

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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What About the Federated American Engineering Societies?

AS ANNOUNCED on another page of this issue, the first meeting of American Engineering Council, the functioning organization of the Federated American Engineering Societies, has been called for November. As to what the significance of this new organization is, we have already expressed our personal belief, strengthened by the opinions of others with whom we have come in contact. This council, representing, as it is designed to do, all engineering organizations in the country, should be effective in the councils of the nation in connection with all matters where an engineer's voice should be heard. It has already been said that "Wherever you look you see the work that the engineer has done," and it is important that the engineer be heard.

With this meeting approaching, there is presented to each electric railway engineer the question as to what the American Electric Railway Engineering Association should do and what the local engineering associations, to which so many belong, should do. The Engineering Association and the local engineering societies have received invitations to join the Federated Societies. They must decide what action to take. If they are going to join, and we hope they will and believe they should, they should do so now and be represented at the first meeting.

At the October convention of the Engineering Association it seems probable that the matter will be up for discussion. It will be up for discussion in local engineering society meetings during the next two months. Engineers should study this matter thoroughly and be prepared to help decide whether the organizations to which they belong will join in this forward step in engineering activities.

Iowans Rejuvenate Association Work

THERE have been evidences during the year of a distinct lack of interest in many of the sectional association meetings, a neglect of committee work and a general tendency to ignore or slight the reciprocal obligations of railway companies which gave rise to the formation of these associations. This trend of association work has taken place at a time when the reason for combining and interchanging ideas for the common good are more important than ever. It may be due to the great stress of work which railway men are under at home, to the fact that the programs in a number of instances have not been such as to attract large attendances, and perhaps, in a measure, on the part of some, to a feeling of discouragement, although we feel that there is really substantial reason for encouragement in the general railway situation. With these things in mind it is most heartening to note the unusual success of the recent Iowa Association meeting at Omaha, which is reported elsewhere in this issue, and to analyze the reasons therefor.

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The men who started this association stopped a while back to take stock of their organization. They recalled that it was created for the purpose of combining for protection against adverse legislation and to improve operating conditions through interchange of ideas and experience. As most of the meetings up to this time had been devoted largely to discussions on policy, it appeared that the immediate need of the association was to give greater attention to the operating side. So it was decided that one of the two meetings a year should be devoted entirely to the problems of direct concern to the operating men. The result has been a great revival in interest in the meetings, record attendance, and an invaluable exchange of information. The managers were not there, and consequently there was not the restraint on discussion which is felt by many operating men when the "boss" is present. Apparently the men at this meeting spoke their minds, without hesitation.

Perhaps the signal success of this experiment in the Iowa Association work may suggest the wisdom of following a similar course in other associations in order to arouse greater interest and make the meetings more valuable.

"But It Doesn't Mean Anything"

"RUBE" GOLDBERG is not only a cartoonist extraordinary but also a coiner of winged phrases. One of the latest of these, "But it doesn't mean anything," is about the most apt we can think of in connection with the contradictory interpretations now rampant as to the effect of increased fares on riding. Some say that these increases have produced severe cuts in traffic, and they produce a group of railways to prove their allegation; others say the contrary and trot forth their own little group of railways in rebuttal. Nor does it seem to matter whether logarithmic or man-in-the-street calculations are used by the opposing parties. Each finds just what he hoped to find.

All jesting aside, we believe that in making these studies not enough attention is given to going back of the returns. In one instance, we observed that every time the fare went up the traffic bounded up too. Such a result seemed altogether too utopian. Upon investigation it turned out that the fare increases happened to synchronize with the opening of important extensions to newly developed industries. Hence the results for the system as a whole were surely misleading. At the same time, we were left in the dark as to what happened on individual routes not affected by these new sources of traffic. If we had these data, it would be possible to learn something more definite.

Still, as we pointed out in the issue of Sept. 4 ("Fare Is Not the Only Factor Which Affects Riding"), so many factors are involved that deductions from superficial figures really do not mean anything. Among the questions we might ask in any real study are: What propor-

tion of your riders is helping to keep up the schedule speeds of nickel days by using tokens? What are the relative effects of fare increases on hilly lines, long-haul lines, short-ride business district lines? Are the decreases more pronounced during the hours of voluntary travel than during the (rush) hours of involuntary travel? Have the fare increases been indorsed as just by the entire community or are you suffering from partial boycotting, jitney competition or excessive use of private machines? A study which noted and weighed factors like these would give less occasion to quote another and older gibe: "Figures don't lie, but liars can figure."

Proper Publicity, Its Need and How Shall We Get It?

THE need of publicity work—systematic publicity work—as a means of correctly informing the general public in electric railway matters has been almost universally accepted by managements, at least in theory, and something along this line has been quite generally done. The accomplishment has been great, indeed. But we cannot escape the fact that the accomplishment has not been all that we have desired or would desire. It would be idle talk to say that the publicity work thus far has not attained its mission to an important degree, yet none will contend that there should be any cessation of effort. Rather would it be nearer to the facts to say that only a beginning has been made and that the street and interurban railways have not by any means "put their story over." It has been told in full perhaps in a few places, but it has been learned in full in probably no place.

How great is the need for a new kind of publicity, for a more comprehensive and dramatic effort to make the public understand, is indicated in this recent statement of John J. Stanley, president of the Cleveland Railway, which is probably in less trouble and is in better condition than almost any other railway in the country and which operates in a city where the people are unusually well informed on street railway matters:

The report of the Federal Electric Railways Commission will help the industry if the country is sufficiently interested to heed it. . . . How the public generally is to be brought to a full realization of its transportation needs and costs I do not know, unless the complete breaking down of service throughout the country carries home the lesson.

Let us hope the latter is not necessary. The railways do not wish to repeat the experience of the railroads, though they may be close to doing so. What can be done to make our publicity efforts more successful? Thus far our publicity work has been conducted almost wholly through the printed word. Without discounting its effect, but rather with encouragement to keep this work up, to the limit, it is only fair to recognize that publicity machinery advances with new inventions and developments the same as all other machinery and use should be made of these latest methods.

What, then, is the next step? We don't pretend to know. But we do believe the answer to the question is of vital importance to the industry. The good work that is done in any one place should be told for the benefit of all. Discussion of ways and means of effecting proper publicity for the industry, as a national proposition as well as for local needs, is important, and is doubly important now, when in many states legislation affecting electric railways and public utilities in general is expected during the next legislative session.

The public and the railways need a thorough understanding and it is up to the railways to see that it is gained. The question, again, is how?

In order to bring to a focus, or at least to assist in so doing, the exchange of opinion and information along this line the ELECTRIC RAILWAY JOURNAL plans, and starts in this issue, to devote even more attention than in the past to this subject. We recognize that there are at least two kinds of publicity; the one directed toward having the public understand the story of the railways, as analyzed by the Federal Electric Railways Commission, for example; the other directed toward the local problems of "Merchandising Transportation." But a local publicity campaign must do both if the ends sought are to be obtained.

This week, among other items, there is an editorial suggestion which is intended to elicit some discussion, if no more. We hope that our readers will make contributions to this paper in the way of stories of what they are doing in publicity work and also in the way of suggestions and comments. Through free criticism and approval, ideas crystallize and plans formulate into action. And publicity action is what is needed.

A Hundred Years of Joint Application of Electricity and Magnetism

THE electric railway industry owes its existence to a series of scientific discoveries made early in the nineteenth century, several of the most important of these having occurred just one hundred years ago. Exactly a century earlier than the day on which this issue of the ELECTRIC RAILWAY JOURNAL is mailed to its readers, *i.e.*, on Sept. 25, 1820, a French scientist-teacher announced the discovery of the laws governing the mechanical reaction of one wire carrying a current upon another. This was André Marie Ampère, whose name has been popularized by association with the practical unit of electric current. A week earlier he had called attention to the laws of mechanical reaction between a wire carrying current and a magnetic field.

Ampère was the skilled analyst who studied and extended the discoveries of another teacher-scientist, Hans Christian Oersted of Copenhagen, Denmark, who published results of his research in this field earlier in 1820. Oersted deserves and receives the credit for making the astounding discovery that electricity and magnetism have something to do with each other. Knowledge of this fact is now so commonplace that it is difficult to comprehend a period in which these two physical entities were supposed to be unrelated. From the ages of antiquity up to the years just preceding 1820 the curious effects of lodestone upon pieces of iron, and certain "galvanic" and static effects of electricity were known and utilized, partly for practical, but more largely for entertainment and scientific purposes. The mariner's compass was the principal useful application of the knowledge of magnetism, the lightning rod that of static electricity and the electric primary battery that of current electricity.

The work of Oersted, Ampère and their contemporaries promptly bore fruit in practical invention in several fields. It was but a few years until the electric motor was invented and applied to the stationary and railway power fields. But invention along power-producing lines lagged behind utilization, or the electric railway would have been made commercially successful much earlier than it was.

Historical detail is of interest only to the specialist, but every man whose bread and butter (not to mention cake) are derived from the electric railway business owes at least a grateful thought, this centenary year, to the pioneers who laid the foundation for his success.

Confiscation Will Not Be Allowed

UTILITIES must be allowed "proper opportunity for an adequate judicial hearing as to confiscation," according to a recent opinion of the United States Supreme Court. The case in question is the Ohio Valley Water Company vs. Ben Avon Borough, in which the Pennsylvania Public Service Commission had allowed a valuation of \$924,744; the Superior Court had reviewed the record, appraised the property at \$1,324,621.80 and remanded the proceeding; the State Supreme Court had reversed the Superior Court, holding that it had no right to make a "substitution of the former's (the court's) judgment for that of the commission," but that it should have confined itself to questions of legality of procedure and competency of evidence. The Federal Supreme Court, using the phrase quoted in the first sentence, then reversed the State Supreme Court and remanded the cause. As a result the State Supreme Court has now sent the case back to the Superior Court with instructions to "determine, upon its own independent judgment as to the law and facts involved, whether the order of the commission is confiscatory" and to make satisfactory disposition of the case in accordance with the Federal court's opinion.

