1910, to April 1, 1913, showed a combined over-expenditure in the "operating fund," and the "maintenance, depreciation and renewal fund," without any provision for liability for co-insurance on account of fire losses, unliquidated and unpresented damage claims, depreciation of property used in the service or property abandoned, of over $624,000.

Provision for co-insurance liability, accident liability, and abandoned property, as computed by the company without adequate provision for depreciation of property used in the service, would increase the over-expenditure of $624,000 previously referred to, by $1,204,000, making the total over-expenditure on this basis, $1,828,000.

Adequate provision for depreciation of property used in the service, as determined by the company, on the basis of the rates of depreciation used by Judge Tayler, Mayor Johnson and Mr. Goff, in making their valuations of the Cleveland Railway's property, less the value of renewals and replacements to make good said depreciation, would increase the over-expenditure by over $1,300,000.

This would make the total over-expenditure in "operating fund" and "maintenance, depreciation and renewal fund," or the true cost of the service furnished, based on proper accounting by a public utility company, or a public utility commission, prescribing a proper system of accounting to determine the true cost of street railroad transportation, during the period of thirty-seven months, March 1, 1910, to April 1, 1913, $3,128,000 in excess of the car mile allowances prescribed by the ordinance of 11½ cents per revenue car

mile for "operating expenses" and approximately 5 cents per revenue car mile for "maintenance, depreciation and renewal," or $3,068,000 if the insurance reserve of approximately $60,000 be disregarded, and $2,924,000 if both the insurance reserve of approximately $60,000 and the accident reserve of approximately $144,000 be disregarded.

RESERVES

Assuming that the company's co-insurance liability for losses that might be sustained by reason of fire would be taken care of by an expenditure for fire insurance premiums, in the purchase of 100 per cent indemnity fire insurance policies, and that the company would not sustain any loss in the event of a fire, which is not borne out by experience, then the cost of the service should stand only the expenditure for such indemnifying insurance and not the amount of the insurance reserve, which amounts to approximately $60,000.

With respect to the accident reserve of approximately $144,000, it is impossible to purchase indemnity to provide for the payment of unliquidated and unpresented damage claims growing out of accidents. Taking into consideration that as at the close of Dec. 31, 1912, the amounts claimed in suits pending aggregated $600,000 for claims for injuries and damages sustained, growing out of accidents which happened prior to Jan. 1, 1913, the cost of the service should stand the amount in accident reserve, approximately $144,000, especially in view of the fact that the ordinance prescribes in Section 15, among other things, that "the company shall keep in its office full, true and accurate accounts of all moneys expended and liabilities incurred."

The amount in accident reserve, approximately $144,000, would not be sufficient to measure the "true and accurate liabilities incurred" for unliquidated and unpresented damage claims, especially with suits pending aggregating $600,000 in amounts sued for.

An unexpended balance in "accident reserve" or any other "reserve account" belongs not to the stockholders, not to the city, but is a part of the property of the company.

Without an adequate reserve to provide for the payment of unliquidated and unpresented damage claims, growing out of accidents, and adequate reserves for maintenance, depreciation and renewal, the capital value of the property unimpaired cannot be secured nor the true cost of the service determined.

The company has no incentive to charge more for the service than it costs, as it has no other return than the prescribed interest on its bonds and stock and the assurance of the unimpairment of its capital.

The interest and the responsibility of both the company and the city would appear to be identical and in the nature of a trusteeship, both being charged with the duty of furnishing street railroad transportation to the public at cost, under the terms and conditions and within the limitations prescribed by the ordinance, and both should be accountable to the public for the proper performance of this obligation.

If the company should charge more for the service than it costs, under Section 31, a board of arbitration could reduce its rate of return on its stock from 6 per cent to 5 per cent per annum. This amply protects the car riders.

The figures herein presented show that during the thirty-seven months' period, March 1, 1910, to April 1, 1913, the street railroad transportation prescribed by the city and furnished by the company, not "the best street railroad transportation," as prescribed by the ordinance, cost at least $3,068,000 more than the revenue derived therefrom at the rates of fare prescribed, even with a "fair and fixed rate of return" limited to 6 per cent per annum on the "capital value" as fixed by the ordinance.

COSTS OF OPERATION

The cost of carrying a revenue passenger by the Cleveland Railway during the three ordinance years ending Feb. 28, 1911, 1912 and 1913, respectively, was as shown in the accompanying table.

Cost in Cents of Carrying a Revenue Passenger by the Cleveland Railway.

| | | Year Ending Feb. 28, 1911 | Year Ending Feb. 29, 1912 | Year Ending Feb. 28, 1913 | Average for Three Years |
|---|---|---|---|---|---|
| (A) | Cost as per company's books. | 3.63 | 3.50 | 3.29 | 3.47 |
| (B) | Cost as per company's books adjusted to conform with the arbitration decision of June 19, 1913 | 3.58 | 3.45 | 3.27 | 3.43 |
| (C) | Cost after providing for insurance reserve, accident reserve, ordinary maintenance and depreciation, 6 per cent return on capital valne | 3.87 | 3.79 | 3.64 | 3.76 |
| (D) | Cost after providing for insurance reserve, accident reserve, ordinary maintenance and depreciation, 8 per cent return on capital value | 4.15 | 4.06 | 3.89 | 4.03 |
| (E) | Cost after providing for insurance reserve, accident reserve, ordinary maintenance and depreciation, 6 per cent return on capital value, amortization for 50 per cent loss in capital value, figured on a 4 per cent sinking fund basis | 4.15 | 4.05 | 3.88 | 4.02 |
| (F) | Cost after providing for insurance reserve, accident reserve, ordinary maintenance and depreciation, 8 per cent return on capital value, amortization for 50 per cent loss in capital value, figured on a 4 per cent sinking fund basis | 4.43 | 4.32 | 4.13 | 4.29 |

These costs do not include any provision for contingencies-extraordinary (casualties).

| | Year Ending Feb. 28, 1911 | Year Ending Feb. 29, 1912 | Year Ending Feb. 28, 1913 | Average for Three Years |
|---|---|---|---|---|
| Investment | $25,000,000 | $25,500,000 | $26,500,000 | $25,666,667 |
| Car miles | 26,282,977 | 28,140,251 | 28,927,359 | 83,350,587 (Total) |
| *Revenue passengers | 176,208,347 | 191,680,322 | 206,026,691 | 573,915,360 (Total) |
| Population served | 600,000 | 625,000 | 660,000 | 628,000 |
| Revenue rides per annum per capita of population served | 294 | 307 | 312 | 305 |

*Actual number of revenue passengers carried by the Cleveland Railway during the three ordinance years ending Feb. 28, 1911, 1912 and 1913, respectively, on a 3-cent fare, plus 1 cent for a transfer, from March 1, 1910, to June 1, 1911, and on a 3-cent fare, no charge for a transfer, from June 1, 1911, to March 1, 1913.

An increase in the rate of fare would probably decrease the number of revenue passengers carried.

The costs of carrying a revenue passenger, as shown in the table, do not properly represent the cost of service, when the conditions under which the service was furnished are considered.

The costs shown are lower than the normal costs of service because the "riding habit" under higher rates of fare would probably decrease. This would, in turn, cause an increase in the cost of service per passenger, since a large part of the total cost of service is fixed and does not vary directly with the number of passengers carried.

"Amortization," to provide for a possible loss in capital value of 50 per cent, which may be sustained at the expiration of the franchise, has been figured on a 4 per cent sinking fund basis, although the customary or usual basis is 3 per cent, not 4 per cent. The 4 per cent basis was taken because the prevailing rate of interest at the present time, allowed by the savings banks and trust companies of Cleveland, on savings deposits, seems to be 4 per cent, rather than 3 per cent. The 4 per cent rate, of course, may not be maintained during the period within which the amortization sinking fund would be required to be built up.

The company, finding that the cost of the service furnished, was more than the receipts from the rates of fare prescribed and that the security to the company of the unimpairment of its capital value, and the rates of return there-

on, as provided for in the ordinance, was threatened, asked for arbitration, as provided for by the ordinance, on the questions as to whether the allowance for "operating expenses," and the allowance for "maintenance, renewal and depreciation," as defined in the ordinance, should be increased, and, if so, what amount.

The unanimous decision of the arbitration board, with respect to "operating expenses," was, that there should be an increase of six-tenths of 1 cent per car mile, making the allowance 12.1 cents per car mile, effective on March 1, 1913.

The unanimous decision of the arbitration board, with respect to "maintenance, renewal and depreciation," was that the allowance of approximately 5 cents per car mile was possibly too small. A majority of the board (the company's arbitrator dissenting) was of the opinion that there should be no increase in the allowance for "maintenance, renewal and depreciation," as prescribed by the ordinance, but that a new start should be made, on the theory that the allowance of 5 cents per car mile would provide an adequate "maintenance, renewal and depreciation reserve" for the future.

The board unanimously decided, with respect to the over-expenditure of $323,597, as of March 1, 1913, for "maintenance, renewal and depreciation," that before the close of the ordinance year on Feb. 28, 1914, the company should be reimbursed for this amount by transfer of sums from the "interest fund," from time to time, or that the car mile allowance, as prescribed by the ordinance, be increased to such amount as would balance said over-expenditure.

THE PLAN DOES NOT MEET THE SITUATION

From the foregoing, it would appear that the Cleveland franchise plan did not meet the Cleveland situation, nor would it meet the situation in any other city for the following reasons:

(1) Because the service is inadequate and unsatisfactory, measured by the usual standards obtaining, far from being "the best street railroad transportation," as prescribed by the ordinance, not only with respect to the number of cars, but also with respect to the limited trackage operated, from the standpoint of population and territory served.

(2) Because the cost of the service, inadequate and unsatisfactory as it is, is greater that the receipts from the rates of fare prescribed by the ordinance, if proper allowance and provision was made for "insurance reserve," "accident reserve," and "maintenance, depreciation and renewal reserve," to say nothing of an "amortization reserve."

(3) Because the capital value as determined by the ordinance does not represent what the investment in the Cleveland system was, or what the investment in any other similar street railway system would be, operating the same amount of trackage as the Cleveland Railway operates, without regard to what the trackage should be, based on population and territory served.

(4) Because the rate of return—on bonds 5 per cent, on bills payable 6 per cent, on capital stock 6 per cent—and adequate margin of safety, are not sufficient to compensate capital properly for the risks incident to the hazards of the street railway business.

(5) Because there is no assurance that the capital value as determined by the ordinance, or experience in its interpretation after more than three years of operation, will be unimpaired at the expiration of the franchise, there being no requirement that the city or any other purchaser be compelled to purchase the property of the company at the capital value determined by the ordinance, or provision for the amortization of the loss in said capital value, bound to be sustained at the expiration of the franchise.

(6) Because of the rather general recognition that street railway transportation in Cleveland is being furnished at less than cost and that any disturbance of present conditions would result in a book deficit.

(7) Because the machinery apparently provided in the ordinance for insuring against and financing depreciation is similar to the "assessment insurance" of fraternal societies, now pretty effectively discredited as a safe means of providing against the contingencies of sickness and death.

(8) Because the difficulties so far encountered in carrying out the intent of the ordinance, as set forth in Section 47 thereof, and the political hazard which any city administration would assume in attempting to recognize this intent in a practical way, will sooner or later be fully appreciated by the junior security holders and their capital will be withheld for investment in enterprises where the dividends and preservation of principal are more certain.

## A PECULIAR CONTEST

A daily newspaper editor, casting about for something on which to hang a prize contest, hit upon the scheme of offering prizes for the best answers to the question "Which, in your opinion, is the worst trolley line in ——— and why?" The letters were to be limited to 500 words, and peculiar as it may seem the following prizes were offered: for the best letter, 200 trolley tickets; for the next best, 100 trolley tickets; and for each of the next two best, fifty tickets. One would think that the very offer would have defeated the purpose of the contest. That it did not is merely another instance of the vagaries of human nature.

We do not know that the writer of the letter which follows in fact was a prize winner, but it would be interesting to know what he did with the tickets if he obtained a prize. The letter:

"Which is the worst trolley line in the State? They're all the worst. But the very worstest worst is the ——— Avenue line. Why? Well, to set down all the reasons it would be necessary to go over the 500-word limit about eight volumes, so I will mention just a few. In the first place, the cars are too small. You couldn't get 20 people in one of those cars with a shoehorn. In addition to the sardine packing system (without the oil) the conductor pushes through us every little while, holding up people and incidentally twisting our clothes about till we look like a bunch of scarecrows at a poverty ball. I put my coat on back side front nowadays, so that by the time I reach the getting-off place it is pulled around almost straight. The ventilation on this line is unique. The air inside is changed every time the cars are painted; namely, once in eleven years. Some class, trying to read about Somebody's Soups and Somebody Else's Chewing Gum, with the car smelling like a hunk of Limburger cheese in distress. Then the time. Oh, my! But the whole trouble is that the cars are not properly trained before leaving the factory. As a result they go just as they please. And should one of them suddenly take a notion to get a gait on it does so when there is another car immediately ahead; it draws people's attention to the sudden spurt of business-like attitude by means of a crash. But a strictly original habit on this line is slipping the pole off the trolley wire on the railroad crossing. Of course it is possible for a pole to jump anywhere, but the ——— Avenue cars prefer to do this trick at this particular point because they are so ashamed of themselves that they want to commit suicide."

James Brooks, superintendent of the Sioux Falls (S. D.) Traction Company, was in Omaha at the time of the cyclone last spring. He did what he could toward the work of rehabilitation. No matter how grave the situation the ridiculous seems always to be present. Following is an account of one of Mr. Brooks' recent experiences. "Mr. Brooks was present when the body of a negro was removed from beneath a pile of wreckage. in one hand of the corpse was a one-dollar bill and three aces were found up the sleeve of the other arm. It was presumed he was in a poker game when the storm struck."

# REPORT OF THE JOINT COMMITTEE ON BLOCK SIGNALS FOR ELECTRIC RAILWAYS*

J. M. WALDRON, CHAIRMAN; C. D. EMMONS, C. H. MORRISON, G. K. JEFFRIES, B. E. MERWIN, GAYLORD THOMPSON, JOHN LEISENRING, J. J. DOYLE

During the past year the majority of the new installations of block signals on high-speed interurban lines have been controlled through continuous track circuits. In view of this fact, the committee desires to repeat its recommendation of last year—that for high-speed interurban service automatic signals be controlled by the use of continuous track circuits, and that expenditures be concentrated on continuous track circuit control with a cheaper form of indication in preference to a more expensive form of signal and a less reliable control.

For signaling single-track suburban railways with headways between five minutes and thirty minutes and speed not exceeding 20 m.p.h., several schemes for trolley contact signals are submitted together with drawings of diagrammatic arrangements, according to different arrangements of passing sidings. It has been generally conceded that trolley contact signaling is well adapted for this type of line. Track circuit control for this general scheme of signaling has been installed, however, and may be used, possibly with certain limitations.

For signaling double-track suburban railways with headways between one minute and ten minutes and speeds not exceeding 30 m.p.h., several schemes for trolley contact and track circuit signaling are submitted, the latter including both three-position and two-position signals. All provide, either by overlays or distant signals, means for protecting the rear of a train which may be stopped a short distance beyond any home signal so that it will not be hit by a following train which overruns the signal in making a stop.