Without remarking on the technicalities of the opinion introduced by the particular state laws, which do not, however, affect the fundamental philosophy or law of the case, it appears that there has been thus definitely established the unassailable right of utilities to have a fair and final judicial hearing on questions of fact of valuation where confiscation is alleged in the figures set by commissions.

We have always hoped that commissions would grow more and more to draw to themselves that same quality of respect and almost reverence that is given to the courts of the country as a whole; that they would eventually become so organized as to personnel, tenure of office, etc., that they would be on a par with courts in the public's esteem. But even so, they might still make errors of judgment in decisions which should be subject to the same review as those of courts.

Now, as appeals from confiscatory rulings will certainly be made in the future upon the basis of this decision, it appears to us that there may be many beneficial results in the line of still further clarifying, from a judicial standpoint, what properly belongs in a valuation. As appeals are made, the decisions from time to time must increasingly deal with the question as to

whether the inclusion or exclusion of certain items or as to whether the use of this basis or that basis of arriving at certain figures is confiscatory or not. So that ultimately there will be more clearly formulated the attitude which must be taken with respect to valuation items now most debatable.

But, of course, most important is the assurance that the Supreme Court holds open the door for the correction of mistakes which would involve confiscation of property devoted to the public use.

A Whole City Shares This Shame

"BARON" NELSON is dead, but his soul goes marching on in the *Kansas City Star*. The pet aversion of the "Baron" during his direction of the paper was the Kansas City Railways and its predecessor, the Metropolitan Street Railway. He could find no good in them. His pen was ever against the company and those who manage it. Since his death the tirades have been less frequent, but the work seems to have passed on to those he left behind.

The latest occasion for badgering is the receivership. Nearly all the crimes on the corporation calendar are charged against the company by the *Star*. None of us is perfect, but surely the Kansas City Railways is not entirely bad. Most certainly the last thing the company desired was a receivership. The simple facts are that material and labor costs to the railway in Kansas City, as elsewhere, have increased faster than has relief in the shape of increased fares. In short, in three years expenses of the Kansas City Railways have increased more than 110 per cent whereas fares have increased only 48 per cent. In July the cost of coal was \$75,000 more than in May. In addition, jitneys have been taking about \$3,000 a day revenue from the company. These things, however, mean nothing to the *Star*. It sees only a "monopolistic business in which the people have no confidence." On the other hand, the *Journal* of the same city much more aptly says that "the very fact that the courts have been appealed to reflects seriously upon the community as a whole."

The *Star* refers felicitously to Cleveland. Cleveland has done well, but then Cleveland has no corporation baiting influence such as the *Star* wields. Moreover, Cleveland has no jitneys. The receipts of this pest alone, for the first six month of the year, if diverted to the Kansas City Railways, would have been sufficient to meet the interest charges of the railway there. It is perhaps too much to expect the *Star* to be fair to the Kansas City Railways, but the fact remains, as the *Kansas City Journal* points out, that communities do not thrive on receiverships and no amount of camouflage or vituperative "corporation baiting" can disguise the fact that Kansas City suffers materially in the eyes of the financial and business world when it drives its street railway industry into a receivership.

This issue contains the program for the Atlantic City Convention, October 11-15.

Next week we shall publish our annual convention issue. The subject selected for this number is "Mass Transportation," and different phases of this topic are treated by authorities in the industry.

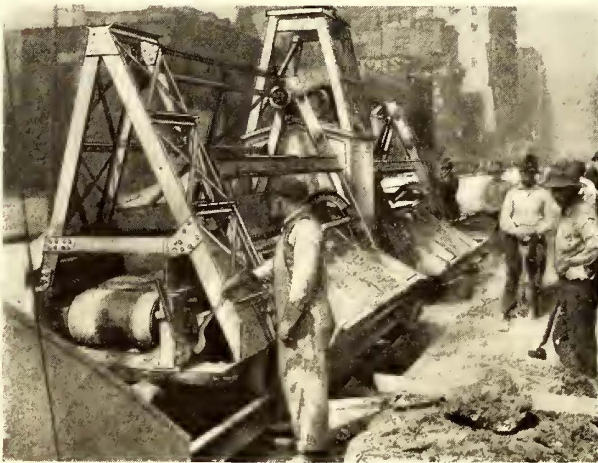
Labor-Saving Devices in Use at Cleveland



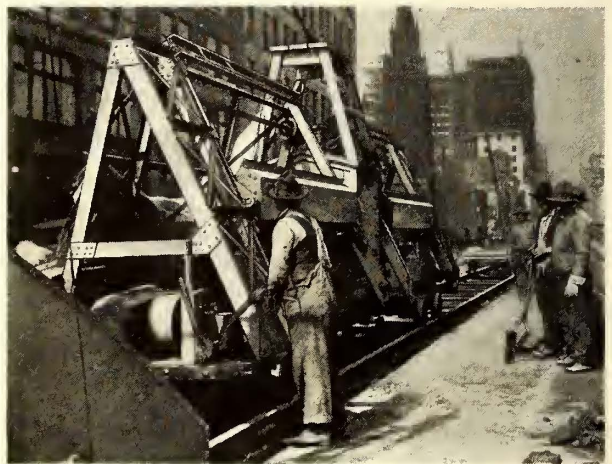
COMPLETE CONCRETE MIXING MACHINE
IN ACTION



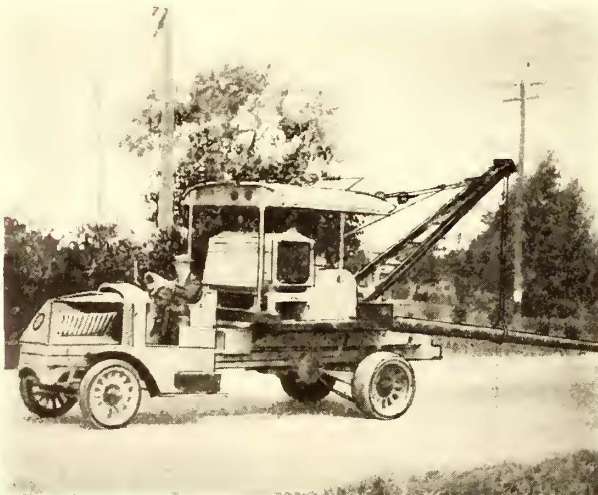
FILLING THE POCKETS BY MACHINE
IS AN EASY JOB



THE MEN REST WHILE THE MACHINE
DOES THE WORK



THE DUMPING PROCESS IS SMOOTH
BUT PROMPT



TRANSPORTING A POLE IS SIMPLE FOR THE CRANE AND SETTING IT IS JUST AS EASY



These views, taken recently, illustrate ways in which construction and maintenance costs are being controlled by the Cleveland Railway. This company has long been a consistent advocate of the policy of

using machinery wherever practicable and its work is of such magnitude that investment in special as well as standard machines is warranted. These machines would be useful on smaller roads also.

Outdoor Machines Save Money in Cleveland

The Cleveland Railway Uses an Increasing Number of Labor and Time-Saving Devices, Particularly for Track and Line Work—The Latest of These Are Unique

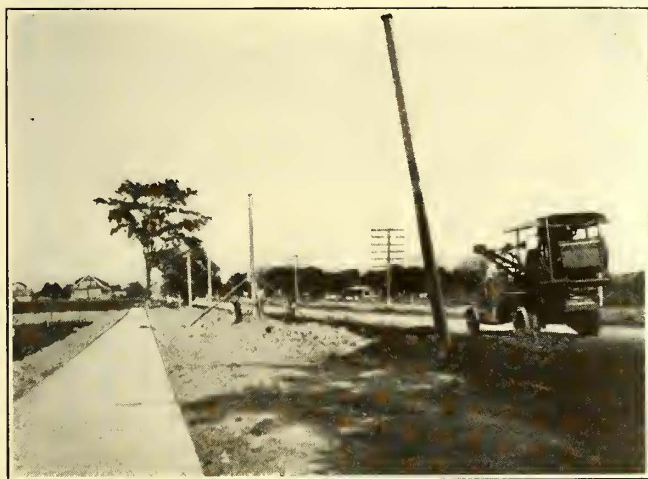
IN NORMAL times the track rehabilitation and extension program of the Cleveland Railway calls for 20 miles or more of new track annually. The present track mileage is more than 350. The magnitude of the annual work necessitates the extensive use of machines, many of which are original with C. H. Clark, engineer maintenance of way.

The Clark pavement plow is one of the best known of these. This device, which loosens the paving blocks between the rails at a rate of 3 or 4 m.p.h., has been in successful use for years and its operation is spectacular in the extreme. A story is told of a manager who wished to see a demonstration of the loosening of some pavement by the plow, but, arriving a few minutes late, found the pavement already in furrows and the blocks being tossed into waiting cars. It is so difficult

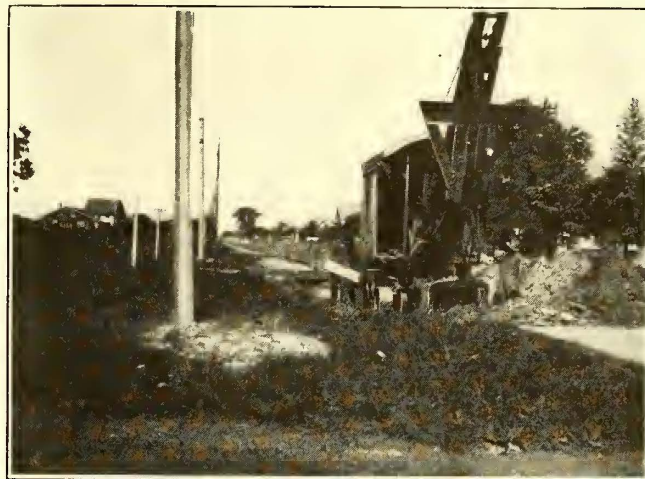
ground, so that a very short lift is necessary in filling them. The inclined elevator guides are supported by a triangular framework built up of structural steel shapes and up these the bins are hauled and are dumped by power furnished by a 10-hp. motor belted to a horizontal shaft at the top of the machine.