For signaling single-track interurban railway with hourly headway and with speeds from 40 m.p.h. to 60 m.p.h., two schemes are submitted. In one of these no track circuit preliminaries are used, intermediate signals replacing the preliminaries. In the other the track circuit preliminary is used with a light indicator, if desired, at the beginning of the preliminary so as to indicate, to a car approaching the siding from side on which the preliminary is located, the position of the home signal at the siding before it is reached.

In both schemes absolute blocking from siding to siding is employed, either semaphores or light signals or a combination of them being used. [These schemes were described in the Electric Railway Journal for October 4, 1913, pages 619 and 617.—Eds.]

For signaling single-track interurban railways with fifteen-minute headways, trains in several sections and speeds from 40 m.p.h. to 60 m.p.h., three schemes are submitted. One provides intermediate signals in place of preliminaries and uses two-position signals, giving absolute blocking for following cars at one-half the distance between sidings. The second provides signals to be of the three-position type, following cars being blocked practically one-half the distance between sidings for following movements and from siding to siding for opposing movements. With this arrangement both the stop and caution indication are given. With the third arrangement cars are allowed to follow one another in to an occupied block under a permissive indication, the blocking of opposing cars being absolute. Signals in one direction are normally clear, in the other normally danger. A light indicator is used at the beginning of the preliminary section, also a secondary light is used on the signal to provide the permissive feature. Light signals may be used if desired. [These three schemes were described in the Electric Railway Journal for Oct. 4, 1913, pages 619, 620 and 618 respectively.—Eds.]

For signaling high-speed double-track interurban railway with five-minute headway only one scheme is suggested. With this arrangement semaphore signals operating in three positions are used, the distance between signals being governed by the headway and speed. The operation is the same in either direction. Light signals may be used if desired. Stop and caution signals are displayed behind each car and cars are able to follow each other as close as the distance between two adjoining signals, the second car in this case running under the caution indication continuously. Continuous track circuits are used with this scheme.

## DIGEST OF BLOCK SIGNAL LAWS AND RULINGS.

There is no federal law requiring the use of block signals on railroads of the United States and the Interstate Commerce Commission has no rules and regulations relating to signal systems. There is, however, a federal law requiring the use of air brakes and automatic couplers by common carriers engaged in interstate commerce. However, a number of states have laws or rulings by the Railroad Commissions governing safety devices on railroads. [The report gives these in condensed form for each of the states in question.—Eds.]

## RECOMMENDATIONS OF THE COMMITTEE

The committee recommends for adoption as standard the following aspects for trolley contact signals:

For a non-car-counting signal for single track a single red light indicates "Stop: Do not pass contactor." A single green light indicates "Proceed by contactor to operate signal." If green aspect changes to red over yellow on passing contactor it indicates "Proceed: If red and yellow are displayed on approaching signal, do not pass contactor until this aspect changes to green."

For a car-counting signal for single track a single red light indicates "Stop: Do not pass contactor." A single green light indicates "Proceed by contactor to operate signal." If green aspect changes to red with a yellow light diagonally below on passing contactor it indicates "Proceed, but if yellow light changes to opposite side of red proceed under control into block as block is occupied by car running in same direction as car about to pass under contactor."

It is to be understood that red with staggered yellow on either side indicates "Block occupied with same direction of traffic," and this permits proceeding past contact device only unless staggered yellow changes from one side to the other, which indicates recording of car. Changing from one yellow to the other permits proceeding under control.

For light aspects for car-spacing signals operated by trolley contactors or other form of end set device used for double track a single red light with a white telltale light indicates "Stop." A single green light with no telltale light indicates "Proceed." A single yellow light with no telltale light indicates "Proceed—Next signal at stop." For two-position signaling the latter indication is omitted. The aspect called the telltale indicates that the contactor has operated the signals, and in practice it should be located on the next pole beyond the signal.

With regard to these recommendations of the signal committee the committee on standards decided that action be deferred until the matter had been discussed and acted upon by the convention.

## APPENDICES

The report was accompanied by four appendices, of which Appendix A covered a summary of installations of signals by various manufacturers during the past year including brief descriptions of the apparatus. Appendix B covered the subject of automatic stops for both steam and electric railways and in another section, also entitled Appendix B, were submitted the data sheet sent out by the committee and the tabulated replies received from the various member com-

*Abstract of report read before the American Electric Railway Engineering and Transportation & Traffic Associations at Atlantic City, N. J., Oct. 13-17, 1913.

panies. In Appendix C was presented a bibliography on block signals for electric railways. An abstract of that part of Appendix B dealing with automatic stops for electric railways is published herewith.

AUTOMATIC STOPS

Any historical data concerning the automatic train stop and its development should, logically, refer in the beginning to that system which has been in successful operation on the lines of the Boston Elevated Railway for more than twelve years. This was a modification of an overhead contact type of automatic stop, providing for the signal operating a rocker shaft lying transversely to the track and equipped with a tripper arm, which moved into and out of the path of an arm suspended from the forward end of the car. To this arm on the car was attached a valve which vented the train pipe when operated by the track tripper arm in the event of a train overrunning the signal in the stop position.

In 1903 a modification of this system was introduced on the Interborough Rapid Transit Company of New York City, and later on the Philadelphia Rapid Transit Company. This modification was of minor importance, however, consisting merely in the operation of the rocker shaft by a pneumatic cylinder separate from the one which operated the signal. The valves of the two cylinders were jointly controlled by the track circuit relays of the block system.

A few years ago the same system was introduced on the lines of the Hudson & Manhattan Railroad, which were then all in tunnels, and on those of the tunnel and terminal division of the Pennsylvania Railroad across New York City and under the North and East Rivers. In its application to the Pennsylvania tunnels, it was found necessary to meet a condition not heretofore encountered. Trains ran beyond the tunnels into open country and through towns and across highways where high speeds were permissible. Under these conditions the brakes might be set by contact of the lever of the automatic train stop valve with loose objects or with snow and ice, and a modified form of tripper arm was developed to overcome this difficulty. The valve is of the plunger type and is mounted between two guards, one in front and one in the rear of the plunger, so that it is protected against operation not acting vertically upward against it.

## CONCRETE WORK IN COLD WEATHER

An article in the last issue of the *Engineering Record* says that it is none too soon to start preaching against the dangers of careless work in winter concreting. Despite the emphasis placed on the subject there has been a harvest of disasters each winter, serious always in the financial loss, and sometimes in life.

The precautions necessary are so simple that there is no excuse for not applying them. To discourage concreting altogether in cold weather is not only unnecessary but would result in tying up to no good purpose the capital invested in construction plant and in losses owing to postponement of the use of the structures. There are construction difficulties in other lines, but they are not allowed to interfere with the execution of the work. The heating of the material and the protection of the fresh concrete from freezing are sufficient measures to permit work to proceed in all but the very coldest weather. With intelligent supervision and close attention to the heating equipment there is no reason why even in zero weather pouring should not be continued.

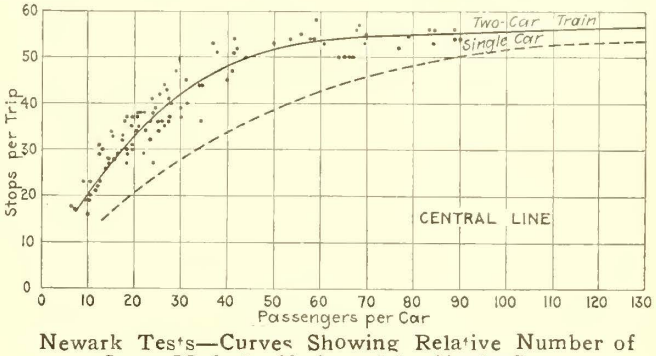
Persistent efforts, beginning at once, may help in lowering materially the disaster record made last winter. Cement manufacturers and their salesmen, cement jobbers, building department officials, engineers, architects and contractors experienced in cold-weather work can all bear a part in the educational campaign. The reward will come in greater confidence in concrete as a construction material and in the saving in life and property.

## REPORT OF THE JOINT COMMITTEE ON TRAIN OPERATION FOR CITY SERVICE*

H. H. ADAMS AND W. H. SAWYER, CO-CHAIRMEN; H. A. BENEDICT, W. G. COVE, P. N. JONES, GEORGE KEEGAN

The joint committee held its first meeting on Jan. 30, 1913, at the headquarters of the American Electric Railway Association. The following memorandum from the minutes of this meeting is quoted:

"The committee decided to give particular attention to the question of transportation matters as applying to the operation of two-car trains in city service, and to the effect of train operation upon schedule speeds with various types of trains in service, comparing this with single-car operation;




Newark Tests—Curves Showing Relative Number of Stops Made by Train and by Single Car

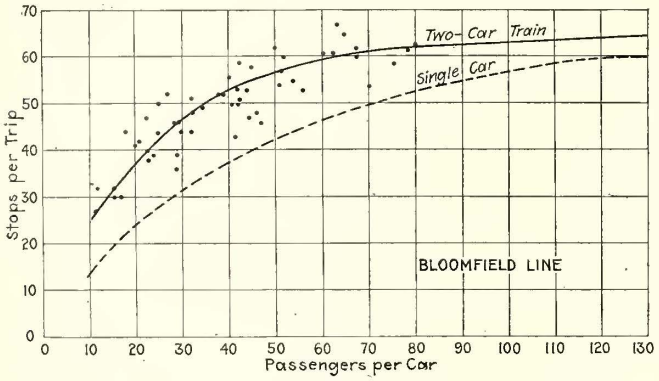
also as to the effect of the length of stop on train operation. Data are to be obtained relative to the results of train operation from companies now operating train service. In addition, a study is to be made of the operation of the articulated car now operating on the Boston Elevated Railway system. From the data which the committee proposes to accumulate deductions will be made which will form the basis for the report to be presented at the next convention."

After the meeting on Jan. 30 the committee sent out circular letters to several of the member companies asking for data, results of tests and conclusions regarding train operation. From the replies received it developed that practically none of the companies had as yet any comparative data. A few of them were operating trains, but these were mostly for trailer operation. Many of them were considering train operation and were keeping in mind, when buying new equipment, that they might ultimately operate trains.

The tests on train operation made by the Public Service Railway Company of New Jersey were most complete and exhaustive, and those interested in this question should read the report of these tests, copy of which is attached herewith by courtesy and permission of the Public Service Railway Company. Some of the more pertinent facts and conclusions which might be drawn from these tests are separately attached herewith, but briefly the tests appear in general to bear out the conclusions of report made by the committee last year, with the exception that for their local conditions the trailer proposition does not look as favorable as was reported by your committee. They particularly point out that, on account of trailer operation slowing down the schedule, it is inadvisable to operate trailers in the same service as single-motor cars or two-motor car trains. On the other hand, Cleveland, Denver, Pittsburgh, Birmingham and many other cities are using trailers to good advantage, and the committee still is of the opinion, as expressed in its report of last year, that "there are many cities where trailer service could be used at least to a limited extent with considerable saving over single-car operation," and that "the more flexible multiple-unit train would warrant its installation in the more extreme congested conditions."

*Abstract of report read before the American Electric Railway Engineering and Transportation & Traffic Associations at Atlantic City, N. J., Oct. 13 to 17, 1913.

The Public Service Railway Company tests show the six-motor two-car trains to have a definite advantage over all other cars or trains tested, and while the committee concurs in the published conclusions drawn from these tests and considers that these tests, which involved a considerable expense, furnish most definite, practicable information to all railway companies interested in this subject, it begs to point out that the much-abused phrase "local conditions" should always be considered, as, for instance, in cities where four motors per car are not necessary at any time of the




Newark Tests—Curves Showing Relative Number of Stops Made by Train and by Single Car.

year, the two two-motor cars are more economical than the six-motor train.

The Pittsburgh Railways Company, through its general manager, P. N. Jones, has written the committee regarding its experience. The company apparently takes the position that for certain classes of train service there is no question or argument but that train operation is more economical and satisfactory than single-car operation—the letter being devoted, in the main, to a comparison of a train composed of two motor cars and one composed of motor and trailer. Below are quoted a few of the points brought out:

"We have maintained consistently from the first and still maintain that there is no appreciable difference in operating results between a train equipped with maximum traction trucks and four motors (two on each car) and a train consisting of a four-motor motor car and a trail car, provided the weights of the two complete trains are the same. We operate trains of the latter type over some very hilly routes in Pittsburgh and find that the schedule is not slowed down to any extent. Even a single motor car, if it becomes overloaded, will often lose more time in getting to the end of the line than a train with the normal load.

"We do not consider that any tests that can be made on any property will be accurate unless the crews have been operating the cars for a long time, since this question of slowing down of schedule depends more on the crews than on the equipment, provided the equipment is fairly suited to its service.

"It seems to require no argument to prove that any company having motor cars that weigh from 48,000 lb. to 50,000 lb., equipped with four 50-60 hp motors, should increase its evening rush-period service by the addition of light-weight trail cars. If new equipment is to be purchased with motor cars of modern design as light in weight as they can be built, there would not be sufficient weight on the front car to keep the wheels from slipping during the accelerating period, if such cars are to pull trail cars. For such service it is self-evident that two or four motors should be placed on the trail car.

"We further believe that multiple-unit control for trains has been greatly improved in the last four or five years and that the maintenance cost is very much less than it used to be.

"Our belief, therefore, is that until every big car has a trailer behind it additions to the peak service should be by means of center-entrance, light-weight trail cars, and after every large car is pulling a light-weight trailer, then every addition should be by means of light-weight motor and light-weight trailer, with motors on both cars."

M. C. Brush, vice-president Boston Elevated Railway, has kindly furnished the committee with data regarding the articulated type of car in use on that line, but as "to all intents and purposes this is a single car rather than a train and operates in all respects similar to a single car," the data are not included in this report, although, as will be noted from minutes of the committee meeting on Jan. 30, it was the intention at that time to make a study of the operation of this car, as it was recognized that this type of car gives the longest over-all length of single unit that can be ordinarily operated with one conductor.

After carefully reviewing the situation the committee finds that new data or tests available since the last year's report do not warrant at this time the further study contemplated at the ime of the committee meeting on Jan. 30; further, such data and tests as are available tend to strengthen the conclusions of last year's report, and therefore this committee concurs in general in the conclusion of last year's report and quotes from that report as follows:

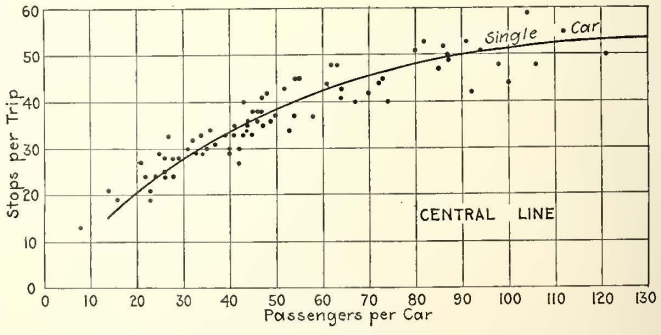
"The committee especially desires to recommend, in regard to this city service problem, that the operating officials of city properties give the subject of two-car train operation serious study and attention, as it is the belief of this committee that a distinct saving is to be made by train operation during certain periods of the day over portions of the system."

## APPENDIX A

CONCLUSIONS FROM TESTS MADE BY PUBLIC SERVICE RAILWAY

The use of trains was found to be entirely practicable for congested city service, such as that of Newark. The multiple-unit combination of one four-motor car and one two-motor car seemed to be without question the most desirable, and trailer operation the least desirable, for such conditions, of all trains tested. On the general average, schedule speeds of single car and multiple-unit trains were approximately the same.