The belt conveyor onto which the materials are dumped travels at 800 ft. per minute and it is driven by the same motor. The cement is dumped into the hoppers on the side opposite the elevators.

The mixer used with the machine is of 14 cu.ft. capacity, and it is allowed to run from 50 to 60 seconds per batch. The whole cycle of loading, raising and discharging of the bins and returning them to the starting point can be accomplished in 2 minutes, and 268 batches have been mixed in a working day. Normally the bins



THE CRANE FLITS SWIFTLY FROM JOB TO JOB



THE ELECTRIC SHOVEL LEADS THE WAY

for a visitor to Cleveland to catch the plow at work that the Cleveland Railway has had a motion picture film prepared to show how it, as well as other mechanical devices used on the system, actually performs. The equipment used previous to the current year has been covered in articles in this paper from time to time.* The present article deals with the latest additions.

The concrete mixing machine shown in several accompanying illustrations is one of Mr. Clark's latest inventions. It was designed with three purposes in view: (1) To insure uniformity in size of the batches; (2) to render equal the amounts of work done by all of the men who charge the machine; (3) to minimize the amount of labor required. The machine consists of two bins for the materials, each divided into four pockets, with an elevating and dumping arrangement for the bins and a horizontal belt conveyor for transferring the batch to the mixer. In the loading position the front edge of the bins is within 8 or 10 in. of the

rise to elevating position in 17 seconds. They are elevated, dumped and returned in 33 seconds, a total of 50 seconds. The dumping alone occupies 25 seconds. This allows at least a full minute for loading, which is liberal for the average man and allows him a good rest period. With this machine, as high as 546 ft. of track has been concreted in a working day.

Referring to the specifications listed earlier, it is evident that uniformity in mix is secured by the provision of uniform bins or pockets in the elevator, each of which is of 3 cu.ft. capacity. On the second point, but four men are used in filling the bins, one to each of four. The time required has varied from 12 seconds to 1 minute. Finally, the labor saving which this machine has effected is remarkable in that four men can lift as much gravel through the short distance necessary as eight men can lift the distance of 40 in. formerly required. The pictures tell the rest of the story.

Another device which promises important savings is a multiple-tup concrete breaker, applying the "skull-cracker" principle on a larger scale. It will have five pointed hammers, three between rails and one outside

*See issues of this paper for July 10, 1915, page 73; Feb. 24, March 17 and April 21, 1917, pages 336, 508 and 747, respectively; Sept. 8, 1917, page 493, and Nov. 30, 1918, page 969.

on each side, with apparatus for raising them slowly and tripping them at the top of their travel, the whole machine meanwhile being moved forward at any predetermined rate.

TRUCK CRANE A GREAT ECONOMIZER

A device which is jointly used by the overhead and track departments at present is the "International" truck crane, made by the International Crane Company. Its appearance is indicated in several of the accompanying illustrations, where it is shown doing line department work.

This device consists of a rotatable derrick, mounted on a 7½-ton Mack truck. The derrick has a lifting capacity of 6,000 lb. at 12-ft. radius, with corresponding capacities at other radii. The derrick is operated by a Stearns engine.

For loading purposes in the track department a ½-yard Lakewood bucket is added to the derrick, but there are also numerous uses for it in lifting and carrying, as shown. The writer witnessed a job in which a steel trolley pole was lifted with a mass of concrete around

department of the Cleveland Railway employs a Thew electric shovel, illustrated in action preparing the way for a stretch of new track now being installed. The picture also shows the concrete trolley poles, which are used very largely in the city, in place ready for plumbing.

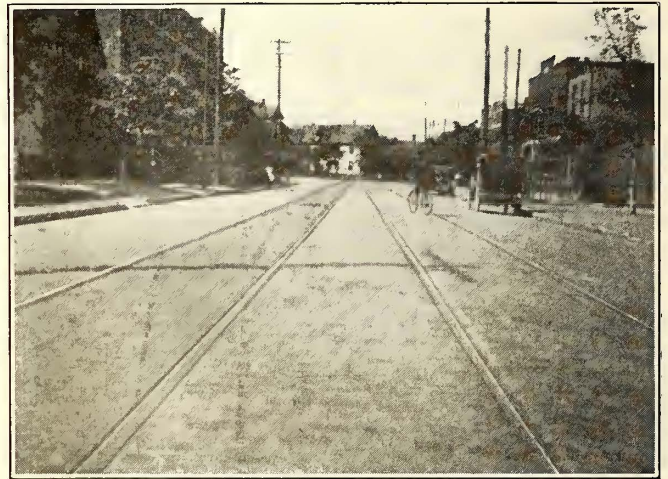
While investigating the present track work in Cleveland the writer "snapped" a couple of views of some finished track and a job concreted in paving between rails and ready for connection with the city paving. The temporary track is still in place in the latter picture. The other is doubly interesting because it shows T-rail track and grooved girder-rail track side by side. At a little distance the two cannot be distinguished.

Dismantle to Escape Paving

THE North Coast Power Company has at Vancouver, Wash., about 8 miles of track within the city limits and about 7 miles outside the city. The franchise requires that when the street is improved, the company shall prepare the foundation for the paving and pave within the rails and for a foot outside of the rails.



A STRETCH OF NEWLY LAID TRACK IN CLEVELAND
THE TRACK AT THE RIGHT IS TEMPORARY



ONE OF THESE TRACKS IS T-RAIL, THE OTHER GROOVED GIRDER. WHICH IS WHICH?

its butt and dropped into a hole some yards distant, the whole operation requiring but a few minutes after the machine reached the work. The pole and attached concrete weighed about a ton. Only a foreman and two men are required on the ground and the derrick man and the chauffeur on the truck.

This crane was originally designed to be self-propelling, and to that end was provided with a driving shaft with sprockets on the end to connect it by chain to the truck axles. The mounting on the Mack truck, however, provides a means of transporting the crane rapidly, as it can now be moved at a speed of 10 m.p.h., more or less. The sprocket shaft, however, will be utilized on the crane with its Mack truck mounting by putting on one or two "niggerheads" in place of the sprockets. This will still further extend the field of usefulness of the outfit.

No outriggers have been found necessary on the truck because by a simple clamping device the elliptical springs are clamped solid and the fulcrum or point of reaction is transferred to the outside rear wheel treads. As the outside gage of these wheels, which are double, is very wide this furnishes a reactive moment ample to resist overturning at the rated load.

In connection with its construction work the way

Recently the city council decided upon the improvement of a portion of Columbia Street on which the company has tracks for a distance of approximately 2,600 ft. The cost of preparing the foundation for this section would have been approximately \$10,000. Since the company earns less than 1 per cent on its investment, after deducting operating expenses, taxes and 3½ per cent depreciation, it was not in a position to raise the money for this foundation and paving.

As the company has approximately 13,000 ft. of track in Vancouver that is in streets not paved, and as some of these streets may be paved later, the company has requested the city council to amend its franchise to the effect that when paving is ordered for any streets on which there are tracks the company will not be obliged to prepare the foundation or lay the paving unless it is earning more than 6 per cent on its investment. The council is not inclined to do this, and the company at present sees no alternative other than to remove tracks from Columbia Street and to follow the same course on other streets when paving is ordered for them. The half mile of track in question is not essential to the operation of the passenger service of the company, but it is helpful in its freight business and especially so for industries which have large investments near by.

Record Attendance and Interest at Omaha

Mid-Year Operating Men's Meeting of Iowa Electric Railway Association and Nebraska Railway Men Enlivened by Large Number of Stereopticon Slides Showing Shop Kinks

THE mid-year convention of the Iowa Electric Railway Association, held at Omaha, Neb., Sept. 16 and 17, was unanimously declared to have been an outstanding success by the fifty-four railway men in attendance, representing every electric railway in Iowa and Nebraska except six, and concurred in by the thirty commercial men present. This registration of eighty-four delegates set a new record for the association, and this, together with the business-like manner in which the convention was conducted, and the worth-while papers and discussions, dispelled any doubt that may have existed as to the desirability of continuing the association meetings. The success of the meetings was attributable in large measure to the work done by John Sutherland, master mechanic Tri-City Railway, Davenport, Iowa, as chairman of the committee on program and arrangements, by T. E. Wood, master mechanic, Omaha & Council Bluffs Street Railway, and W. G. Brooks, Westinghouse Electric & Manufacturing Company, who personally took seventy-six pictures in various Iowa railway shops, from which stereopticon slides were made so that the kinks and equipment shown could be more interestingly and intelligently discussed at the convention.

The opening session of the convention on Thursday morning was called to order by President H. E. Weeks, vice-president Tri-City Railway & Light Company, Davenport, who spoke briefly of the change in outlook for the electric railways in Iowa from hopelessness to hopefulness by virtue of the recent decision of the State Supreme Court, which relieved the companies from the authority of the municipalities to enforce the rates of fare specified in the franchises. He thought this would put the railways in a position to go ahead, although it would be necessary to continue strict economy in the operation of the properties in order to hold fares down to a basis that would not drive away traffic. Mr. Weeks then turned the meeting over to John Sutherland and retired, for it had been planned that this mid-year meeting should be exclusively for the operating men, the prevalent feeling being that there would be greater liberty of discussion if the managers were not present.

The remainder of the Thursday morning session was occupied entirely by the reading of the four papers by Messrs. Keith, Anderson, Feist and Kennedy, the opportunity for discussion having been reserved until the Friday morning session. These papers are printed in abstract elsewhere in this issue, except the one by Thomas L. Kennedy, storekeeper Tri-City Railway, on railway shop storekeeping methods, which will appear in a later issue.

On Thursday afternoon the members were taken in a special two-car train of the Omaha & Council Bluffs Street Railway on an inspection trip of the local property. Two of the company's carhouses, the training school for trainmen, the shops and one of the substations were visited. At the trainmen's school George Beetle, instructor, demonstrated the course given the students. Track and overhead were inspected en route,

and at the shops arrangements had been made so that the delegates were able to see all of the shop activities in operation, including several new practices recently inaugurated, and which will be covered later. A few of the delegates particularly interested in trackwork accompanied R. H. Findley, superintendent of track and roadway for the local company, in an automobile, for an inspection of some of the new track and track construction facilities, including a new four-track open terminal recently installed to serve the new Ak-Sar-Ben fair grounds at the time of the annual fair, which was under way at the time of the convention.

CAPITALIZING THE RESULTS OF THURSDAY'S MEETING

The Friday morning session had been reserved for the discussion of the papers presented the day before, or any of the practices on the local property, or the pictures which were shown at this time portraying kinks in various Iowa shops. Some of the pictures had been taken without the knowledge of the master mechanic and were shown at this time to force him to his feet to describe the equipment or practice pictured.

In discussing the paper on overhead practices by Mr. Keith, H. Skelly, Davenport, asked about the experience had in the painting of iron poles, particularly as to whether better results could be obtained by letting this work out on contract or by having it done by the company's own men. He was of the opinion that it was better to let this work out because it relieved the company of all responsibility in case a pedestrian came in contact with the fresh paint. Others expressed the opinion, however, that it was much better for the company to do this work itself, as it could control its men and be as sure of a better job.

The question of the use of $\frac{1}{4}$ -in. galvanized strand wire versus No. 6 solid wire for cross spans was brought up and Mr. Keith said that the solid wire was strong enough, but that he did not like to use it because it always looked as if it was kinked after it was up. One of the delegates said he had had a great deal of trouble with wood strain insulators pulling apart, and that he had therefore abandoned them for porcelains. Mr. Keith replied that he had had very good success with wood strain insulators and did not think he had lost a single one in Des Moines in seven years.

W. O. Jacobi, superintendent of electric lines, Omaha, referred to the practice of his company of butt-treating all poles and using poles having a large circumference at the ground line. A protecting sleeve is shrunk on all the steel poles and they are set in concrete, as Mr. Keith recommended in his paper. Mr. Jacobi said that he thought a saving could be made by using No. 4 E. B. B. galvanized iron wire in place of the $\frac{3}{8}$ -in. stranded wire recommended by Mr. Keith, for he contended that it takes less time to make up the ends with this kind of wire in the cross spans. He said also that there is less chance of moisture remaining on and in the wire and causing corrosion. Furthermore, it is possible to deter-

mine more accurately the remaining strength of a solid wire than of a stranded wire, after it has begun to rust. In regard to sleeve splices, Mr. Jacobi said that his company was making its own out of $\frac{3}{4}$ -in. round brass rods, 15 in. long, by drilling a hole, tapering each end and milling a slot near the center to meet the drill hole. These splices are installed without solder.

He compared a spring trolley switch which the Omaha company is making and using with that described by Mr. Keith. It consists simply of a No. 14 steel spring tongue, 1 in. wide, which is fastened to the frog by means of two bolts, for which two holes must be drilled in the frog. This steel spring tongue is bolted through the groove in Westinghouse trolley frogs.

The location of trolley frogs properly to serve all kinds of cars, including construction cars with the trolley stand over the front trucks, Birney safety cars with the trolley stand in the center of the car and the double-truck cars with the trolley stand over the rear trucks, was spoken of by Mr. Jacobi, who said that the only way this could be done was to "cut and try," finally placing the frog to favor the most common type of car using that route.

SUPPORTING TROLLEY SPAN WIRE FROM BUILDINGS

In discussing the recommendation of Mr. Keith to co-operate with owners of new buildings in order to place eyebolts in the building walls for supporting the span wires, and thus to remove the trolley poles from the street, it was found that a number of companies followed this practice. In Davenport, Mr. Skelly said that this was done on every new building erected along the car lines, use being made of bronze bolts, to avoid the rust streak on the wall which comes from the use of an iron eyebolt. He said that the number of poles used was being gradually reduced in this manner, thus cleaning up the street and saving the poles and relieving the company of the maintenance expense of the poles. In installing an eyebolt, the building owner is induced to sign a contract which stipulates that if at any time he wants the eyebolt removed, he must agree to give the company the right to set a pole, thus protecting the company against losing its pole rights in going to the eyebolt. He said that the simpler such a contract was the better, for there was always a good deal of hesitation in signing a contract in this connection.

Mr. Keith pointed out that in Des Moines the company gets a release from the owner of the building on which an eyebolt is installed against any damage which may result from the presence of the eyebolt. The practice of installing eyebolts whenever possible was also followed in Omaha.

DISCUSSION ON STOREKEEPING AND ON TRANSPORTATION

Mr. Kennedy's paper on storekeeping methods evoked lively discussion, a digest of which will be given in a later issue with an abstract of the paper.

In the discussion of Mr. Anderson's paper on transportation the author was asked about the frequency with which he made changes in the schedule of trippers. He explained that the change was not made more often than once in fifteen days and that he personally made the observations which determined these changes. In answer to another question he explained that in Davenport the conductors ring up both passes and cash fares and tickets on the cash side of the register, observing

that this does not make possible a very good check on the conductors. It was explained that in Des Moines, where the city fare is 6 cents, and where 4 cents additional is collected beyond the city limits, both the 6-cent and 4-cent fares are rung up on the cash side of the register, involving a difficulty similar to that encountered in Davenport.

The remainder of the discussion, which continued through Friday morning and part of the afternoon, was inspired by the showing of a number of slides of kinks in various Iowa railway shops. Some of these kinks have already been pictured and described in *ELECTRIC RAILWAY JOURNAL*, but the majority of them will be published in a later issue, the delay permitting a better handling in the paper and an assurance of better half-tone cuts than could be secured if they were rushed through.

A LITTLE FUN IS INTERJECTED

The meetings of the association were held in the Masonic Temple and luncheon was served both days in a room adjoining the meeting room. On Thursday evening the members were treated to a banquet followed by a minstrel show put on by employees of the Omaha & Council Bluffs Street Railway. While the show was reported to have been entirely prepared in three days, it was thoroughly enjoyed by the delegates. After that, a troupe of professional entertainers provided an hour's amusement. Between the minstrel show and the vaudeville hit of the professionals, the film known as "The King of the Rails," the safety-car film and a short piece of film showing how the claim agent of the Tri-City Railway won a \$20,000 injury suit were shown. The last named was the case of a former employee who, while under age, had received a slight injury. By the time he became of age, a number of years later, he claimed his right arm had become disabled. It was learned that he had taken a building contract and was actively engaged in doing the work himself. A motion-picture operator, on the pretense of showing building construction work, pictured this man doing the work himself, wherein any doubt as to the soundness of the man's right arm was completely dispelled.

N. S. C. Manager Reports

IN HIS report to the National Safety Council, General Manager C. W. Price summarizes the year's accomplishments as follows: (1) The *National Safety News* was developed from a one-page letter to a twenty-page magazine. (2) Local councils with permanent organization and paid staff were increased from seven to sixteen. (3) Great strides were made in public safety through the development of vigilance committees, chauffeurs' schools, local safety drives and safety education in public schools. (4) The engineering section was organized and assigned the development of important national codes. (5) Safety education, as suggested by the council, received greater attention from technical schools and colleges than ever before. (6) The contents of the council's library and bureau of information were enriched and the number of inquiries answered increased. (7) The service to members was enlarged by the addition of bulletins for the meat factories and rubber sections and by the issuance of sectional safe practices pamphlets. (8) The membership was increased to 4,051, a net gain of 290.

How to Construct and Maintain the Overhead*

Some Practices Proved by Experience Are Pointed Out—Locating Curves and Frogs, Methods of Repair and Special Material Designs Discussed

By KIRK J. KEITH

Superintendent of Overhead Des Moines (Iowa) City Railway

A PRIMARY consideration in overhead work is the purchase and standardization of only the best of materials. The wood poles should be butt-treated to a point 1 ft. above the ground line. Tubular steel poles should always have the protecting sleeve (or dog collar) shrunk on the lower section of the pole at the ground line. Tubular, Bates or any other steel poles should be set in concrete 6 ft. in the ground with a rake of 6 to 8 in. A very good mixture is 1:3:5 of wet concrete. Always be sure that the pole is painted and free from rust before it is set. Wood poles should be set 6 ft. in the ground and well tamped, with a rake of not more than 10 in. Where poles are to be used for span construction they should have a good heel at the bottom and a good breast a little below the ground.

All poles should be set as nearly 100 ft. apart as possible and on property lines. At street intersections, where there is special work to be installed, it would be best to have the four corner poles set on the property lines. Of course this is not always possible. For example, there is a condition in Des Moines where the water hydrant is set on the property line with a catch basin 2 to 5 ft. from the hydrant, or *vice versa*, and an ordinance forbidding us to set a pole within 12 ft. of the hydrant. It can be readily seen that this makes it difficult for us to maintain our special work properly.