The number of passenger stops per trip tends to become constant or independent of the number of passengers provided the total number carried is sufficiently great—but on none of the lines tested was this point reached for the entire length of line, although on portions of the line the number of stops was the same, whether with single cars or train operation. The number of stops and length of stops will tend to make the train a little slower than single car




Newark Tests—Curve Showing Increased Number of Stops Caused by Increased Load on Single Car.

when carrying heavy loads, but the difference will be small.

Front and rear end collisions should be reduced, but while train operation is new there are certain accidents which may occur because of train operation. While train operation may be used to double the headway with same seating capacity or to furnish 33⅓ per cent more seating capacity, it is probable the best results would be obtained by some intermediate course. Reducing the number of units operating on a line aids in securing safety and regularity of operation. In very congested sections the track capacity is increased by elimina-

tion of the gap between cars. There is saving in time at intersections with trains.

Track layouts must, in places, be modified to permit train operation. If trains are made up on the road, a definite allowance for coupling should be made in the timetable. Power consumption figures varied too widely, owing to methods of testing, to draw conclusions. In trailer operation the reduction in capital charges and maintenance is largely offset by increased running time. Even though trailer operation should show a saving in direct operating expense, there are many indirect objections and the operation of trailers is in general more costly than first appears.

Familiarity with equipment by train crew and other employees is absolutely essential to produce satisfactory results, and many of the criticisms will be minimized or eradicated after train operation is an established routine.

The report of the committee also included, as Appendix B, the report of the Public Service Railway of New Jersey on train operation in city services, together with several diagrams and curves. This was published in the Electric Railway Journal for July 5, 1913, the account containing passenger count curves for all the lines tested and condensed tables of the operating results which were obtained. Three of the curves which showed the relation between the number of passengers carried and the number of stops were not shown in this previous article and these are published herewith.

## COLON ELECTRIC TRAMWAY

The contract for the construction of a street railway in Colon was executed between the Municipal Council of that city and Dr. Antonio Papi Aizpuru on Nov. 21, 1910. This contract was approved by the president of the Council on Jan. 18, 1911, and by the Alcalde on Feb. 4, 1911. Work on the system was begun on May 23, 1913, and the track has been laid for practically its entire length on D Street.

Dr. Aizpuru has turned over his interest in the franchise to a company, known as the Colon Electric Tramway, organized with a capital stock of $50,000, of which Ruben S. Arcia is president; Elias Aizpuru, secretary, and H. Hellinger, manager. The track will be 3 ft. 6 in. gage, and will be constructed of 56-lb. T-rail, laid on wooden ties 6 ft. long and 6 in. square. Some of the principal items in the construction of the system will be: One hundred and seventy-one tons of steel rail; 4,000 ties; four cars, equipped with storage batteries, estimated to cost $12,400; carhouse to cost $2,500; electric plant to cost $3,250, and the breaking up and replacing of 8,550 sq. ft. of macadam, $4,788. The erection of an electric plant to furnish power for operating the line has not yet been fully decided upon, and current for a time may be obtained from a local company.

The contract under which the company will operate is in force for fifty years. The work of construction must be completed within one year after it is begun, and the company has been required to deposit $2,000 in the municipal treasury as an act of good faith. The company is exempt from the payment of municipal taxes, but it is required to pay into the municipal treasury 3 per cent of its gross receipts for the first three years of operation and 4 per cent of its gross receipts after the first five years. Cars will be required to operate from 6 a.m. to 11 p.m., and a penalty of $12.50 is provided for each day's suspension of service. The fare is limited to 5 cents, United States currency, over the whole or any part of the system, and includes the carriage of parcels and baggage that do not exceed a measurement of more than 27 cm. Certain public officials and members of the police and fire departments are to be carried free upon proper authorization. Freight cars may be operated at the option of the company. All differences with the city are to be submitted to a tribunal for arbitration.

## THE LONDON COUNTY COUNCIL TRAMWAYS

The report of the highways committee of the London County Council tramways, which was presented in June last, is a peculiarly interesting document. It appears from the report that the total capital invested in the undertaking is £12,927,925, of which, fortunately, some £3,000,000 has now been extinguished by the sinking fund. The receipts during the financial year ended March 31 last amounted to £2,251,729, and the working expenses to £1,512,675, leaving a surplus on working of £739,053. The debt charges, interest, and sinking fund amounted to £730,687, leaving a balance of only £497, to be carried to the renewal fund, and nothing whatever to the "general reserve fund." On a basis of ⅔d. per mile run, the sum which should this year have geen added to the renewals account was no less than £150,309, so that the year's accounts show actually a deficiency of nearly £150,000. It is apparent, of course, that this entire amount must ultimately be made good.

The total number of passengers carried amounted to 512,652,653, and the car-mileage to 53,943,104. Since 1907 there has been a steady diminution in the receipts per car-mile. In that year they amounted to 11.95d., and this figure fell steadily to 10.98d. in 1912. During the year which ended March 31 last, however, this fall has been accentuated, the return having fallen to 9.73d. per car-mile. Among the causes contributing to this result, the committee confess that many of the lines added during recent years have not been of a highly remunerative character, and it will be remembered that the traffic department of the Board of Trade has pointed out that any further extension of the system must be effected under such unfavorable conditions as to make financial success highly problematical, all the best routes being now adequately equipped. It is probable, too, that the electrification of portions of the London, Brighton, & South Coast line may also have affected the receipts, though no allusion to this is made in the report of the highways committee, which apparently attributes practically the whole of the deficit to the greater efficiency of the recently developed motor-bus services, which offer the public advantages which it is impossible for tramways to afford.

In order to try and meet the motor-bus competition it is proposed to speed up the services, to make new junction lines, and to reduce fares. As regards speeding up, it would seem doubtful whether this can be done without scrapping most of the existing rolling stock and replacing it by lighter vehicles, accommodating about half the number of passengers now carried. Time is lost mainly in stops, and every additional passenger carried increases both the likelihood of stops and their average duration.

As regards the question of injury to the road surfaces, no impartial observer will contend that an omnibus is more injurious than the fast motor delivery vans, or does as much damage to the roads as the heavy steel-tired steam-tractors. Nevertheless, no suggestion is made that the proprietors of these should make a special contribution to the rates. The fact is the London County Council has made a bad speculation, and quite naturally wishes the public to apportion the blame to anything but to the mistaken judgment and lack of foresight of the representatives in whom, as it has thus proved, they made such an unfortunate and unlucky section.

Ignorant of technical matters as were the politicians that induced London to saddle itself with a system of transport which is being rapidly rendered obsolescent by the march of progress, they did so with their eyes open to the fact that certain charges for rates, maintenance and widenings would be incurred, and in this knowledge they promised London enormous subventions from the profits of the tramways. It is now too late to turn round and whine at a burden that was undertaken with full knowledge and complete volition.—*London Engineering.*

# THE VALUE OF SAFETY COMMITTEES*

BY GEORGE CARSON, CLAIM AGENT PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH.

The safety committee idea orignated with Ralph R. Richards, general claim agent of the Chicago & Northwestern Railroad. Mr. Richards' plan was outlined in an exceedingly interesting paper read by him at the meeting of the American Association of Railway Claim Agents in Montreal, May 24-26, 1911. After reading Mr. Richards' paper, I became satisfied that a safety committee would prove equally valuable in accident prevention on electric railways. In many respects our organization is patterned on the same lines as Mr. Richards' organization.

A general safety committee was first organized composed as follows: superintendent of railway, superintendent of transportation, superintendent of rolling stock and shops, superintendent of ways and structures, operating superintendent of light and power, superintendent of lines and division superintendents, with myself as chairman. Later we added our chief engineer to this committee. It was then decided that we would first organize a division safety committee at one carhouse as an experiment, selecting for the purpose our North Seattle carhouse, where we had at that time 450 men.

The division committee, so organized, was composed of the station master as chairman, one man from the trolley line department, one man from the mechanical department, one man from the substation and eight trainmen, making a total of twelve men.

The men to serve on this committee were selected by the division superintendent and heads of departments. At the same time we prepared a circular letter to all employees of the company, notifying them of the organization of the safety committee, with instructions for the division safety committeemen in the duties they would be expected to perform. These instructions were to keep continual watch for anything that would cause, or tend to cause, accidents, as well as for other matters of interest to the service, and having made discoveries to report promptly, on blanks furnished, to the chairman of the division safety committee, it being his duty to forward the reports promptly to the chairman of the central safety committee, by whom they were to be forwarded promptly to the head of the department concerned, for action. When the matter reported had been acted upon, notice of the action taken was to be sent to the chairman of the division safety committee, who would advise the member who made the original report of the action taken. This circular letter contained suggestions concerning proper matters to be reported by members, such as defective cars, defective track, defective tools and machinery, defective platforms and landings, defective bridges and trestles, defective buildings, overhead defects, obstructions near the track where a passenger was liable to be hit, and all other matters that might tend to cause accidents. Of course, emergency matters and defects requiring immediate attention would continue to be reported as theretofore.

Members of the committees were instructed that one of the most important duties they would be called upon to perform would be to watch the work of new men entering the service, and others as well, and when such men were disposed to be negligent in operation, either through ignorance of the rules, carelessness or other cause, to go to them in a friendly way and tell them about matters in connection with operation in which they might not be proficient and matters about which they might be careless; that if the men spoken to did not respond to the advice given to them, it would be necessary to report to the proper authority, and if the men should continue to be careless after sufficient warning had been given, it would become necessary to remove them from the service.

We decided at the beginning that the service of the division committees should be for six months, and we are continuing this plan, changing the personnel of these committees every six months, thus giving an opportunity to a large number of men to serve within a comparatively short time. When the term of service of the division committees expires, we encourage its retiring members to continue this safety work as when they were official members of the committees.

It was intended that the division committees should meet formally at least once each month and discuss matters of accident prevention of interest to the service, the company paying members for the time lost through attendance at the meetings. It was also decided that meetings should be held between the division and central committees, at times to be decided upon, for the purpose of discussing matters of interest in the prevention of accidents and any other matters of general interest to the service that might arise. We are now holding such meetings once each three months. The claim department prepares and submits to the meeting a report of the accident situation, going back three months, bringing out the class of accidents that appear to be most frequent. Means are considered for the reduction of such accidents, and we discuss thoroughly the general accident situation.

It was believed when our organization was first started that it would result in bringing the officers of the company and the employees together in a manner that would bring about more friendly and closer relations between them and thus prove beneficial in bettering conditions generally and reducing accidents. Our expectations have been fully realized after a year's trial. The atmosphere is clearer, general improvements have taken place in our entire organization, and accidents have been greatly reduced.

After trying out the first division organization referred to above for about six weeks, we decided that it had proved a success far greater than had been anticipated. It was then decided to organize our whole system on the same lines, which we did as rapidly as possible, completing the organization about March 1, 1912. Our whole safety committee organization consists now of about seventy men.

Soon after the organization was completed, the claim department gave a dinner to all members of the central and division committees and a number of invited guests which included all the officials of the company. We continue to give these dinners semi-annually. At these dinners subjects appropriate to the topic of safety are assigned to some of the officers of the company to speak upon.

These dinners have certainly resulted in great benefit to the company. Apart from the educational feature in connection with the subjects dealt with by the speakers, such gatherings arouse, in a high degree, an interest among the men in the prevention of accidents and the welfare of the company's business in general.

We hold meetings of the central safety committee whenever occasion arises. These meetings are held very frequently. I appoint sub-committees of the central safety committee to take up and act upon matters that arise in accident prevention. Some of these appointments are permanent, other committees are appointed to act on certain matters, and when these are disposed of the committee is discharged.

We have a permanent sub-committee on carhouse competitive charts known as "bogies." These are the result of an idea brought out at one of the meetings of the central committee by one of the members. We think these charts prove very beneficial in that they create a friendly rivalry

*Abstract of paper read at annual meeting of American Electric Railway Claims Association, Atlantic City, N. J., Oct. 13-17, 1913.

between the trainmen of the various carhouses, arouse great interest, and undoubtedly tend to increased exertion on the part of all trainmen to avoid accidents.

We also have a permanent sub-committee on carhouse meetings whose duties are to make arrangements for subjects and meetings of trainmen and the members of transportation and claim departments.

Recently our central safety committee decided to present to all members of the safety committees, past, present and future, a handsome watch-fob suitably inscribed. To make the safety committee organization of the most value, the interest of the men should be continually kept up in the safety work by the claim agent, or whoever is chairman of the safety committee. This official should call regular and frequent meetings to discuss the accident situation and inspire the men with enthusiasm so that the committees do not become merely perfunctory and useless organizations, but rather develop into live, active and vigilant bodies of men, bent on improving and bettering the service and avoiding accidents.

#### DETAIL OF EXPERIENCE WHERE SAFETY COMMITTEES HAVE BEEN IN EXISTENCE

We now have a live organization and our accidents are certainly decreasing. This is shown conclusively by the comparison between the years 1911 and 1912. The figures follow: Number of accidents, 1911, 5305; 1912, 4193; per 100,000 miles, 1911, 43.15; 1912, 33.24; per 1,000,000 passengers, 1911, 70.18; 1912, 55.07. I do not mean to say that the decrease shown was entirely brought about by the safety committee organization, because we have been using many other accident preventive methods. I feel certain, however, that the safety committee organization was a prime factor in the reduction.

#### HAVE SAFETY COMMITTEE SERVED TO DIMINISH THE NUMBER OF UNREPORTED ACCIDENTS?

Unreported accidents may be divided into three classes: (1) Those which in reality never occur and are predicated upon the fraud and frame-up of claimants; (2) those which do occur and are of such a nature as not to come within the observation of the trainmen; (3) those which trainmen wilfully fail to report.

To deal with the first class is a problem for the claim agents' associations and index bureaus throughout the country and calls for alertness on the part of claim agents and their assistants, and while the organization and the work of safety committees may not materially affect this class of unreported cases, the vigilance of the trainmen developed by safety committee organization will make fake cases more dangerous for fakers in their attempt to perpetrate frauds on our companies.

As to the second class, safety committees can aid materially by the reporting of defective conditions in and about cars, equipment, landings, etc., and in that way considerably reduce the number of these cases. In fact, it has been our experience that there has been an appreciable decrease in this class of unreported accidents since the inauguration of the safety committees.

As to the third class, a trainman who wilfully fails to report an accident in which he is concerned is, of course, a most dangerous employee, much more to be dreaded and much more undesirable than the man who steals the fares of his company. Trainmen generally recognize that wilful failure to report an accident is an inexcusable offense. The good influence exerted by the safety committee organization so clears the atmosphere that a trainman who would wilfully fail to report an accident would be regarded with scorn by his fellow employees, and would be forced to do right or leave the service. In this way the latter class of unreported accidents are diminished by safety committee organization.

## WRITTEN DISCUSSION ON VALUE OF SAFETY COMMITTEES

BY R. E. MACDOUGALL, CLAIM AGENT NEW YORK STATE RAILWAYS, ROCHESTER, N. Y.