Often in city work, especially where a new building is being erected and the cellarway is excavated even beyond the sidewalk line, it is good practice to set at the point where the pole should be set an iron pipe a size larger than the outside diameter of the pole at the ground line, and to let the contractor build his wall around the pipe. This should be long enough to extend 1 ft. below the floor line. If the pipe is longer than 2 ft. it should be filled up to a point 6 ft. below the sidewalk line. After the wall is thoroughly set, the pole is set in the pipe and the space between the pipe and the pole filled with a rich mixture of grouting, an iron wedge being used between the top of the pipe and the pole to give the pole the proper rake and insure against crushing of the grouting.

A span-wire clamp, with a wood or porcelain strain in which to fasten the span wire, should be used on steel poles. There should usually be two insulators between the point of contact and the pole, but some cities have ordinances specifying more than two. The span wire should be either $\frac{3}{8}$ -in. double galvanized strand or stranded copper-clad wire, and it should be pulled tight.

INSTALLING TROLLEY WIRE ON CURVES

Curves should be made up with straight-line clinch ears for round wire and on phono-electric wire it is better to solder the ears to hold them in place. With a

trolley wire 19 ft. above the rails curves should be offset toward the inside of the center line of the track, $3\frac{1}{2}$ in. to each inch of the super-elevation of the outer rail, and held in place with single-body pull-offs if for one track and double-body pull-offs on the outside track and single pull-offs on the inside track if for double track. The number of pull-offs must, of course, be determined by the radius of the curve and the spacing of poles. The following table represents practice in this line:

Radius of Curve, Feet	Spacing of Pull-Offs, Feet	No. of Pulls Between Supports	Distance Apart of Poles, Feet
40	7	4	35
50	8	4	40
60	9	4	45
70	10	4	50
80	11	4	55
90	12	4	60
100	13	4	65
125	14	4	70
150	15	4	75
200-500	20	3	80
750	25	3	100

The locations of the trolley wire on curves given above will not hold true on city construction, as consideration must be given the elevation of the outer rail, the height of the trolley wire above the rail, the track gage, the radius of curvature, the distance from the center of the car to the pivot of the trolley base, the distance from the center of the car to the center of the truck, the horizontal distance from the pivot of the trolley base to the point of contact between trolley wheel and trolley wire. The offset of the trolley wire would be:

$$S = \frac{EH}{G} + R - \sqrt{R^2 + P^2 - Q^2 - L^2}$$

in which all values are in feet and:

S = radial offset of trolley wire toward center of curve.

E = super-elevation of outer rail.

H = height of trolley wire above rail.

G = track gage.

R = radius of curve.

P = distance from center of car to pivot of trolley base.

Q = distance from center of car to center of truck.

L = horizontal distance from pivot of trolley base to point of contact between trolley wheel and wire.

The trolley frog should be attached to the trolley wire at a point over, and as near as possible to, the track switch point, so that the trolley wheel will take either the main or branch line according to the route of the car. The closer the frog is set to the switch point, the less the danger of the trolley wire wearing out as it approaches the frog. On a 42-ft. 6-in. radius curve, my practice is to set the frog level, directly over the center of the heel of the track switch; on a 45-ft. radius curve, to place it about 6 in. ahead of the heel of the switch point, and on a 50-ft. radius curve, to place it 9 to 12 in. ahead of the heel of the switch and toward the switch point. As these distances may not hold in all cases, it

*Abstract of paper read at convention of Iowa Electric Railway Association, Omaha, Neb., Sept. 16-17, 1920.

is a good idea in installing the frog to clamp it on the wire only so tightly that it will not move, directly over the heel of the track switch; to let a couple of cars go through the switch, and to watch the trolley wheel to see which way the frog should be moved. Only one or two operations will be required before the frog can be set in a permanent position. It will be found invariably to be toward the point of the switch. Of course in most cases a frog set above a point where the distance between the outer rail of the branch track and the nearest rail on the main line is 1 ft., the trolley wheel will follow the proper wire, but it has a very heavy wearing effect on the wire approaching the frog, which makes frequent replacement necessary.

Trolley wire should be guyed at each end of all curves and every half mile on tangent track. Care should be taken to see that strain guys have equal pulls and that the strain plate is not twisted out of line. Where possible the strain of these guys should be taken by anchor guys in line with the pull; if this is not possible, a head guy should be used to the next pole. Where the strain is not too great, the anchor should be of a mechanical type, but if there is to be a very heavy strain, the old dead-man type is preferable. No two feeder lines should be tied together without the use of an automatic sectionalizing switch, except in cases where there are two or more lines which feed the same trolley section. The days of heavy feeder lines have been practically eliminated by the advent of the automatic substation. In Des Moines, where we operate 90.43 miles of line, measured on a single-track basis, we have only 460,000 lb. of copper in the system. I mention this fact to show that some of our troubles are gone forever.



SPRING TROLLEY FROG DESIGNED AND USED IN DES MOINES, IOWA

If the Keystone, or any of the other type of steel pole tops is used a very good double insulator arm may be made by using a steel plate $\frac{1}{2}$ in. thick and 3 in. wide, the length being determined by the diameter of the top petticoat of the insulator. The plate is drilled with three $\frac{1}{8}$ -in. holes, one in the center and one at each end of the plate, using a Keystone truss pin at each end. The plate is bolted to the pole top at the center. On a 22,000-volt line, using Ohio Brass insulator No. 11,622, Keystone truss pin No. 44,109, the distance between the two end poles would be $12\frac{1}{2}$ in.

TROLLEY BREAKS MEAN DELAYED SCHEDULES

We all know what trolley breaks mean to our operating department, so it is up to the line department to keep them at a minimum. In Des Moines the trolley wire in the business district is inspected every week and bad pieces of wire are replaced at once. We used to believe that we could not replace a curve in the daytime or when the cars were running, but would wait until night and then pay time and a half for the work. That was a mistake; we do not hesitate now to rebuild almost any special work in the daytime, and we do it at less than one-third the cost. Quite often it is done

without the operating department knowing anything about it. We have some special work where the vehicular travel is so great that it is almost impossible to get on the street. Here, of course, the work must be done at night.

A SPRING FROG DESIGNED AT DES MOINES

To overcome trouble with the trolley frog at wyes, we have designed a trolley frog spring switch which has worked out well. The spring switch can be used with almost any type of frog. The switch tongue is made of hardened steel, $\frac{3}{8}$ in. x $\frac{1}{8}$ in. x 6 in., the point being slightly flattened and brought to a biased point. A plunger post is inserted 1 in. from the point on the top of the tongue. At the larger end, or heel, a pivot post $\frac{3}{8}$ in. in diameter is inserted. Two inches of the curve lead on the frog is cut off and a hole is drilled in the top of the frog for the pivot post, and a slot is cut $\frac{1}{2}$ in. in width on top and on the curve side of the frog. A piece of $\frac{3}{8}$ -in. gas pipe 3 in. long, with the bottom half cut off (about $1\frac{1}{2}$ in.) is then welded to the frog directly above the $\frac{1}{8}$ -in. slot. Then the tongue is inserted in place and the pivot post riveted on the top of the frog, leaving it loose enough so that the tongue will work easily. A small coil spring, 2 in. long, with a plunger $1\frac{1}{2}$ in. long, is placed in the gas pipe with the plunger up tight against the plunger post. The spring is pushed into the gas pipe, a cap is placed over the end of the pipe and the switch is ready to be installed. A photograph of this spring frog is reproduced herewith.

Lightning arresters are inspected four times a year, and defective ones are replaced with new or repaired arresters. The arresters at all of the substation entrances are inspected after every storm. We inspect our feeder lines four times a year and trim trees as needed. If the tree insulators have slipped out of place they are replaced. It is much easier to do this than to have the line broken down; besides, it is quite a saving in loss of current.

Most of our high-tension troubles are insulator troubles and caused mostly by lightning or the insulator being "shot." We inspect our insulators four times a year, using a field glass most of the time. If any cracked ones are found, they are replaced as soon as the current can be taken off the line. We have an arrangement with the consumers so that the current is taken off the line on Sunday mornings between the hours of 2 and 6. This generally gives us enough time to do our work.

Bulletin No. 3 on "More Transportation"

IN ITS series of bulletins on "More Transportation" the Association of Railway Executives is urging in Bulletin No. 3 the reduction of bad order cars to a maximum of 4 per cent of the total owned. The bulletin cites records showing that when Federal control began about 5.7 per cent of the cars were reported in bad order and at the end of Federal control 6.7 per cent were in bad order. The bulletin states that "the cure of this situation is one of the first and most important problems confronting us," and further on "that the conditions demand that all roads exhaust every possible effort in this direction.

It is by exerting efforts in such directions as this that transportation companies can maintain satisfactory service for the public.

Shop Kinks from Sioux City, Iowa*

A Number of Original Designs of Car and Shop Equipment Are Described and Maintenance Practices as Used by the Sioux City Service Company Are Outlined

BY C. M. FEIST

Master Mechanic Sioux City (Iowa) Service Company

IT HAS been the custom of our company for a number of years past thoroughly to repair, clean, retouch and revarnish the car bodies once every year. However, since so many automobiles and trucks operated by thoughtless drivers have come into common use, with resultant scratching and damaging of car bodies, and also because of the greatly increased cost of labor and material, we have adopted a new system of overhauling.