My attention was first attracted to the value of safety committees by Mr. Carson at the 1912 mid-winter meeting. I became interested and, about the first of October, 1912, following Mr. Carson's plan, perfected an organization somewhat similar to his on the Rochester Lines of the New York State Railways. The organization is composed of a permanent central committee and five division committees—three city and two interurban. The city committees consist of twelve and the interurban of eight members, and the personnel of the division committees is changed every six months. Up to April 1, 1913, the sub-committees turned in a total of 160 suggestions to the central safety committee Of these the company adopted eighty-one. Seventy-three were deemed inadvisable and six held in abeyance. No foolish or absurd suggestions and no suggestions involving the expenditure of a large amount of money were made. In addition, about sixty suggestions were sent in by others who were not members of the committees and were acted on in the same manner.

With us safety committees have not yet succeeded in reducing the number of accidents, as our accidents show an increase in number over prior years; yet the class of accidents has not been so serious. However, there can be no doubt as to the value of these committees. The cost of maintaining them is almost nil—the payment for their time to members of the division committees and the expense of putting suggestions into operation where adopted.

## WRITTEN DISCUSSION ON VALUE OF SAFETY COMMITTEES

BY H. K. BENNETT, CLAIM AGENT FITCHBURG & LEOMINSTER STREET RAILWAY

My experience with a committee of this kind is limited to observation of those now in operation and of the results of my own endeavor as a committee of one. Any sensible plan along the line of accident prevention should be given a free and fair trial. It may be that it is not an idea to be universally adopted from the viewpoint of local conditions and that it is not as necessary for the smaller roads to have a large working committee, especially where the claim department can handle the situation itself. If the men come to the claim department for instruction, and this instruction is wide in its scope, and embraces the ideas of a "safety committee," and the claim department is allowed to follow up the instruction to see that it is carried out, then we have such a committee on a small but efficient scale. We are all, or should be, "doctors of prevention," and this is but one of the ways in which we should work if allowed to by the management of our respective companies.

In this connection, it is my personal opinion that our association should maintain a permanent "safety committee" for the purpose of assisting member companies along the line of prevention. This committee could well study the causes for the various kinds of accidents, and be competent to offer suggestions, should they be desired, looking toward their elimination.

The instilling of the idea of co-operation should be made one of the features of the education of employees before they go to work. Special effort should be made to gain the goodwill of the motorman or conductor in advance, making the matter a personal one with him by stating plainly that the reporting by him of defects or conditions that should be

remedied is as much for his benefit as for that of any one else and that a failure in this direction may cause him personal injury; that a man who does report these matters, as well as fellow employees who are taking chances and not conforming to the rules of the company, is not by any manner of means a spy, but rather one who, in the interest of self-preservation, has the welfare of the public and the company in mind.

## THE PREVENTION OF ACCIDENTS*

BY H. V. BROWN, GENERAL CLAIM AGENT PUBLIC SERVICE RAILWAY OF NEW JERSEY

I do not believe the full importance of keeping men in the service has been generally realized. Last year we prepared a set of figures and graphics, based on the records of the Public Service Railway for the entire year of 1911, and I was surprised to find that our conductors and motormen in the service less than one year, and who made up 34.50 per cent of the entire force, were responsible for 60.90 per cent of all the accidents occurring during the year. It therefore follows that the men in the service over one year made up 65.50 per cent of the entire force, and that the per cent of accidents attributable to them was but 39.10 per cent of the whole number. An analysis of the expenditures showed that the cost of accidents for the year attributable to men less than one year in the service averaged $202.05 per man, while those attributable to men in the service one year or over averaged but $67.31 per man; in other words, the new men were costing almost exactly three times as much as the old men.

Undoubtedly the fine accident record made by the men who had been in the service over one year indicates that their conservation of the company's resources extended to other departments and gives weight to the argument that it pays well from all standpoints to maintain as nearly as is possible a permanent force. The question of comfort and entertainment for the men and the setting up of safeguards to prevent injustice in the administration of discipline are the most important factors to be considered. The Public Service Railway has, through its welfare department and through the various officials who come in contact with the men, made a special effort to retain men in the service. We find that of the men in the service at the end of the year 1912 but 24.9 per cent have been in the service less than a year, as against 34.5 per cent at the close of 1911. This change in the make-up of our force toward permanency has been reflected all along the line, especially in the accident record.

Many companies issue bulletins to the men at frequent intervals containing instructions and comparative statements—the comparative statements for the purpose of stimulating interest and rivalry between the carhouses and divisions. The statements should at least cover the number of passengers carried per accident and the average number of witnesses obtained. The unreported accidents should be shown separately and the men impressed with the fact that to fail to report an accident is a very serious offense. It is an advantage to post the comparative statements, in the form of bulletins, in conspicuous places at the carhouses.

The "bogy" charts, which I understand were first introduced in street railway work by Mr. Carson, of Seattle, are excellent. These show the daily accident record by graphics and figures as against that of the previous year. The idea is so simple that it is understood at a glance. Our men show great interest in these charts and are constantly striving to keep below the "bogy" line.

Educating the public in the prevention of accidents is a field in which there is great opportunity for new and original ideas to be developed. On all sides we hear of vague general plans. Public safety committees and safety bureaus in long and interesting articles in the daily press tell of their good intentions. Usually statistics are quoted as to the appalling number of railway, auto and other casualties occurring daily, and it is declared that this horrible carnage must be stopped, and, what is more, the particular movement described is about to stop it. When we come to look the situation over, we find that no very substantial results have been accomplished by these general movements, but I do believe that at some future time there will be a larger appreciation of the necessity of conserving human life and health and a practical way to accomplish it. In the meantime the street railway and steam railway companies and some of the large industrial concerns are doing very effective work.

Perhaps the branch of this work that has been best developed is that among the school children. Our campaign in New Jersey was conducted by Frederick S. Hughes. It took him, with an assistant furnished by us, about ten months to cover our territory, and about 100,000 children were reached. The result was quite a substantial falling off in accidents to children of school age. One result of the campaign that I consider remarkable is that not a single child has been killed or injured as the result of touching a live wire since the campaign closed in March, 1913, although there had been frequent accidents of this sort before, especially with the wires of the Public Service Electric Company that furnish light and power to practically the entire State.

*Abstract of a paper read before the American Electric Railway Claims Association, at Atlantic City, N. J., Oct. 13-17, 1913.

## REPORT OF THE COMMITTEE ON EDUCATION*

H. H. NORRIS, CHAIRMAN; R. S. COFF, J. F. CALDERWOOD, D. C. JACKSON, A. S. RICHEY, WILLIAM ROBERTS, F. J. FRYOR.

Last year it was hoped that the correspondence course, with which the committee had excellent success in a preliminary experiment, could be inaugurated on a large scale, but this was found to be impracticable largely because it was impossible to reach the officials of the companies with clear explanations of the plan. At the midyear meeting an appropriation of $250 was made to cover expected expense for the remainder of the year. The educational committee planned to publish in the *Aera* from time to time papers bearing on practical educational topics, but as the members of the committee were too busy to prepare this a railway man was to be paid for the work upon the papers. The association was to reprint the papers for distribution among the employees of the member companies. The expectation was that the foremen or others interested would assist in disseminating information among the men. In furtherance of the plan several communications have been printed in the *Aera*. The plan for the employment of an instructor could not be carried out. An excellent man was engaged, but he was unable to get the work done in the time available. The committee has, therefore, expended no money.

The association was represented at the founding of the National Association of Corporation Schools by Secretary Donecker, who also attended the midyear meeting of the American Institute of Electrical Engineers educational committee in order to keep in touch with its work.

An important feature of this year's work of the American Electric Railway Association educational committee has been the fine spirit of co-operation manifested by the educational committee of the affiliated associations, and it would seem wise for the American Association to continue to have a committee to keep posted on educational matters, to carry out such plans as seem needed and practicable and to maintain the present spirit of helpful co-operation with the affiliated societies.

*Abstract of report read before the American Electric Railway Association, at Atlantic City, N. J., Oct. 13-17, 1913.

# FRANCHISE VALUES*

BY WILLIAM M. WHERRY, JR., NEW YORK

Cost is often confused with value, and the fact that the purpose for which the property is used is one of the elementary considerations which have to be taken into account in fixing value is often ignored. Even in so recent a case as the Minnesota rate decision, we find one of the ablest judges advancing the opinion that property which can only be used for a railroad right-of-way is not to be valued as a railroad right-of-way. The result of this is that a great deal of confusion and vagueness pervades the whole subject.

It is generally conceded that special franchises have value, but what such value is and how to arrive at it is a subject of endless dispute. Without the protection of law there can be no value, for, as Bentham said, "Property and law are born and must die together. Before the laws there was no property; take away the laws, all property ceases." Value must be distinguished from cost. They are two separate conceptions. In economics, value is always considered in the sense of price, but the essence of value is the advantage which the owner derives from possession.

The advantages which the owner can derive from any property fall into three classes. First, those of mere enjoyment. We may use the thing owned. It may be of no use to us except as a possession. In the second place, we may regard it as something which we can dispose of in exchange for other advantages, and in the third place, we may, by using it, derive a profit or income from it. A franchise, in the broadest sense of the term, has all these elements of value, but the element of special value in any special franchise is the power to produce an income or profit out of the exercise of that franchise.

It was early established that a franchise which had in it no element of value except the power of enjoyment derived from its possession had a value; that such value could not be taken except by due process of law, and that if taken, compensation must be awarded. The same thing is true of a franchise whose chief value lies in the second element, namely, its marketability. In considering the marketable or exchange value, it will be noted that in order to be marketable the property must be alienable.

In most cases the enjoyment and the marketability depend on the profit which the owner or expectant owner can derive from the user of the franchise, and it must follow that the third element of value, namely, the power to earn profits, must be protected, or the value will be impaired. And the courts have so held in many cases.

Let us now consider how the question of franchise value may arise and how it is to be determined. In discussing value, the word is frequently used with reference to marketability, and this is what gives rise to the confusion of value with cost. It is plain that the value of a thing, due to its marketability, is often synonymous with cost. The price which we pay for a thing, that is, the cost, is evidence that at that time the value we set on it was at least equal to the amount paid.

A franchise is not a commodity, the value of which can be arrived at by collating and comparing market prices. Furthermore, franchises are often given away, and in the great majority of cases cost nothing, the reason being that the use of them alone can give them value. The confusion of value with cost gives rise to the fallacy that because a thing cost nothing it has no value. A thing may cost nothing and yet have a great value due to its marketability or the profits which can be derived from its use. In the case of tangible property, this is universally recognized. In the case of intangibles, it is now established, but the notion persists in some quarters that because franchises cost nothing they have no value which the law is bound to respect.

The confusion of cost and value has given rise to another fallacy, namely, that the owner is not entitled to the unearned increment which has accrued. In fixing a value from the point of view of marketability of a franchise, the question arises whether the court should protect unearned increment. In most cases the unearned increment establishes the value of property as a marketable commodity. Whenever property is bought with the expectation of reaping a profit, the unearned increment is discounted. The store which the owner sets on his property is fixed largely by his estimate of its unearned increment. To deprive the owner of his unearned increment is to deprive him of his property. This is peculiarly true of a franchise, the value of which lies almost entirely in its unearned increment.

Of course, the value of any property as an article of commerce is largely dependent upon the use to which it can be put, and also the profits which can be derived from it. Nevertheless, a franchise may have a value to its owner solely because of the fact that he can sell it. For example, the owner may not be able to use the franchise as efficiently as someone else, in which case it would be more to his advantage to sell it and it would have a greater value to him as an article of commerce than as an income producer. Again, the owner may be a corporation whose corporate charter has expired but whose special franchises survive, as in the New York Street Railroad case. In such a case the owner cannot use the franchise, but someone else can, and the franchise is valuable to the owner by reason of his right to sell. It is seldom, however, that the value of a franchise is determined solely by its marketability. Usually its chief value lies in the fact that profits can be derived from the use of it. The existence of this value is sometimes disputed, but is recognized by economists.

It is always, of course, difficult to ascertain what is the value of any property by capitalizing its expected income. We have to ascertain the probable income and the rate of interest. The facts on which the probable income depends are the population served, its wealth and the like. The rate of interest depends upon the risk involved. Instead of a single rate of interest representing the rate of exchange between this year and next year, we find a great variety of rates. The rate in every case is adjusted on the basis of the security. It is the uncertainty which makes changes in value. The happenings of almost every day—new inventions, floods, disasters, regulations under the police power, tariff revisions—all these things affect the interest rate and affect the value. What the courts do is to approximate the value as nearly as possible and hold that the value which the law protects is the value which is set upon the property to-day; that is to say, it is to-day's estimate of the probability of any of these chance happenings occurring, and not to-morrow's certainty.

In many cases franchises must be valued, and the value must be based on the power to derive profits. The earnings must be taken as of the time when the value is fixed. In the Consolidated Gas case, a rate-making case, the Supreme Court of the United States valued the franchises in that way. In that case the court said it took this value because the State had already fixed it for purposes of taxation. In other words, the court held that the same method of arriving at value which was proper in a taxation case was also proper in rate making.

The question then comes, how far does the Constitution protect this value? The Constitution prohibits the taking of property except by due process of law. The property may be taken in a condemnation suit, but compensation must be made. It may be possible to lower a service charge without taking the property because the charge as lowered may so increase the net earnings that the value of the property

*Abstract of a paper read before the American Electric Railway Association, at Atlantic City, N. J., Oct. 13-17, 1913.

as an earning proposition will not be impaired, or there may be some compensating advantage which would lower the rate of interest by increasing the safety of the investment. There is no case where the court has admitted that a reduction of service charge would decrease the value of the property and yet has sustained such reduction.

Certainly the State has the right to prevent extortion, for example fixing a rate of interest to prevent usury, or requiring blacksmiths and innkeepers to serve travelers at the same rates which prevail generally throughout the country for similar services. The whole rate-making power of the State is based upon this principle and is limited by it. The State can only fix a service charge for the purpose of preventing an extortion.

In the early cases the only question was what could a public servant recover on a *quantum meruit* for a service which he had rendered, and whether the charge which he had made was reasonable or not. The question of what profits he derived from his business did not enter into the matter at all.

In modern practice, the commissions and the courts have departed from this ancient principle. They have inquired into the profits which the public service companies have made and reduced service charges not because the charges were exorbitant but because the profits seemed unreasonable. Perhaps they have not put it expressly on that ground, but that is the effect of their holdings. The only bearing which the amount of profits should have is as being an evidence that the charge is unreasonable. In order to ascertain this, it would be necessary to compare the profits derived in the case before the court with profits derived on all similar businesses conducted under similar conditions during the same time and at the same place. In other words, you must ascertain as a fact the actual past rate of interest.

If the State should ascertain as a matter of fact that the charges made in the case before it were exoroitant, taking into consideration, among other things, the profits derived on the investment, it has, perhaps under the police power, the right to take away the value by reducing those charges, even though by so doing it reduces the earnings for the future. This would be taking the property by due process of law. The State runs the risk, however, whenever it inquires into the past, of committing the gravest sort of an injustice, since its own acquiescence in the charges then made has served as the basis upon which the value has accrued, and under the doctrine of estoppel, it would be unreasonable for the State to take away that value, when its own acquiescence has created it.

If the court fix different values on a franchise in a rate-making case and in a condemnation case or a taxation case, they run the risk of permitting an extortion on the part of the State, for, of course, the State could destroy the value by denying that any value existed, irrespective of whether the charges made for the services were reasonable or not. This would certainly be taking property without due process of law.

The value of the franchise as based on its earnings cannot be omitted in ascertaining the property which the law must protect and which can only be taken by due process; such value can only be taken away when the charge is clearly extortionate or unreasonable as compared with the service rendered, otherwise the State becomes the extortioner and not the protector against extortion.

In arriving at the question of what is a proper charge for the services rendered, the significance of the unearned increment should not be lost sight of. There are cases where the unearned increment is not a return for any service. For instance, in England there has been a land-holding class where titles have changed comparatively little for centuries. These land owners have performed no service to the community. Each unearned increment value contributed by the community at large bears no relation to any service rendered by the land holders. This is very different from the case where the person who benefits by the unearned increment actually performs a service which is measured by this increment. For instance, a franchise unused is of no value. The man who develops and uses it is performing services and the value which accrues from such use and development is the measure of those services. The consideration for the development of the franchise is this value, and it cannot be taken away without depriving those who have created it of the reward for their services.

## REPORT OF JOINT COMMITTEE ON TRAIN OPERATION FOR INTERURBAN SERVICE*

EDWIN C. FABER, CHAIRMAN; C. N. WILCOXON, F. A. BUNDY, J. B. STEWART, E. F. GOULD, G. T. SEELY

A data sheet was sent to all member companies in order to get certain information to be made the basis of this report, and replies were received from over sixty companies, of which twenty-six are already using train operation to a greater or less extent in their regular passenger service. The use of train operation for handling freight business is a comparatively small problem compared with passenger operation on interurban roads, and so has been disregarded this year by the committee. In this year's report it has been the aim of the committee first to find out what is the practice of the various operating companies in regard to interurban train operation, including not only the advantages accruing from such operation but also the handicaps and problems arising therefrom.

Of the roads operating passenger trains there is a great diversity in the proportion of total service requiring trains of two or more cars, the proportion varying from 5 to 75 per cent, but on all roads such train service seems to require an average of about two cars per train, with the maximum length of train usually four or five cars. Of the member companies replying to the inquiry, fourteen are already using trains in regular daily service, as differentiated from a number which maks up trains usually consisting of one or more trail cars added to a motor car, using the arrangement only on comparatively few days during the summer to handle some especially heavy traffic. This is indicative of the gradual tendency of electric interurban service to follow steam road practice, particularly as the density of traffic and length of haul increase. Only two roads replying to the data sheets are using sleeping, dining or buffet cars. Such special accommodations, it is evident, will not come into general use on electric interurbans until through service of a long-haul nature over connecting systems, or connecting divisions of a consolidated system, becomes more common.

Most of the roads which are operating trains in regular service have cars equipped with multiple-unit control. The use of a motor car dragging a trailer is perhaps the best arrangement for those roads whose traffic conditions are exceptionally heavy for only a few days in summer, but for regular daily operation of trains there is no question that the multiple-unit system is very much more flexible and a time saver when schedules are at all severe. Not only is it very convenient to have all cars movable on their own power for switching and making-up purposes, but the facility with which trains can be made up at junction points from single-car units on the different branches is a great point in favor of the multiple-unit system.

Another physical feature of car construction which has received the attention of several of the roads operating trains is that of center-end doors to allow the passage of a person from car to car. That such construction is not more generally used would seem to indicate that train operation

*Abstract of a paper read before the American Electric Railway Engineering and Transportation & Traffic Associations at Atlantic City, N. J. Oct. 13-17, 1913.

is a rather recent development in the case of most roads, or that present excessive curvature of tracks would not make such construction desirable. That long cars and short radius curves in cities are no real hindrance to the operation of the trains is shown by no less than eight roads, which operate cars in trains around curves of from 34-ft. to 60-ft. radius, lengths of cars varying from 52 ft. to 67 ft. 6 in. One road operates 62-ft. cars around 34-ft. radius curves, and another cars 67 ft. 6 in. long around 35-ft. radius curves, and the results indicate that no difficulties are being experienced in either case.

Practically every road has a certain proportion of its track laid on city streets or public highways, though in only one or two cases were municipal regulations noted against train operation. It is possible that the lack of municipal regulation may be due to the comparatively small proportions which train service has reached in the case of many roads, or that the roads now employing train service have made special provision in laying out their entrances to cities. As trains increase in length, however, municipalities might raise objections to the operation of heavy trains through principal and crowded streets, or might so limit the speed as seriously to affect the schedule. The importance, therefore, of having the best possible entrance to all large cities is apparent, and has already been recognized by a number of companies that have provided special rights-of-way into cities or else have relocated their terminal stations so as not to make it necessary that trains be run on the main thoroughfares.

The schedule speeds maintained are from 20 m.p.h. to 30 m.p.h. in local service and 30 m.p.h. to 45 m.p.h. in limited service, and compare very well with steam railroad service for similar lengths of haul. The average headway reported between trains is thirty minutes to sixty minutes, most of the roads employing sixty minutes, though a few report fifteen minutes or less, the latter instances being in the case of double-track roads. It can readily be seen that handling the same service in single-car units by increasing the number of separate trains would greatly decrease the headway, largely augment the difficulties of dispatching and occasion a considerable extra loss of time in waiting at sidings, not to mention the resulting increased danger of collisions.

As to the saving effected in power consumption by the operation of trains, there were various answers. About 25 per cent of the roads consider that there is a saving, estimating this at from 2 per cent to 25 per cent over what it would be with single cars, though the majority evidently have neither investigated nor considered this phase of the situation. A few seem to doubt that there is any saving, and one states that instead of a saving there is an increase in power consumption due to the increased number of stops where trains are used. This latter point is one which well may be taken into consideration, as it is a well-recognized fact that the larger the number of passengers in a train, the greater is the probability of making any particular stop. This has been noticed before in investigations of rail-car operation in city service and applies with equal force to interurban service having a considerable number of signal stops. With any given number of stops there should be, and is, a saving in power per car mile from the operation of trains.

No data are available to show the effect on maintenance cost of train operation, but it is logical to expect a certain saving per car mile if a certain amount of the service is handled by trail cars or two motor cars instead of four motor cars.

The largest item of saving is, of course, that of platform expense, and the amount of this depends altogether on the size of the trains and the crew required by local conditions. From the replies received, the actual saving over single car operation is all the way from 20 to 50 per cent. There is considerable diversity in practice as to the number of conductors and brakemen required on the various lengths of trains, many of the roads being able to operate three and four trains with three men, including the motorman, while others require four to five men, including the motorman. It is evident, of course, that unless end vestibule doors for passage between cars are provided, there will be required one trainman for each car, in addition to one motorman for the train.

An effort was made to ascertain what effect train operation had had on the accident question, but nothing tangible could be obtained. Several roads stated positively that train operation had had no effect either in increasing or decreasing accidents, while ten companies, though having no figures to present, feel that the use of trains reduces accidents, especially collisions, due to a lesser number of trains on the road.

The following are factors which have made it unnecessary for other roads to consider train operation and in many cases are, of course, simply the reverse of the arguments for it: (a) Insufficient density of travel. Most of such roads find that one car per hour will take care of all regular service, and use trail-car operation in very rare cases only. (b) Municipal ordinances forbid train operation. (c) Sharp curves or other physical barriers in cities. (d) Expense of changing control and air equipment.

The report was accompanied by an appendix containing curves to show the results of a number of tests to determine the energy consumption of one, two and three-car trains in regular service on the Aurora, Elgin & Chicago Railroad.

## COMMENTS ON CLEVELAND FARES.

The following humorous letter appeared in a New York daily recently:

"In Cleveland they have pay-leave cars, which you enter at the front door and leave at the rear. That is, going uptown. Going down town, there are pay-enter cars and you get on at the back and off at the front. As the front doors are labeled "Entrance" in huge letters and the rear doors "Exit" the downtown journey finds many unfortunate persons who do not live in Cleveland engaged in quarrels with the motorman, while the conductor bawls at them from the rear to know why they don't hurry back there and get on. The reason for this is that these cars run beyond the city limits, where the fare is 5 cents, and they have to collect from the nickel guys when they get on going into town, and when they get off going home. All right when once you know about it.

"Then there's one more kind of car. It has no end doors, only a side door, and the seats run all around the car. So did I. I got on and sat down in the rear half of the car. Observing the conductor standing at his fare box, I got up and politely put my nickel in. Then I sat down again where I had been sitting. The conductor motioned me to take a seat in the other end of the car. I obediently did so, and ventured to ask why.

" 'The front end of the car is pay-enter,' quoth he, 'the back end is pay-leave.'

"Gosh!

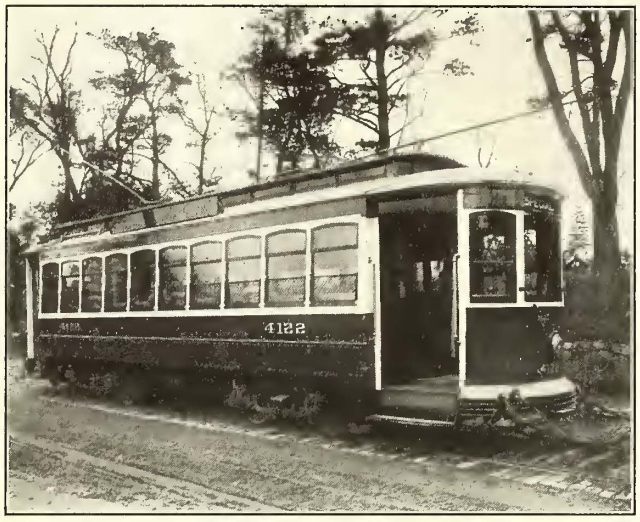
"When you want a transfer you buy one of the conductor, paying 1 cent cash, and when you turn in your transfer on the subsequent line the coductor digs down and hands you out a cent for it.

"A man got off a pay-leave car one day without giving the conductor anything, and the conductor chased him two blocks into a cigar store. After he had lighted his cigar the man dug up a transfer and collected his cent from the conductor.

"I can't swear to this last story. A man told it to me. If it isn't true, it ought to be. All the rest I can swear to, or about, as the case may be."

## SPECIAL CONVENTION CAR OF THE BAY STATE STREET RAILWAY

An account was published in yesterday's issue of the special trip taken by trolley by a large number of New England delegates from Boston to New London on their way to the convention. Through the courtesy of E. W. Holst, superintendent of equipment Bay State Street Railway, some views are published herewith of a Bay State car which formed one of the six passenger cars that were used on that trip.




Bay State Special Car Used on Convention Trip from Boston to New London

The car was one of the standard passenger cars of the company, with a 28-ft. body and 40 ft. over all, but it was converted for the purpose of this trip into a chair car at the shops of the company. As shown in the interior view of the car, all the cross-seats were removed, and their places were taken by standard wicker armchairs. A handsome carpet was laid on the floor. At one end of the car were placed serving tables which were used for the luncheon which was served "en route." On one platform the company installed an electric stove for refreshments which had to be warm, and on the other platform there was carried a commodious ice box for the refreshments which were served cold. The deck signs were painted, "New England Street Railway Club."

A novel feature was also introduced in the advertising racks of these cars. The advertising cards were removed, and large maps of the route, drawn in the drafting room of the Bay State Street Railway Company, were inserted. These maps were to the scale of 25 ft. to 100 miles. A map showing the route by way of Worcester occupied one side of the car, and a map showing the route by way of Brockton occupied the other side of the car.

An especially interesting feature of all of these convention cars was their equipment with a special wheel, necessary because in operating over the city streets the cars in most of the cities in New England use a wheel with 2½-in. tread. On the other hand, a part of the schedules run by these convention cars were over some electrified steam tracks of the New York, New Haven & Hartford Railroad, where the standard M.C.B. wheel is used. By a compromise with the railroad company a wheel with a 3-in. tread was used by the electric cars. The problem of designing and furnishing a special wheel was put up to the Griffin Wheel Company, which designed and cast enough special wheels to supply the six passenger cars and the express car used on the trip. This wheel was equipped with the standard flange and tread employed on the New England city cars but also had an extension on the tread of ½ in., with a coning in this distance of ¼ in. The result was that the coning was sufficient to let the wheel clear the paving on the city streets, but the wheel had really an effective tread for the steam tracks of 3 in.

## INDUSTRIAL WELFARE AND EFFICIENCY CONVENTION IN PENNSYLVANIA

The Pennsylvania Industrial Welfare and Efficiency Convention will be held in the Capitol at Harrisburg on Oct. 28, 29 and 30. The convention has been called by John Price Jackson, commissioner of Labor and Industry of Pennsylvania, and will consist of representatives of industrial establishments, engineers, contractors and other employers of labor doing business in Pennsylvania and representatives of labor and heads of the various State Departments coming in contact with engineering and industrial affairs of the State.

The convention will be held under the auspices of the Engineers' Society of Pennsylvania, which will also have charge of the exhibit to be held in connection therewith. The exhibits will be of a general engineering nature to appeal to the type of delegates attending the convention. The Engineers' Society of Pennsylvania had charge of similar exhibits in 1909 and 1910. The convention this year will be of greater importance than the preceding conventions, and the exhibits will doubtless be of additional value to the firms exhibiting.

The exhibit will be held in the large concrete building of the Harrisburg Railways at Cameron and Forster Streets, Harrisburg. There will be approximately 26,000 sq. ft. of concrete floor space within the building. The details of the exhibition will be in charge of Paul Gendell, director of exhibits. His address is in care of the Engineers' Society of Pennsylvania, Harrisburg, Pa.

Interior of Bay State Convention Car Converted from Standard Car

A traffic ordinance has been adopted by the City Council of La Salle, Ill., providing that street and interurban railway cars must make far-side stops and that vehicles must not approach cars which are loading or unloading.

## CARNEGIE HEAT-TREATED AXLES AND GEAR BLANKS

A careful study of the exhibit of the Carnegie Steel Company on heat treatment of axles should be one of the first duties of every master mechanic at the convention. A number of sample axles were made and tested for this exhibit intended to demonstrate that first-class results can be secured with 0.05 per cent or more of sulphur and phosphorus. Sample axles were subjected to drop, bending and tensile tests. Various photographs were taken of all axles and can be seen at spaces 546 to 553. Special attention is being called to the Carnegie high-test axle which is being tried out now on a number of roads. In this the attempt has been made to approach the ideal conditions of treatment so as to bring out the inherent properties of the material. While axles are of prime importance, visitors should not overlook the exhibit of gear blanks, which are rolled in three different grades—soft, for case-hardening or armorizing, with 0.10 to 0.25 per cent of combined carbon; medium carbon, 0.30 to 0.50 per cent, and high carbon, 0.50 to 0.60. They are arranged for heat treatment after cutting, the gears being usually quenched in oil. Blanks are rolled by the Slick process, being forced into a rotating die by a second die mounted on an arbor incline at an angle of 30 deg. to the axis of the blank. The blank is rolled therefor by a pressing or ironing process which is very effective. A still more recent development is the successful forging of annular piston heads. These processes will do away with the use of casting, with the danger of blowing holes and irregularities.

Automobile flywheels are also being worked, an interesting example of the process being that used in producing flywheels for self-starting Pierce-Arrow cars.

## THE LATEST TAYLOR STOKERS

Power plant men will be pleased to learn that the American Engineering Company has succeeded in perfecting the promised continuous-dump stoker, fourteen of which are now going into the Interborough Rapid Transit plant. This stoker has also been successful under the large boilers of the Detroit Edison Company. The continuous feature has been introduced by means of a very simple but effective device. Under the opening at the rear of the stoker is a reciprocating stepped ash plate which makes a tight joint with the bridge wall. By the operation of this the amount of ashes is broken up and fed continuously downward from the bottom. In other words, it may be said to be "chewed up" from below. The ashes are thus removed without admitting excess air to the combustion chamber. This invention overcomes what has been heretofore considered the one objectionable feature of this type of stoker. It will now be possible to operate boilers continuously at tremendous overloads without any interruption for cleaning the fire.