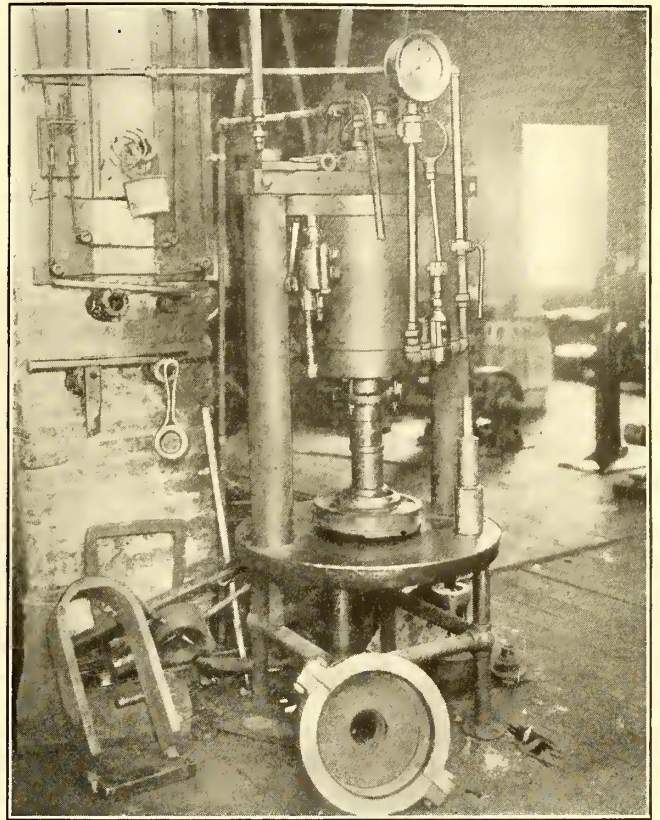
When a car body is newly built in our own shops we still follow the flexible system of painting such as the usual lead, color and varnish coats in order to preserve the wood and steel. Such jobs look well, barring injuries, from twelve to eighteen months, but if such a system of repainting and varnishing should be followed it would usually require one or two coats of color and two coats of varnish, which would delay getting a car body through the shop several days, depending on drying conditions between coats. We find, however, that in this age the general public gives no thought to fine finishes on a street car body. If the body looks fresh outside and is clean and comfortable on the inside, and the car can make the run to its destination without interruption, the average passenger is satisfied.

Our present system of general overhauling of car bodies is to run them through the shop about once every two years, at which time we make all necessary repairs, thoroughly clean the inside finish, including the seats, shades and floors, and wash the outside of the body and the trucks. After all parts are cleaned we apply two coats of railway enamel which has a wonderful covering quality. We stripe, letter and number on top of the second coat of enamel and apply one coat of paint on the roof, floors, trucks, etc. The window sills or arm rests, etc., are refinished if necessary. The car seat rattan is usually varnished and other parts painted.

This system of overhauling has given us very good results and has proved to be much cheaper, taking much less time, and every one in connection with our system seems to be well pleased, as such a job looks good for about two years.

MAINTENANCE OF ELECTRICAL EQUIPMENT

It has been our practice to follow the mileage basis for the care of equipment only in a small degree, and we recommend that inspections be made as often as possible in order to detect minor troubles which can be repaired at an early period at a small cost. This can only be accomplished by close, constant attention. The car operators, when turning in their cars at the close of the day's run, are requested to fill in a daily report blank, which is addressed to the master mechanic, stating the condition of the car they have been operating. These reports are collected and looked over by the night foreman at the barns. If repairs indicated on this



HOME-MADE PRESS USED FOR BROACHING AND PRESSING IN BEARINGS. HOUSING JIG AND REAMER ALSO SHOWN

report are of a light nature the work is done by the night crew at the barns and the report marked O.K. Should the operators' reports show work to be done beyond the ability of the night force the car is held for the general repair shop.

Upon arrival of the cars from their respective runs they are first run over the pits before storing them away, where men inspect brakes, trucks, motors and air equipment to the best of their knowledge, make such repairs as they can and report their findings on a special blank. These reports are collected every morning and brought to the general repair shop for the pit foreman's and master mechanic's attention. After they have been looked over they are filed away and kept for two years for legal reasons.

The pit foreman keeps a complete record of the equipment on all cars. From this record he plans to have enough regular cars held for the shop in addition to those being held over from the barns each morning so as to keep his force busy every day. By this method all the equipment is being cared for in the main shop about once a month. One pit crew of two or three experienced men is set aside for general overhauling. This work is in force at all times. A car is brought over the

*Abstract of paper presented at Omaha meeting of the Iowa Electric Railway Association, Sept. 16, 1920.

pit and held until the entire equipment has been thoroughly inspected and overhauled. Street railway owners and operators may thank the railway equipment manufacturers for the splendid improvements which have been made in equipment within the last few years. It is now possible, with the aid of intelligent care, satisfactorily to operate and keep in motion a railway system at a nominal expense.

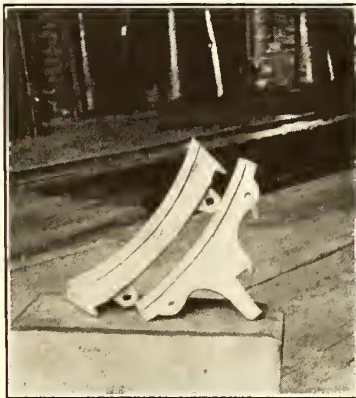
When motors are in good operating condition they should perform their duty for a long time unless damaged in accidents. Should any trouble arise which an expert repair man cannot locate on the surface it might be well to test the fields for short circuits. With one or more partly short-circuited field coils motors will still operate after a fashion, but such field troubles and incorrect commutation will usually in time cause severe flashovers and burnouts.

There are many other troubles which may develop in motors but they are more readily located by the average

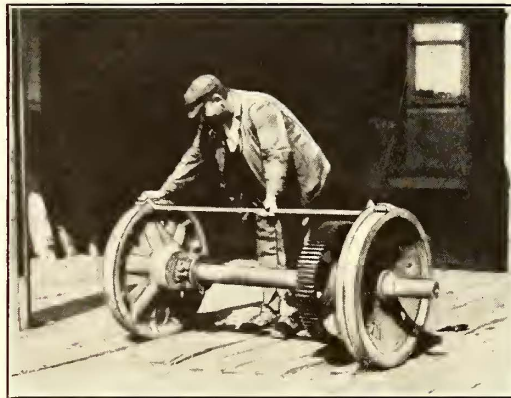
used in rebabbiting bearings, even at a higher cost. We also recommend broaching the bearings after they are bored in order to produce a tense bearing, which will result in a much longer life. For this particular work a small vertical hydraulic press was designed and built in our own shop.

PIT JACKS FACILITATE MOTOR AND TRUCK OVERHAUL

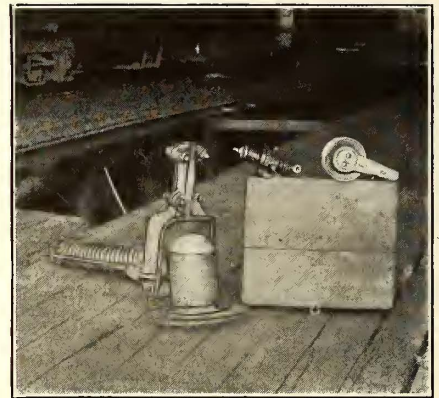
For the purpose of removing and replacing armatures and car wheels convenient pit jacks were built capable of handling 4,000 lb. These jacks operate on a track in the pits and are movable sideways in order to allow them to be placed under axle or armature for best balance. The jack cylinders are made up of 8-in. extra heavy pipe with suitable pistons traveling the extreme distance up and down required for the above-mentioned work. City water pressure is used to operate the jack, and occasionally for extreme lifts air pressure is added. The water from the piston is discharged into a tank so



SPECIAL BRAKE HEAD AND SHOE USED IN SIOUX CITY, IOWA



THE REVERSE FLANGE GAGE TEMPLATE IN USE IN THE SHOP



TROLLEY STAND, HARP AND WHEEL BEARING SAID TO GIVE LONG LIFE

repair man. In this connection it is essential to maintain reasonably well fitted bearings on the axle as well as on the armature shaft in order to retain the intended alignment for gear, pinion and brush location.

The question of reclaiming bearings on old motors having badly worn armature bearing shells and housings came up in our shops. We decided to press a steel seamless tube over the bearings, cutting out the opening in accordance with the original shape for admission of waste packing and cutting new keyway. The thickness of tube selected was such as not to injure the housings when rebored and reamed to a new standard size. For this purpose a special lathe jig and reamer were made up in our own shop. This special job of refitting all armature bearings and housings in a certain type of motor was done during a time when the motors were being overhauled and required no extra work any more than to carry on hand an extra set of bearings and fitting up the housing for the next armature taken out of a motor.

We believe that a high grade tin base metal should be



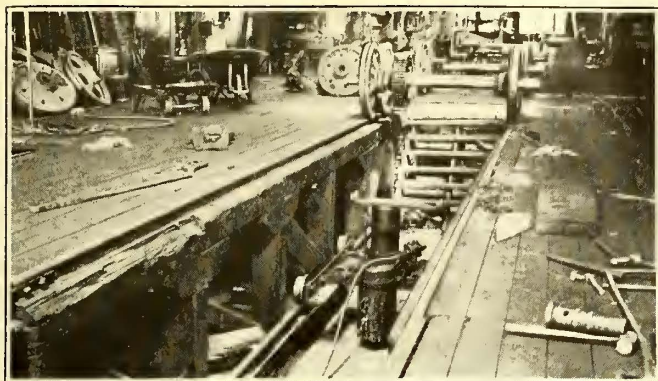
THE TEMPLATE IN USE ON THE TRACK

that it is not wasted, and this is forced back into the cylinder by means of the shop air pressure, for re-use.

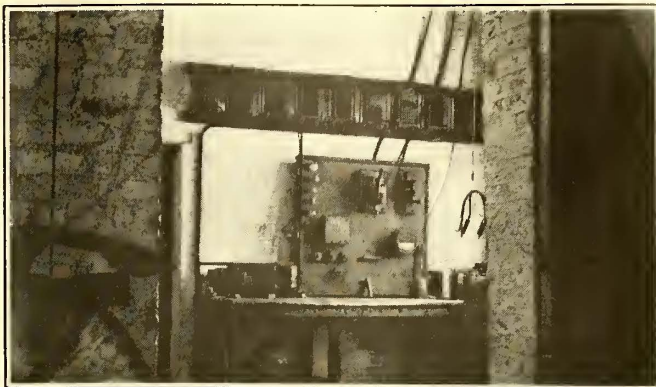
Circuit breakers are thoroughly inspected about once a year and overhauled if this is found necessary. They are then reset to the desired amperage. This resetting can be done with the circuit breaker

still on the car as well as on the test bench. In the pit foreman's workshop department we have installed a switchboard for this purpose. There are sufficient grids bolted to the wall and connected to a controller in several steps so that the current flow may be varied from 50 to 400 amp. The heavy test current is broken by tripping the circuit breaker, which also serves to protect the other shop circuits from interruption if too heavy a current is pulled at the test board, the controller in the circuit being used only to regulate but not cut off the current.

There is a great deal to be said with reference to the correct wheel gage. This can be best proved by fastening two short sections of good rail onto a board exactly 4 ft. 8½ in. apart and turning this device upside



COMBINATION HYDRAULIC AND AIR PIT JACK IN SIOUX CITY



CIRCUIT BREAKER TEST BOARD. THE REGULATING CONTROLLER DOES NOT SHOW

down on the set of wheels just pressed on an axle. Note the round throat of the wheel contour in relation to the round edge of the rail. If the wheels are pressed correctly there will result a free rolling set of wheels with the best possible traction. This would prove that the correct wheel gage should be 4 ft. 8½ in.

A special wheel gaging template has been made up in our shops for testing purposes. This template has a reverse flange shape which can be laid on the track in frogs, crossings or curves to show the exact action of a wheel passing through. It has decided many debates between the track and repair shop departments when no one, as usual, wished to take the blame for car derailments.

Worn pedestal jaws and journal boxes are very detrimental to the free running of a truck, as such a condition allows car wheels to run out of square. This adds a friction load, causes undue wear on wheels and rails and knocking when the truck enters crossings and frogs. We found it necessary to rebuild pedestals with a special gib plate to a new standard on our older trucks. In order to do this work correctly, the journal boxes are planed down on the sides. The manufacturer was requested to change the pattern of the boxes to conform with the new standard measurements, at the same time retaining a strong thickness in the walls of the new journal boxes in order to strengthen them and to give room for the special gibs.

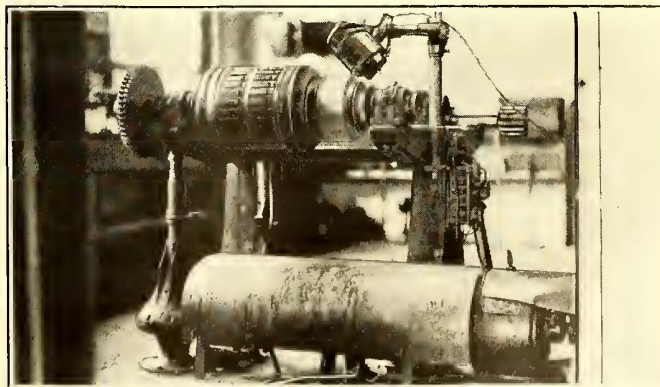
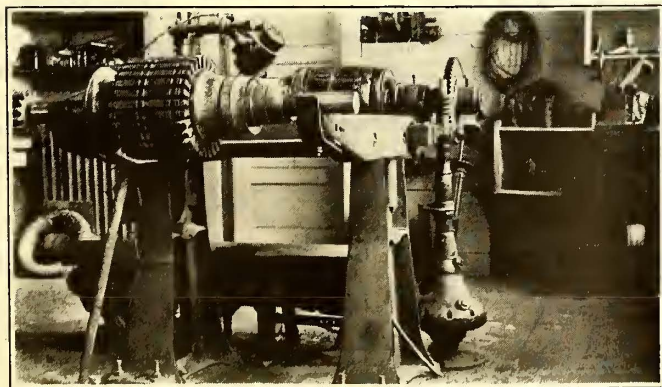
As the standard shapes of brake shoes and heads usually recommended are inefficient and costly to maintain, I would suggest that a change be made in shapes and materials used, particularly in the heads. The standard shoe head carries plenty of metal in general, but is very small at the ends. Shoes soon become worn at one end and this allows them to climb up the wheels,

causing the cars to jerk while stopping. The rapid wear at this end soon calls for renewal at a considerable expense.

Several years ago we made up complete brake shoe and brake head patterns. The brake head patterns were made to fit the brake beams in their former shape, but the face of this head was entirely changed to receive a new type brake shoe back. As a result we have at this time practically only one type of brake shoe. It fits the various heads and shoes can be replaced in about half the time required for the old style. These head castings are made of gray iron and weigh from 12 to 14 lb. each. The heads have two sockets instead of one for fastening the shoes. The latter are installed by slipping them in the heads all around, then setting the brakes, and while the pressure is on inserting the pins which lock the shoes in place. The heads cost us 4 cents a pound and resist the wear better than malleable castings.

We build a trolley base in our shops that is designed in line with the usual roller-bearing type but with an improvement. The turret castings are so designed as to carry oil, one filling lasting about two years. With this method of construction the central wearing post or bearing is entirely surrounded by and is floating in a perfect film of oil. The base thus functions freely and quickly in adapting its position to changes in the overhead position. In many bases, one oils them at the top and the oil eventually works through to the bottom and onto the car roof, leaving the bearing dry.

I have personally spent some money in the production of an efficient trolley harp, trolley wheel and its bearing. The object of the design was to provide sufficient bearing area and have a constantly dry conductive lubricant which would carry the current with the least

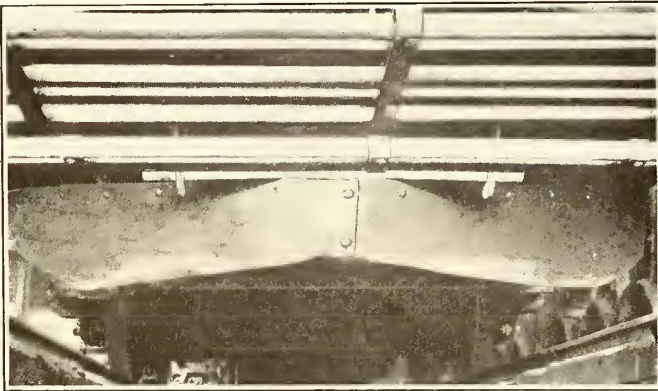


FRONT AND REAR OF ARMATURE BANDING MACHINE, WITH DRIVE IMPROVISED FROM AUTOMOBILE REAR AXLE

resistance and thus insure long uninterrupted life and freedom in action. The harp carries a fiber washer on either side which insulates the wheel from the harp at the shoulders. These washers are thick enough so that they will outwear the wheel. The wheel bearing is 1³/₈ in. long and contains enough oil to last the life of the wheel, so that it never needs to be lubricated except when newly installed.

SNOW-FIGHTING OPERATIONS

In climates where snow frequently interferes with the street car service snow-fighting equipment must be constructed to stand the strain of abuse and should be kept ready to be put in action whenever needed without constantly breaking down or wearing out. During the last twenty-five years several types of under-platform brooms and plows have been bought or built in our shops. None of these proved to be a great success. We next decided to try out a V-shaped tank-steel plow, having its nose suspended from or hinged



SNOWPLOW HINGED AT POINT, ITS OWN WEIGHT HOLDING THE WINGS DOWN ON THE RAIL

to the car floor and depending upon its own weight to hold it down on the rail. This plow is light, inexpensive, does its work well and is carried on our cars the year round. When these wings are hooked up about 4 in. above the rail they serve as a splendid additional life guard. As this plow extends all the way across the track between rails, it serves also to remove some of the snow there, so that motors do not drag on it.

Our sweeper equipment consists of one rattan broom sweeper and four steel constructed combination sweepers and plows of an entirely new design. These machines are double-ended and have very efficient side wings for the purpose of pushing the snow that has been swept off the track a distance of about 7 ft. away from the outside rail. The revolving brooms on these machines are driven at a speed of about 300 r.p.m. by a separate street railway motor located on the platform just back of the broom and covered with a box. The broom speed is controlled by means of resistance and also by adjustable counter chain shaft sprockets. The side wings on these machines are of great advantage to our system, as other traffic on the streets constantly plows the snow back onto the rails. It is a common occurrence to see one or more of these big machines busy during the winter months, using the side wings to plow the snow back from the rail. This work is done without hindering the regular schedule cars in service. Owing to the design of these side wings they can be operated at the usual car speed. These machines were designed and built in our own shops and found to give

much better service and to go through heavy snow when the regular rattan sweepers failed.

In connection with the usual tools and machinery in the armature room, an armature banding machine has been made up by using one end of an automobile rear axle as the drive with direct connection to a variable speed motor. The motor is direct connected to the automobile drive shaft and the axle drives the armature through a worm and gear. This device was inexpensive and it furnishes various speeds and plenty of power. Two coil clamping devices have been developed to force coils gently inward before banding.