## PROGRESS IN BALL-BEARING APPLICATION

The exhibit of the Hess-Bright Manufacturing Company will interest most mechanics who are following the development of anti-friction bearings for motors and cars. An axle and wheels weighing about 2000 lb. mounted on ball-bearings and exhibited at spaces 143 and 145 show graphically the small friction coefficient of this type of bearing. This axle, when brought up to 300 r.p.m., the highest speed which the floor of the booth will permit, will run for thirty minutes. It is then stopped by windage probably more than by bearing friction. The Hess-Bright Company is catering to the railway field by improving its bearings and reducing the price as demand increases. The New York Railways are using ball-bearings on their center-entrance storage-battery cars as are the Gould companies on the battery cars recently furnished for Cienfuegos, Cuba. Right here in Atlantic City is car No. 107 of the Atlantic City & Shore Railway, which has been in satisfactory operation for five years. The latest development is the adoption of ball-bearings by the Illinois Tunnel Company of Chicago for twenty new electric locomotives. Up to the minute is the adoption by one of the leading trunk lines of the country of ball-bearings for experimental use on a 120,000-lb. steel passenger car. While running friction is not a consideration in this case, starting friction is, as it is at least four times as easy to start a car with ball-bearings as with the ordinary type. Another very general use of ball-bearings is on axle-driven train lighting equipments.

## SCIENTIFIC WORK ON CARBON BRUSHES

Attendants at the convention who are interested in the scientific side of carbon brush manufacture will enjoy a study of the brush curves which can be seen at the exhibit of the Speer Carbon Company, spaces 382 and 384. In the testing laboratory, which has been recently developed by J. C. Lion, a long series of tests has been conducted and is still under way. Curves have been plotted between current density and positive drop, negative drop, friction coefficient and temperature. The original apparatus devised for this purpose was described at the 1913 mid-winter meeting of the American Institute of Electrical Engineers. The high conductivity brush for low-voltage machines consists mainly of copper and graphite. Its specific resistance is 2.6 michroms per inch cube, and at the normal current density of 450 amp per square inch the potential drop is 0.26 volt. The normal spring pressure is 3 lb. per square inch and the coefficient friction 15 per cent. The hardness is ten divisions on the sclerescope scale. This brush would normally be used up to 6 volts. At the other extreme of conductivity is the H-8 railway brush with a specific resistance of 0.00135 ohm per inch cube, producing 0.9 volt drop at 50 amp yer square inch, having a friction coefficient of 0.19 and 55 deg. of hardness. Between these two brushes is a long series having varied characteristics. The scientific way in which this company is studying the brush question and its willingness to make public the results of the investigations are greatly to be commended.

## NOVEL BALDWIN TRUCKS

The Baldwin Locomotive Works, spaces 540, 542 and 600, show two of the latest creations in city and interurban trucks. A single-motor truck constructed for the Topeka property of the Illinois Traction System has 34-in. drivers and 22-in. idler wheels, all steel-tired. This type of wheel rather than the solid steel wheel usual in this country is preferred abroad. The features kept in view by the designers were lightness and simplicity, and special attention was given to the elimination of chattering in the brake rigging. A continuous forged side-frame, a centrally located bolster and Symington bearings are among the salient structural features. A nickel-plated model, as well as a finely finished example of this type M truck, is on view. The M.C.B. two-motor truck, known as the K type and designed for the Washington Railway & Electric Company, is also represented by a full-sized truck. This design is for city and interurban service. The exhibit is rounded out by literature on the company's products and many interesting photographs.

The Trolley Supply Company, spaces 360-61, is exhibiting the new Hollis fender. Of the projecting type, it is a combination of fender and life guard, with a guard rail slightly in advance of the lower apron. When the guard strikes an object it trips the apron. In addition, the company has on exhibit the Knutson trolley retriever, the Ideal catcher, headlights and trolley bases.

## A VARIETY OF NEAR-SIDE CARS

The representatives of the Near-Side Car Company, New York City, in space 385, are distributing cards and information showing the plan of operation under the "near-side" principle and the reduction of platform accidents. The actual models of near-side cars are found across the Boardwalk, almost opposite the Convention Pier. The canary-yellow car is one of twenty-six cars built for the Pennsylvania Railroad, which owns the operating company, the Atlantic City & Shore Railroad. The cars were delivered and placed in service on Oct. 1, and are now running on Atlantic Avenue, Atlantic City. The orange-colored car is one of an initial order of five cars to be built for the Charlottesville & Albemarle Railway, Charlottesville, Va., on the order of John L. Livers, general manager. An interesting feature in regard to this car is that it bears the colors of the local college. Two more cars of the same model have been ordered by Mr. Livers for his North Carolina properties. The near-side auto bus, also exhibited on the Boardwalk, is a model designed to hold forty people, but as yet not in actual use.

## DEVELOPMENTS IN SIGNALING

The United States Electric Signal Company, in space 401, has working exhibits of type K and K-3 counting signals, the new four-light counting signal, the two and three-position, high-speed block light signals, the type G signal, the standard crossing bell and the American automatic switch, which is now manufactured by this company. A feature of greatest novelty in the exhibit is the new CL signal, which has been designed to meet the recommendations of the signal committee of the American Electric Railway Association. This is purely a light signal with long hoods over the lamps to prevent reflection of sunlight. As ordinarily arranged, the green light is placed at the top with the red light directly below and two yellow lights on a horizontal line at the bottom. A car entering a block lights a red and one yellow lamp, providing that the stop signal has been established at the opposite end of the block. A second car extinguishes one yellow lamp and lights another and so on alternately as successive cars enter the block. The yellow lamps are in the recording circuit and the lighting of one of them shows that the recorder has operated. Provision has also been made for a change in aspects to bring the green and yellow lamps together instead of the red and yellow, by the throwing over of a switch, for the convenience of those who prefer this combination.

The signal box and counter previously used in connection with the K-2 signal has been modified slightly and bears the number K-3. The improvement consists in having the red disk mounted on a semaphore arm and work with a vertical motion instead of a rotating one. This brings the disk closer to the glass and prevents the reflection from the glass from obscuring the view of the disk. Otherwise the box is the same as the K-2 type.

The signals are operated by the standard overhead contactor or by the use of insulated track sections. In the latter case a track relay has been developed by which it is necessary to have a sequence of three-track contacts before the signal can be operated. This prevents any evil effect from the accidental crossing of the insulated and grounded rails. The track relay coils are wound of low resistance so that any leakage from the insulated rails not amounting to a dead cross will not hamper its operation.

Mention should be made of the new spacing signal, of which two types, the three-light and the two-light, are shown. The chief feature of this is the telltale signal, located beyond the main signal, which lights up immediately the signal is set to danger behind the car and is a positive indication that the signal has been set to danger behind it. The main signal and telltale have large lenses, 8 in. in diameter with 48-cp lamps.

## MAZDA LAMPS FOR CARS, AND NITROGEN LAMPS FOR YARDS

The National Lamp Works of the General Electric Company are exhibiting in spaces 606-608. The advantage of National Mazda lamps over the old-style carbon lamps are brought out by carefully designed apparatus. A rotating wheel studded with lighted lamps shows very clearly that Mazda lamps burn in any position. The superior candle-power regulation with fluctuating voltage is demonstrated by one 94-watt Mazda lamp, a cluster of five 60-watt carbon lamps and a rheostat, inclosed in a light-tight cabinet. The excessive dimming of the carbon cluster with a drop in voltage is clearly seen. The 94-watt Mazda lamp, fitted with a Holophane X-traficiency reflector gives approximately the same illumination as the five 60-watt carbon lamps. A sign on the cabinet invites anyone interested to manipulate the rheostat and observe the effect for himself.

The different styles and sizes of Holophane reflectors suitable for street railway use are shown with the corresponding lamps. The use of a reflector not only provides greater comfort for passengers, but also tends to economy in operation. The economy in energy consumption brought about by the use of Mazda lamps is shown by a meter, which registers the current consumed by Mazda and carbon lamps of equal candle-power.

The new high-efficiency nitrogen-filled Mazda lamp is being exhibited for the first time. The lamp exhibited consumes but 750 watts and gives approximately 1400 cp. Its application to street railway systems lies in the lighting of yards, barns and other places where a high candle-power unit can be employed to advantage. C. W. Bender, R. W. Tavey, J. A. Hamilton and J. R. Colville are in attendance.

## NUTTALL SPLIT-GEAR EXHIBIT

R. D. Nuttall Company, Pittsburgh, Pa., is exhibiting this year a new line of gears both forged and cast steel, also various grades of pinions, standard trolley bases, including its latest design. No. 15, and also two designs of its flexible coupling. The company shows its usual line of harps, wheels, trolley poles, etc. The star feature of the exhibit is a cast-steel split gear and pinion which have made 583,000 miles during twelve years of active life and are still good for 100,000 miles or more. The lubricant used was the well-known Galena "4-cent grease." As the ordinary life of a gear is, say, 200,000 miles, then a well-made cast-steel gear can compete favorably with higher-grade, higher-priced gears. This gear was used in hilly service in Western Pennsylvania, received ordinary but careful attention and is a sample out of a lot of one hundred.

The Naugle Pole & Tie Company, in space 330, has made a most interesting exhibit out of a cut and dried proposition by showing some of its ties that have been in hard service from fifteen to twenty-nine years on steam roads. The large photograph showing the stock carried in the yards is a very convincing proof of the ability of the company to make prompt delivery from stock. To learn the fine points of the evolution of the tree to the pole and tie the visitor should just give either J. W. Benham or L. E. Morier five minutes of his time.

Heywood Brothers & Wakefield Company, Wakefield, Mass., space 636, has on exhibit its standard types of Heywood-Wakefield pressed-steel cars seats in rattan, plush and leather, and sample rolls of car seat webbing. It also shows some interesting photographs portraying natives in Singapore cleaning, washing, drying and sorting rattan ready for shipping to the factory in Wakefield. This is done under the supervision of the company's representative from this country. C. W. H. Frederick, Bertram Berry and Scot Wade are representing the company at the convention.

# Among the Exhibits

The American Car & Foundry Company is maintaining a reception booth for the entertainment of visitors at space 619. The company is represented by Scott H. Blewett and others.

* * *

The Lorain Steel Company, Johnstown, Pa., is in space 418, exhibiting girder and high T-rails and girder guard rails—frogs, crossings—Tadpole type switches and mates—electrically welded and composite joints.

* * *

Following the custom of some years past, Charles E. Smith, Standard Paint Company, New York, has an attractively decorated booth at space 504. The well known P. & B. trade mark in large gold letters is conspicuous in the background.

* * *

The Speer Carbon Company, St. Mary's, Pa., has an exhibit at spaces 382 and 384 of a new line of brushes for low-voltage machines and high-speed turbines. It also has all data to show the curves of the different grades which will be explained by John S. Speer and his colleagues.

* * *

The Globe Ticket Company, Philadelphia, Pa., at space 314 is showing a complete and attractive assortment of city and interurban railway transfers, books, cash fare receipts and tickets in strips and sheets for commutation, complimentary and other purposes. It has a special exhibit to explain the advantages of the Pope P. M. coupon transfer.

* * *

The Standard car wheels used by the Public Service Railway, the Cincinnati Traction Company and others are shown in space 528, by the National Car Wheel Company, Pittsburgh. The result of special study of street railway requirements has resulted in the production of the Star special wheels, two samples of which are on exhibition.

* * *

The Railway Track-Work Company, Philadelphia, Pa., is displaying its reciprocating track grinder in operation. It shows a sample of corrugated rail ground with this machine, as well as samples of grinding on compromise joint and cupped joint built up by a welding process and surfaced with its machine. The company is also exhibiting its flexible shaft grinder at spaces 161 and 163.

* * *

Following the custom of past years the American Brake Shoe & Foundry Company, New York, has an attractively decorated booth and reception room in space 416. A few samples of association standard brakeshoe heads are displayed. A simplified proposed standard brakeshoe head is also shown. This head is of remarkably simple design, the forked ends of the old brakeshoe head being eliminated, so that the shoe fits squarely on the end of the head.

* * *

For eighteen years Col. Ludlow, of Cleveland, has attended these conventions, and every time he comes he brings a piece of news with him. Now he announces that manufacturing and selling arrangements for his track-drilling machines have been undertaken by the Johnson & Jennings Company, Cleveland. This is an old-fashioned concern with large manufacturing resources. The colonel is enthusiastic about his improved models, which are on display in the exhibit of the Electric Service Supplies Company.

* * *

The Philadelphia Holding Company, Philadelphia, Pa., is exhibiting one of its radial trucks carrying car No. 560 of the Public Service Railway of New Jersey. The car has been taken out of service for the purpose of this display. It is to be returned to the railway company immediately after the convention. The location of this exhibit is, with that of other cars, at the passenger station of the Philadelphia & Reading Railway. The headquarters of the Philadelphia Holding Company at the convention are on this car. Its representatives are W. H. Stevenson and John R. Dickey.

* * *

The Galena-Signal Oil Company, Franklin, Pa., is occupying its usual space, Nos. 28 to 31 inclusive. As in the past, its booth is a reception room. The experience of the company has shown that the best convention lubricants are good-fellowship supplemented by tea, cakes, candy, cigars, etc., which are served to their friends, and special courtesy is being extended to the ladies while their husbands are attending meetings or busy at other places. The company is utilizing the regular "movies" of the pier to good advantage. The company's representatives are well primed with the latest practical experience in lubrication problems and have some interesting things to talk about.

* * *

Effective fire fighting is illustrated by the device of the Pyrene Manufacturing Company, New York. Several interesting demonstrations of the characteristics of Pyrene as a fire extinguisher are daily being made at this company's exhibit. One demonstration is to extinguish an arc of 550 volts and 100 amp. To show the non-conductivity of Pyrene, the bulb of an incandescent lamp has been filled with this fluid and when the current is turned on the carbon filament burns or emits light almost as brightly as in a vacuum. Further to illustrate non-conductivity, an incandescent lamp and socket to which the bare copper wires are attached is immersed in Pyrene and burns without interference. Sample boards of Pyrene guns and gun hangers in various colors to match the interior decorations of cars are displayed.

* * *

The Railway & Industrial Engineering Company, Pittsburgh, Pa., is exhibiting in space 609 one of its switches with a typical pole mounting for 22,000 volts, and units showing construction of switches, fuses and lightning arresters for various voltages. It has erected at the end of the pier a typical out-door substation completely equipped. The transmission tower complete was sent from Pittsburgh and erected in forty-eight hours. An earlier tower was shipped by freight from Pittsburgh, but part of it became lost on the way. The company discovered this on Thursday afternoon and had another tower and equipment sent on by express, which was in position by Saturday afternoon. It also has a miniature out-door substation in its booth which attracts much attention. In the Westinghouse booth it is showing a model railway portable substation marked "Westinghouse portable substation, designed and equipped by the Railway & Industrial Engineering Company."

* * *

An oval miniature of a standard track layout fitted with Abbott rail joints and new double shoulder tie plates forms a conspicuous feature of the display of the Lackawanna Steel Company, Buffalo, N. Y., at spaces 407, 409. The tie plate has a hook shoulder on one side which grips the base of the rail, with just enough play between the base of the rail and the plate to give the necessary resiliency to the track when trains are passing over it. With this tie plate it is not necessary to have the spikes come in contact with the edge of the base of the rail. The spike holes in the tie plate are placed about ⅛ in. to ¼ in. from the edge of the base of the rail. This construction gives the proper elasticity to the track so that the spikes do not work loose. Twenty-three samples of T-rails from 12 lb. to 100 lb. are also displayed, as well as structural-steel beams and channels, block signal insulated rail joints and steel sheet piling. The water-tight characteristics of steel sheet piling are shown in a tank filled with water, in the center of which is a circular formation of piling with the water pumped out. This piling was used in the raising of the battleship *Maine* in Havana Harbor. Some fine illuminated views of this remarkable achievement are presented.

The DuPont Fabrikoid Company, Wilmington, Del., has on view at space 323 a new line of car window curtain material, vestibule curtains and Fabrikoid leather for upholstering car seats.

* * *

Among the new exhibitors are William L. Munk and S. A. Musser, who are demonstrating the Keystone tool grinder at spaces 331 and 333. This grinder has now been on the market for two years.

* * *

The Standard Steel Works Company, Philadelphia, Pa., is at space 635. While it has no exhibit, its quarters are fitted up as a reception room, where its many friends will meet with a hearty welcome.

* * *

The Sterling Varnish Company, Pittsburgh, Pa., space 574, is showing coils, and sample plates of iron-enamel structural steel and bridge paint, and giving out interesting literature on its insulating varnishes and iron enamel.

* * *

The Cambria Steel Company, Johnstown, Pa., has no exhibit, but has arranged at space 518 an attractive spot for the entertainment of visitors, where they will always be made most welcome by Messrs. Replogle, McElhany, Baker, Morris, Ottinger and Bankard.

* * *

The Corliss Carbon Company, Bradford, Pa., is showing a friction testing machine in operation to demonstrate the low coefficient of friction of its brushes without oil or lubrication. It is also showing samples of its different grades of motor and generator brushes.

* * *

The Western Electric Company is showing at its booth sample poles reinforced with the Orr reinforcement. The use of the Orr reinforcing material is increasing rapidly among electric railway companies, especially since its adoption by the Pennsylvania Railroad.

* * *

Newman Clock Company, New York, N. Y., has on exhibit at space 516 various types of its portable watchmen's clocks, such as used in carhouses, shops and offices. These clocks are used exclusively by the Pennsylvania Railroad in track walker service, 1500 being in use on its lines between New York and Pittsburgh. The Newman system is also in use as a permanent service on the Convention Pier.

* * *

At the headquarters of the Peter Smith Heater Company, spaces 366-367, much interest is centered in the electric forced ventilation hot-air car heater with thermostatic control. This combination of heating and ventilating equipment furnishes fresh, warm air from an outside supply. The manual control switch is interlocked with the heater switch to remove all arcing from the heater switch to the automatic switch. This company is also showing its standard forced ventilation, coal-burning heater with an auxiliary electric heater installed in the main heater casing. This auxiliary heater is advantageous during cold mornings and evenings when continuous operation of the forced-air coal heater is not required for the comfort of passengers. The well-known magazine type, hot-air heater for interurban railway service is also included in this exhibit.

* * *

A fine lathe showing is made by J. J. McCabe at spaces 124 to 130 with his latest style "2-in-1" double-spindle lathe (26/48-in. swing) in operation turning worn-down steel car wheels. The truing up of these wheels is very interesting as the lathe this year embodies many new features, among which are the heavy deep bed to make the lathe more rigid and powerful, revised wheel-holding attachment and a wheel-turning rest. The range of this lathe covers every repair job in the present day street railway repair shop, large or small, light or heavy, on either the 48-in or 26-in. swing. It affords all the facilities of two lathes standing on the floor space of one. The manufacturer claims that he has at last arrived at the "perfect" 2-in-1 combination as a result of vast experience in furnishing lathes of this character to a large number of electric railway shops.

* * *

General Vehicle Company, Inc., Long Island City, N. Y., has on exhibit in space 100-A a 2-ton emergency wagon, one of six furnished to the New York Railways. This truck bears a body specially designed by the New York Railways engineers, the other equipment being of the standard design of the company. The motive equipment includes Philadelphia storage batteries, and the truck is rated at 15 m. p. h. A special feature of the truck is a draft hook, which may be used for towing disabled surface cars to sidings or carhouses. The New York Railways Company has ordered twenty-nine trucks of various types from the company after exhaustive trials of one similar to the one which is now being exhibited. An industrial motor truck for depot and warehouse use is also on exhibit, the type being same as in use by the Erie Railroad, Delaware, Lackawana and Western Railroad, and Fall River Line. E. W. Curtis, sales manager of the New York division, and F. H. Wright, of the service department, are handling the exhibit.

* * *

The Pantasote Company, New York, N. Y., has its usual interesting display at space 400. In addition to a full line of Pantasote seating material in sample sheets and on standard car seats, some of the uses for Agasote are shown. A practical test of the water-resisting quality of Agasote is made on an end section of a combination roof and headlining built of that material. A spray pipe directly over this roof, which is elevated to about regular car height, provides a continuous flow of water over the entire surface. The underside of the roof forms the headlining, which is neatly finished in colors, illustrating the finishing possibilities of this material. Some partitions on exhibit are grained and finished to represent mahogany. The test piece of Agasote flooring shown was taken from the Twenty-ninth Street station of the Hudson & Manhattan Railroad, New York City, after 760,000 passengers had walked on it. Agasote as used for a controller box cover is also shown. A panel of Agasote which was submerged in water and mud at the plant of the Barney & Smith Car Company during the recent Dayton flood is exhibited to prove the wonderful non-warping quality of the Agasote composition board.

* * *

In space 141 the Shepherd Automatic Switch Company, Montgomery, Ala., is showing models and demonstrating the use of an automatic relocking safety switch for street railways, and an automatic self-closing switch for interurban railways and steam roads. In the street railways switch all electrical wiring and protective devices have been eliminated and the action is purely mechanical. If a motorman wishes to take a branch line, the pressing of a pedal causes an engagement with mechanism in a slot between the tracks that automatically unlocks the switch, throws it and locks it in place. The switch remains in this position until the foot plunger is again pressed, causing a reverse action. Arrangement is made, however, to permit a main line car coming in the opposite direction to ride through the locked switch. The self-closing switch for interurban and steam lines consists of a lever, which must be raised by hand to throw the switch to the branch line. The lever then automatically disengages and the remainder of the action is not controlled by human agency. When the train is past the switch it automatically closes, and it remains so unless the train returns down the branch line past a guard rail, which automatically opens the switch to the main line again. These switches are being manufactured by the Pittsburgh Steel Foundries and have been installed on trial on several important roads. L. Shepherd, vice-president and general manager of the company, and the inventor of these devices, is in personal charge of the demonstrations.

The Stewart Hartshorn Company, East Newark, N. J., is exhibiting, at space 515, its car rollers, sash balances and shade guide, specially adapted for street cars, particularly open cars.

* * *

The Pittsburgh Steel Company, Pittsburgh, Pa., is represented by E. Sidney Lewis. It is exhibiting "Pittsburgh Perfect" electrically welded right-of-way fence, galvanized plain fence wire, galvanized barbed wire, wire nails, galvanized staples and galvanized telegraph and telephone wire.

* * *

Phillips Manufacturing Company, New York, N. Y., has spaces 156-158 fitted up with several types of the Phillips automatic commutator truing device, which are in operation. With this device it is possible to true commutators without intercepting their service, as can be seen at the exhibit. T. E. Chappell is in charge.

* * *

The Okonite Company, New York, N. Y., in space 332-334, is showing samples of its new steel-braided and steel-taped cables for parkway and other ground service. These cables can be laid as they are without the use of conduits. Okonite forms the primary insulation on the conductor of these cables. The regular line of Okonite submarine and railway signal cables is on display also. The company is represented by W. M. Candee, W. G. Hovey and R. Mace.

* * *

A feature of the Rooke Automatic Register Company's exhibit in space 312 is a new form of register which takes care of tickets as well as cash fares. These are being introduced on some systems which heretofore have been using the old method of fare collection. In addition to this departure, the company is showing its standard 5-cent and 10-cent automatic fare collectors. Careful explanation of the principles and methods of the Rooke system will be given to delegates attending the convention.

* * *

Valentine & Co., New York, N. Y., have an interesting exhibit in spaces 580-581. A running-water test board of several panels finished one with Valspar, the others with finishings of other makers, shows a comparison of the moisture-resisting qualities of these several finishes. Three small car models, each varnished the front half with Valspar, the other end with other outside car finishings, demonstrate the necessity for a waterproof varnish. The results are brought out by submerging the models in water. Several stands bearing semaphore blades finished with Valspar are also shown.

* * *

The exhibit of the Railway Roller Bearing Company in space 140 contains an excellent model of solid roller-bearing, free-running wheels on a stationary axis, as well as models of roller-bearing end shields for railway and industrial motors, roller-bearing center plates with cone-disked rollers, and roller-bearing journal boxes that are interchangeable with regular journal boxes. A more general refinement of parts is indicated in all models, but the newest single development is the elimination of the fixed adjustment of the end thrust, formerly taken care of by carhouse men, and the use of a non-adjustable device, through which all danger of improper adjustment is obviated.

* * *

J. M. Johns Manufacturing Company, New York, N. Y., in space 371, is displaying the Flower brush holder provided with an adjustable tension stud. A method of reclaiming worn-out controller and air-brake handles is shown; the worn holes are broached and fitted with steel bushings. Old controller stems are shown as fitted with a steel sheathing. A pivot journal bearing that provides self-alignment, a check plate of manganese bronze and a trolley wheel having a special metal replaceable center with malleable iron sides are also on display. F. W. Roth and D. B. Flower are representing the company.

L. S. Brach Supply Company, New York, N. Y., in space 150, has set up two types of its Brach automatic flagmen for crossing protection. The signal comprises an arc-shaped compartment with two faces, each containing eight red lenses, between which eight stationary lamps are placed so that the lights are shown on both approaches. Visible warning is given by the lighting of this succession of lamps alternately backward and forward, producing an effect similar to the swinging of a red lantern. Above the lamp compartment is the sign "Railroad Crossing" surmounted by a locomotive type of bell, the hammer of which operates when the lamp circuit is closed. The Brach line of lightning arresters, time elements, rail contacts, hydro-grounds and other signal accessories is also shown.

* * *

The G. Drouvé Company has on exhibition in space 607 an Anti-Pluvius puttyless skylight, such as has been bought by the Public Service Railway of New Jersey for installation in the carhouse and shops in Roseville, and also by the Rhode Island Suburban Railway for use in its power house additions. There is also shown a model of the Straight Push sash operator, used by the Oakwood Street Railway, Dayton, Ohio, the Havana Railway, Light & Power Company and other lines. The last company is being furnished with an improved design of the Lovell window operator, designed to give extraordinary openings as compared to those given by the ordinary operating device. This operates lines for 100-200 ft. and has an easy hand control. All working joints are phosphor-bronzed to prevent rusting.

* * *

In order to demonstrate the accuracy of the "Utility" thermometer control equipment manufactured by the Railway Utility Company, Chicago, Ill., under most severe operating conditions, it is being subjected to three extraordinary tests in space 617. One test is to show how severe vibration fails to effect its operation. Another test, where the thermometer control is submerged in a jar of water, clearly demonstrates that its operation is not affected by water. The low voltage necessary to operate this control apparatus is featured by installing a simple connector in the main 15-volt circuit which may be opened and closed with the operator's hands in direct contact with the bare ends of the connector. This company is also showing its three types of "Utility" ventilators, which include the "Honeycomb" ventilator, applied to the side-deck and to the arched roof types of cars, and the "Utility' vestibule ventilators in two sizes.

* * *

The only reason that every electric car is not equipped with meters recording the amount of energy consumed is that the delicate commutation and jeweled bearings which form a part of ordinary meters will not stand up under the vibration to which such instruments are subjected in car service. The perfection of a mercury type meter has made it possible to do away with these disadvantages so that the application of an integrating meter is as practicable on a car as on a stationary board. The Sangamo watt-hour and ampere-hour meters, which embody the mercury principle, are now being used by important electric railways of this country. They provide a record of the total energy or current consumption for each car, thereby giving a check on the motorman and on the equipment. Thus by proper analysis the management can educate its motormen to operate with greater economy and can also determine what equipment is too wasteful to maintain in service. Results from regular installations of the Sangamo meters show savings ranging from 15 per cent to 25 per cent. These meters are being displayed by the Sangamo Electric Company, Springfield, Ill., at space 610 to the right as one leaves the main convention hall. R. C. Lamphier, general manager of the company, and M. B. Chase, manager of the New York office, are in attendance.

The Midvale Steel Company, Philadelphia, Pa., offers at space 640 a steel-tired wheel and several rolled-steel wheels.

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The Eureka Company, North East, Pa., is represented at the convention by George E. Austin and Fred LaChance, of the New York office.

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Fred F. Stockwell, W. W. Field and F. H. Ellis are present at the convention in the interest of the Barbour-Stockwell Company, Cambridge, Mass.

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E. R. Mason, formerly New York manager of the Electric Service Supplies, is at the convention representing his own company, E. R. Mason & Company, New York. Mr. Mason has recently started in business in his own interest as manufacturer's agent with offices in the Grand Central Terminal, New York.

* * *

Champion Recording Machine Company, in space 331, is exhibiting its transfer issuing machine, which automatically times, dates, and issues transfers. It saves the time of the conductor, and by doing its own printing saves the waste in printing and paper stock incurred by present methods of advance printing.

* * *

The R. D. Nuttall Company shows, in spaces 142 and 144, a novelty in gear making. It is a "herringbone" gear for compressors, etc., made from a solid blank with continuous crescent-shaped teeth. The advantages of this type are: first, it is in one piece, hence is simple; second, there are pockets for the accumulation grit.

* * *

The Chicago Varnish Company, in space 584, is showing its quick-drying C. E. V. method of car painting, familiar to most railway men. It has a new member of the family in its railway rubbed finish varnish for interior woodwork. It is applied the same as any other varnish, but dries with the rubbed finish heretofore obtained only by hand work.

* * *

Wilson Remover Company, Newark, N. J., is prepared at space 213 to demonstrate the removal of paints and varnishes from wood and steel surfaces by means of its liquid and emulsion removers and pneumatic appliances. The Imperial Car Cleaner Company is also represented in the Wilson booth. J. MacNaull Wilson and J. Whitney Wilson are in attendance.

* * *

The Dalton Adding Machine Company, in space 573, is giving demonstrations of the touch method of operation by two ladies, one from the Roebling Company and the other from the census bureau in Washington, D. C. The machine adds, lists and calculates a wide variety of problems, and can be used in both the auditing and engineering departments of electric railways.

* * *

The Electric Railway Improvement Company, in spaces 566-568, is showing its electric weld rail bonding car in operation, of which more than 200 are now used by the electric roads of the United States and Canada. It is also showing all of its types of electric weld rail bonds. Foreign railway men are taking to this machine, one being shipped now to Spain and another to Brazil.

* * *

The Automatic Signal & Appliance Company, Cleveland, Ohio, is showing its standard automatic block signal mechanism for signaling on single and double track electric railways at space 153. The mechanism is mounted on a tubular steel mast and is in actual operation. This company is also featuring samples of its high-speed troll y contactors which have been tested under service conditions with cars operating at 70 m. p. h. without failure to give accurate indications.

Among the improvements shown by the Cheatham Electric Switching Device Company, in space 159, is the new track box lever which now operates integral with the fulcrum. The arrangement of this element in the mechanism prevents sagging of the lever under wear. All parts of the switch are now manufactured of cast steel, except the links in the track box mechanism, which now are made of forged steel instead of cast steel as used in the older types. An improved tripping mechanism has also been included in the circuit changer apparatus in conjunction with a locking device to prevent splitting switches when trains consist of more than one car.

* * *

Ackley Brake & Supply Company, New York, holding forth at spaces 117-119, is showing a working model of the Auger improved automatic brake slack adjuster, which is in extensive use in England and on the Continent and which is now being introduced into the United States. The adjuster comprises simply a pair of ratchets, a fulcrum bracket, an upper connecting rod and a lower connecting rod. All parts of the adjuster are entirely inclosed in a casing, which is wind-proof, dirt-proof and waterproof. The threaded nut in the adjuster is made of phosphor bronze with 3 in. of thread, so that it cannot rust, trip, break or jam on the rods on which it operates. Its application to any type of truck does not necessitate any alterations in the braking arrangements.

* * *

The exhibit of the Northey-Simmen Signal Company, Ltd., Indianapolis, Ind., and Toronto, Ont., is again attracting an unusual number of visitors to spaces 160-162. The signal apparatus shown this year includes a dispatcher's table with recording sheet and mechanism operating in conjunction with an interlocked switchboard. The cab signals are arranged on a miniature car, with contact rails and connections. The type of signals employed in paved streets where third-rail installations are impracticable are also shown. Signaling apparatus shown for the first time includes the control of signals with directional indications. By means of this addition to the "Simmen" system of railway signaling clear signals are given to cars running in one direction and danger signals to cars running in the opposite direction.

* * *

"Is Your Road on the Map?" is the heading on a postal card in space 173 of the Indianapolis Switch & Frog Company, covering the entire southeast corner of Machinery Hall. This shows the great progress made in the adoption of the Indianapolis portable electric welder since the last convention in 1912 at Chicago. While the company is showing solid manganese crossings, frogs and switches, it makes a specialty of track reclamation work by use of its portable electric welder and portable electric grinder. It is operating the welder to build up armature shafts, worn and broken frogs, switches, gear cases, building up low points and cups, and applying the welded joints and bonding plates. The company builds three types of track grinders, demonstrating its work in welding onto low places and grinding off to original surface. The steel applied to the surface of track by the welder is a hard wearing manganese which resists all abrasion and wear except that of the emery grinder. The 3 in. by 4 in. spindle type grinder is used especially for removing corrugations in rail. The special feature of all these grinders is that they are equipped with a cup wheel, which guarantees a perfect job without cups or dips, even with an inexperienced man. While the welder is operated primarily with a steel electrode, for cutting off rails or burning holes in manganese it is used with a carbon electrode. One road found that one man and the welder did as much work in taking up old rails as formerly required eighteen men. Demonstrations of both welding and grinding will be given on request.

Walter S. McKee vice-president of the Edgar Allen American Manganese Steel Company, Chicago, Ill., is attending the convention.

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The interests of the Universal Trolley Wheel Company, Northampton, Mass., at the convention, are looked after by Daniel D. Mahoney.

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The Union Electric Company, Pittsburgh, Pa., is represented by George W. Provost, president, T. M. Cluley, purchasing agent, and R. M. Kerschner.

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The "personalities" Thomas W. Casey, David Murdoch and Willard Cockley are ably representing the interests of the Prepayment Car Sales Company at the convention.

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The Universal Lubricating Company is showing six different grades of Tulc, which is used for all purposes from armature and motor axle bearings, journal lubrication, engineers' valves, air compressors, trolley wheels, etc. This product is furnished in quantities from 5 lb. up.

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The Western Electric Company announces that the following is a revised list of its attendants at this convention: M. A. Oberlander, R. H. Harper, F. D. Killion, C. H. Starkweather, Jr., G. K. Heyer, A. G. Kingman, J. C. Enders, J. C. Maxon, A. L. Hallstrom, L. C. Coller, S. Greenfield, J. F. Davis and G. T. Marchmont.

* * *

In space 624 Templeton, Kenly & Company, Ltd., the exhibit of Simplex car and track jacks holds food for thought for the railway men looking for a large percentage of safety first in jack construction. The mechanism is so designed that the jack cannot fall, and the parts so few in number that maintenance is reduced to the minimum.

* * *

The Joliet Railway Supply Company, Chicago, Ill., is featuring its roller and self-centering center plates in spaces 570 and 571. These are set between heavy built up car and truck bolsters to demonstrate their operation. Both are designed to conserve applied power, reduce wear on track, especially at curves, prevent derailments and have numerous other characteristics making for safe operation.

* * *

In the Western Electric Company's exhibit, spaces 341-335, the Benjamin Electric Manufacturing Company calls attention to special car receptacles and sockets with the lamp grip feature, protecting the lamps after they are screwed in from working loose from vibration. B. G. Kodjibanoff is representing the Benjamin Electric Company at the convention.

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The Star Brass Works, Kalamazoo, Mich., are exhibiting many types of the trolley wheels which are standard on many of the important electric railways of the country. This firm has recently moved into a new factory at Kalamazoo which is equipped with modern machinery throughout and by means of which the work of making and shipping trolley wheels is greatly facilitated.

* * *

International Steel Tie Company, in spaces 168-170, is exhibiting its steel ties for paved street construction, ties for open track work, and ties for substructures for crossings. It is also showing a method of bonding rails on International steel ties. The crossing shown in the exhibit was built for the Indiana Union Traction for its Mounds Park crossing over the Big Four Railroad, and will be installed directly after the convention closes.

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The Wheeling Truing Brake Shoe Company in space 523 is showing a part of its complete line of abrasive brake shoes, of which it makes more than 500 different styles, used by more than 800 steam and electric roads. While Mr. Griffin of the company does not claim that his shoe is a panacea for car wheel ills, he says that it does cure all but hopeless cases of cup, flat, and flange disease without going to the expense of removing the wheels and the labor cost of truing them by machinery.

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F. D. Spottswood, accident preventer, located in space 138, is exhibiting a number of devices for the prevention of accidents to the traveling public, including hanging signs containing "safety first" warnings, also metal signs for use between the windows. One of the specialties of this company is to furnish all signs, blotters, etc., for conducting a "safety first" campaign for the benefit of the general public.

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Demonstrations of the ease of operation and the working efficiency of the new Root spring wheel guard are being given continuously in the booth of the Root Spring Scraper Company, space 506. This wheel guard is built of curved steel springs and when dropped into working position permits the basket to conform to the curvature of the pavement. The Root spring scraper set up in operating position is also being demonstrated. Fred N. Root, manager of the company is in charge of the exhibit.

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A large cordial welcome is extended to all railway men at spaces 590-591 by the representatives of the St. Louis Car Company. One of the interesting features of its exhibit is an album containing photographs of the process of construction of the latest types of steel cars, which is well worth careful examination by any company contemplating the purchase of this character of equipment. The company also shows car seats, vertical brake handles and the Peerless ventilator.

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A gear and pinion that was installed on the lines of the Philadelphia Rapid Transit Company March 4, 1907, is exhibited at the booth of the Whitmore Manufacturing Company, spaces 121, 123 and 125. Since these were installed and packed with Whitmore's gear protective compound they have been in service six years, six months and twelve days, during which time the gear has traveled 269,615 miles and the pinion 239,265 miles. The gear and pinion shown are grade D, ordinary steel. This extraordinary service record surely indicates the value of this gear protective compound.

* * *

Universal Safety Tread Company, Boston, Mass., shows in space 601 samples of its Universal Anti-Slip metal safety treads such as are used on all steps of the 1300 new cars ordered during the past year by the Philadelphia Rapid Transit Company. Universal Anti-Slip safety treads can be seen in actual car step use on the two near-side cars on exhibit at Arkansas Avenue and the Boardwalk opposite the Convention Pier. A flight of steps fitted with types of lead-filled treads of brass and steel base, the standard Universal safety tread type, is also shown. F. W. Langford, R. R. Hammond and R. R. Dougherty are in charge.

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The Golden Glow headlight for interurban cars is one of the new devices shown in space 104 of the Esterline Company. In tests recently made with this headlight, it was demonstrated that its beam has a penetrating power equivalent to 22,500 cp. Several of these headlights were recently purchased by the Italian Navy for use at Venice after a representative of the department had seen the headlights in service in this country and had subjected them to most severe tests for penetration and all-around efficiency. This company is also showing its most recent development in Golden Glow headlights for electric railway service, including pressed steel housings for all sizes, thereby reducing the weight to 75 per cent of the former types. They also have an arrangement for ready attachment to the dash.

H. B. Logan is at the convention in the interest of Dossert & Company, and is at the Marlborough-Blenheim.

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The Ramapo Iron Works, Hillburn, N. Y., are represented at the convention by James B. Strong and W. B. Lee.

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The interests of the New York Pole Company and G. M. Gest, conduit engineer and contractor, are looked after at the convention by H. H. Stannard.

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Henry Carlisle, a member of the firm of Marsh & McLennan, general fire insurance, New York, is making his first visit to an electric railway convention.

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The National Carbon Company is showing its improved line of Laclede carbon brushes in space 315. It reports a very gratifying attendance of railway men at its booth on Monday.

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All-manganese construction, switches, mates, frogs and cross signs, steam-over-electric crossings and a 400-ft. steam railroad switch for Consolidation locomotives are the features of the St. Louis Steel Foundry, in space 14.

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The McQuay-Norris Manufacturing Company is showing in space 321 an extensive line of leak-proof piston rings. The rings exhibited range in size from 1 in. to 34 in. in diameter. The president, W. K. Norris, and the recently appointed secretary-treasurer of the company are in attendance.

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This year the Buda Company, Chicago, Ill., is exhibiting models of manganese center switches, mates and frogs. It is calling particular attention to its new crank form of adjustment at the head of the switch as well as its method of positively fastening the inserts in special trackwork pieces.

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The Griffin Wheel Company, maker of F. C. S. wheels, with factories in Chicago, Detroit, Boston, St. Paul, Kansas City, Denver and Vancouver, is showing thirteen types of wheels for city and interurban use, including its "Ferro-Chromium Special." The capacity of the combined plants is 1,500,000 wheels a year. The company also makes axles for every service.

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The Cleveland Frog & Crossing Company, in spaces 562-565, is showing, in addition to its manganese inserts and special work, a new hand press for splices, used largely in connection with rail-grinding jobs. It does the work accurately and more economically than can be done by hand at the blacksmith forge, the general practice. It also has the Porter derailer, an automatic device for protection on steam road crossings.

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Carbolineum Wood Preserving Company, New York, N. Y., has an interesting display of valuable data pertaining to treatment of structural woods used in the railway industry. A cabinet containing samples of seventy varieties of structural timbers made up by the United States government will enable a railroad man to gain a valuable lot of information. Another educational feature of the exhibit consists of a collection of some twenty specimens showing the common defects in structural timbers. Interesting photographs illustrating the carbolineum method of surface treatment for wood are on display. The carbolineum "Black Cats" are much in evidence also.

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The Ohmer coin counter and fare box is one of the latest fare collection devices shown in the booth of the Ohmer Fare Recorder Company. This is strictly a coin-counting device which counts pennies, nickels and dimes either by electric or hand power. The company is also showing its totalizing register for city railway cars. This register indicates, records, prints and totalizes the fares collected. It is built to meet all requirements in city service. Several of the other fare collection and recording devices made by this company are exhibited.

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The Jamison Rail Bond & Electrical Supply Company has on exhibition a bond of the bushing type, samples of which have been in use for five years in Homestead, Pa. This bushing is slipped into a bolt hole carefully reamed through angle plates and rail web, and forced into contact with the steel by means of a mandrel. At the booth a joint has been rigged up with connections for attaching a millivoltmeter across the joint to show its high conductivity. The same principle is applied to bonding structural steel work, the bonding bushing being swedged into place before the rivet is applied.

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The Weston Electrical Instrument Company is showing many types of electrical instruments in spaces 17 to 19 inclusive. Among the new things exhibited for the first time is a special instrument for automobile service. Other features attracting attention include a demonstrating switchboard group in operation. The instruments on this board include all A. C. apparatus, namely, wattmeters, power factor meter, ammeter, voltmeter, synchroscope, frequency meter and a polyphase wattmeter. This demonstrating board is installed in connection with a flashing mechanism which interrupts and varies the load. Another demonstrating board, simultaneously operated by a second flasher set, contains 107 instruments of various types and in various positions on the switchboard.

## ADDITION TO LIST OF EXHIBITORS

Automatic Ventilator Company, New York, space 317. Automatic car ventilators; Royal Worcester renewable metal track broom. Represented by George H. Ford, general manager, W. J. Fleming, Jr., H. E. Lavelle.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., space 21. Light-weight HL control rack, HL control line switch, HL control details, type PK control rack, Nos. 306, 307, C-4, 323-A, 328 and 333-B-2 railway motors, No. 306 motor rack, No. 307-C-4 field control motor rack, railway motor commutator, pressed steel gear case, field coils, railway motor bearings, armature coils, brush holders, model portable substation, model outdoor transformer substation spare parts for railway motors, insulating material, railway line material. Represented by E. M. Herr, president; H. P. Davis, vice-president; S. L. Nicholson, C. S. Cook, G. B. Griffin, J. Brett, M. B. Lambert, J. W. Busch, J. P. Alexander, G. C. Ewing, F. H. Shepard, G. M. Eaton, E. P. Dillon, N. W. Storer, C. Renshaw, A. W. Lomis, J. G. Miles, H. L. Garbutt, J. McA. Duncan, A. A. Brown, T. A. McDowell, P. H. Smith, W. A. Swift, D. E. Drake, O. T. Smith, H. C. De Camp, H. C. Stier, H. A. Coles, T. R. Langan, J. C. McQuiston, H. W. Beaumont, D. H. Ackerson, A. H. McIntire.

Westinghouse Machine Company, East Pittsburgh, Pa., space 21. Turbine rotor set to show sections of the machine with intake and exhaust connections, etc. Represented by E. H. Sniffen, sales manager, L. L. Brinsmade, H. A. Rapelye.

Westinghouse Traction Brake Company, Wilmerding, Pa., space 21. Air-brake devices, motor-driven air compressors, automatic car and air couplers, motorman's brake valves, electric compressor governors, air reservoirs, complete car equipments. Represented by A. L. Humphrey, vice-president; W. V. Turner, C. J. Olmstead, H. F. Worrnley, J. R. Ellicott, E. A. Craig, C. C. Farmer, C. R. Ellicott, C. P. Cass, R. P. Noble, W. H. Beattys, F. M. Nellis, E. H. Denson, A. Cameron, W. G. Kaylor, G. H. Martin, H. S. Clark, C. H. Beck, F. H. Parke, C. P. Billings, S. D. Hutchins, R. W. Williams, T. W. Newburn, W. M. Bisel, W. H. Goble, P. H. Donovan, S. W. Dudley, J. B. Wright.