Economies in the Transportation Department*

Turn-Back of Trippers and Frequent Revision of Schedule to Conform to Traffic Changes Recommended

BY EDGAR I. ANDERSON

Superintendent of Transportation Tri-City Railway & Light Company, Davenport, Iowa

IF A CAREFUL study of street railway conditions as they exist today were made, it would probably disclose the fact that there is hardly a road but what has lines on which business has fallen off at some hour of the day, so that the present schedule provides more service than is justified. This is more noticeable at night, as automobile owners use their machines most for their transportation needs combined with pleasure at this time of day, and these are the people who formerly patronized the street cars in the evening. For this reason schedules that have been in effect for years should be checked, as the cars may be carrying lighter loads than in the past and many of them can be pulled off on their last trips without complaint from the public.

Then, again, many times cars are operated at the request of patrons in a certain locality, but later these people move or purchase automobiles, and the traffic for which the service was provided no longer exists. Too often we do things because it has been done before, and many unnecessary cars are operated today because they were needed years ago.

TURN-BACKS, JUDICIOUSLY SCHEDULED, YIELD SAVINGS

Many times a system of turn-back of cars can be adopted to accomplish a substantial saving without serious detriment to the service. Every extra car should be operated only as far out as necessary on a line and then brought back to the traffic center promptly for another load. Some cars can be turned back sooner than others on the same line. To accomplish this the schedule maker should make personal inspections of traffic often, as conductors' trip reports do not show where passengers board and leave cars. When two or more lines use the same track extra cars can often be placed so as to relieve two lines.

In operating extra cars on two or more lines and turning them back at different points each trip the crew should have written orders, as these are generally too complicated for a train crew to remember. Without written orders the crew may go wrong or lose time on the road getting instructions from a supervisor.

*Abstract of paper presented at Omaha meeting of Iowa Electric Railway Association, Sept. 16, 1920.

During the war the Tri-City Railway operated on the Davenport division forty-three regular cars and was required to run forty-five extra cars morning and night to the Rock Island Arsenal. This did not include the regular tripper service on other lines. These cars to the Arsenal were run from every line in the city, each car running only as far out on a line as it was necessary to secure a load, so that no extra mileage was run. To operate such a large percentage of extra cars and eliminate all overtime was no easy problem. Nearly all of the extra cars were operated in regular runs, but as more cars were added the runs had to be revised every fifteen days. It was necessary to keep these cars in regular runs to avoid overtime. There was no dead time in any of these schedules.

"KEEP THE CARS ROLLING" IS A GOOD SLOGAN

In making schedules for regular cars, lay-overs and dead time should be eliminated, as the wages of platform men today are such that there is no company that can afford any idle car-hours. Where delays are to be encountered, such as those at steam road crossings or in heavy vehicle traffic, too much slack time should not be allowed.

The Tri-City Railway operates forty-two regular and twenty extra cars daily on the Davenport division and pays no overtime except in case of wrecks or trolley breaks. It has no dead time or lay-overs in any schedule, under a nine-hour contract with the trainmen.

Schedules and time cards should be as self-explanatory to the trainmen as possible. The color scheme for timetables is a good idea, black for week-days, blue for Saturday and red for Sunday. A glance at a colored schedule or run will show the trainman whether he has the right one for that day of the week. As much information should be given as possible, such as direction of starting, miles in the run, time of starting, time run is completed, hours in run, and time extra cars are met on switch. This will save time on the road.

All bulletins and time cards at station and barns should be kept up to date. If old bulletins are allowed to accumulate on the bulletin board men will lose interest and will not consult the board daily. The Tri-City Railway bulletin boards hang from the wall and fold like the pages of a book, both sides of a board carrying bulletins and being covered with glass. The glass keeps them clean and no old bulletins are allowed to remain on the boards.

Recently the Tri-City Railway adopted a new form for car reports. This new form has meter readings on one side and car reports on the other. Every "run" has the mileage posted and each trainman has a book showing the miles between all cross-overs and junctions so that he can make a record of his mileage by full trips or for a turn-back. These reports are looked over by the night barn foreman for car defects and sorted in trays according to lines. The correct mileage for each run is then obtained by adding the mileage on the cards in that tray. Each card is then checked by the operating department to see that all turn-backs have been deducted from the mileage. After corrections are made, the cards are sent to the meter clerk, who makes up the monthly report of power consumption for each motorman, also the car-miles for the line and the total car-miles. The mileage is then sent to the store-room where the records are kept of wheel, gear, pinion and lubricant mileage.

This is the only mileage record that is kept, and as each report is checked it gives each department a correct mileage. It was quite a task to instruct the motormen so that these reports would be correct, but after thirty days there was only one incorrect report in three hundred coming in.

This simplifies the old system of having separate car reports and meter slips and of making out the car-miles at the barns to be sent to each department. Formerly the meter reports were not checked or corrected, and if the monthly report was wrong it gave a motorman a good excuse for his high power consumption.

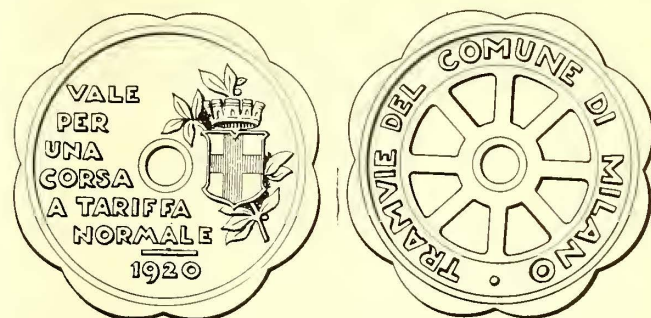
As power is one of the great items that go to make up the expense of operating a road, some device and system that will reduce the power consumption should be adopted, provided it is not too complicated for the trainmen to understand.

New Fare Tokens in Milan

Artistic Design Used for Bronze Tokens—Use of Tokens First Step in Modernizing System

THE accompanying illustration shows the new fare tokens which are now in use, since Aug. 12, on the lines of the Milan (Italy) Municipal Corporation Tramways: The tokens, which are of yellow bronze are coined in two sizes, the full fare about the size of the United States quarter and the half fare about the size of a 5-cent nickel.

The half fare is in force between 6 and 9 a.m. on all cars of the Corporation Tramways and the full fare, which is 30 centesimi, obtains from 9 a.m. till night



"Good for One Ride at Full Fare"

"Tramway of the City of Milan"

FULL FARE TOKENS OF MILAN, ITALY

time. Practically, conductors are allowed to accept two half-fare tokens or one half-fare token and 15 centesimi in coin in payment of one full fare and one full fare token in payment of two half-fare rides.

Indications are that this is but a first step toward the modernization of service, the management having already ordered fifty motor cars and fifty trailers of a larger capacity than the existing rolling stock and which will be equipped with double doorway rear doors and single doorway front doors, for cars of the double-end type, with folding controlled doors and steps. It is the intention of the management, in case the innovation of fare tokens should favorably impress the public, to try out the prepayment operation, following the successful system on the Rome Municipal Corporation's lines.

As can be easily seen, Italy apparently wants to go ahead in following American operating standards, and it is predicted that ere long the "safety car," perhaps even "Made in Italy," under the American patents, may be in operation on a number of the city systems.

American Engineering Council to Meet and Organize

First Meeting of the Operating Body of the Federated American Engineering Societies to Be Held in Washington November 18, 19 and 20—Epoch-Marking Event Will Attract Engineering Representatives from All Parts of the Country—Herbert Hoover to Address Meeting

LESS THAN two months will elapse before the first meeting of American Engineering Council, the representative and operating body of the Federated American Engineering Societies, organized in Washington June 3 and 4. The story of the organizing conference was related in these columns, issue of June 12, page 1213, and commented upon, page 1184. More than 110,000 engineers were represented by 140 delegates from seventy-one organizations. This new organization is the realization of long-held hopes and much-discussed plans to have a representative and all-inclusive body which would speak for all engineers and allied technologists, whenever their combined judgment was desired or useful and whenever they, themselves, desired to be heard.

As stated in the constitution, this organization of engineers is for service to the public welfare. It has been called an engineering organization, which is for engineers and things engineering similar to the Chamber of Commerce of the United States in the business and commercial world. Composed, as it is, of organizations of engineers, local and national, it for the first time provides adequate machinery for local engineering organizations to be heard in national affairs.

Running through all discussions about this new organization is the strain that this is the Age of the Engineer. It has been called by some the Iron Age, or the Age of Machinery, the Age of Electricity and what not, but such terms are now recognized as failing in significance. The engineer has been the one universal agent in this modern civilization or age; he has been the one who has made possible those products and facilities now recognized as necessities and conveniences, those things which mark this age as different in some way from previous ages. This organization is the result of the crystallization of that feeling plus the desire of the local and regional societies to have adequate voice and

representation in any nation-wide organization which is intended to reflect or formulate the combined engineering judgment of the country.

First Meeting of American Engineering Council of

The Federated American Engineering Societies

Washington, D. C., Nov. 18-20

All Sessions in Small Ballroom, New
Willard Hotel

Thursday, Nov. 18, 1920

MORNING SESSION

- 8:30 A.M. Registration.
- 10 A.M. Opening Session of American Engineering Council of Federated American Engineering Societies.
- 1. Call to Order by Richard L. Humphrey, Chairman Joint Conference Committee.
- 2. Election of Temporary Chairman.
- 3. Election of Temporary Secretary.
- 4. Appointment of Temporary Committees:
 - (a) Program.
 - (b) Credentials.
 - (c) Constitution and By-Laws.
 - (d) Nominations.
 - (e) Plan and Scope.
 - (f) Budget.
 - (g) Resolutions.

AFTERNOON SESSION

- 2 P.M. Address, "Engineering Council," J. Parke Channing, Chairman.
- 2:30 P.M. Discussion of the field of activity for The Federated American Engineering Societies.

Friday, Nov. 19, 1920

MORNING SESSION

- 9 A.M. 1. Report of Committee on Nominations.
- 2. Election of Permanent Officers.
- 3. Report of Committee on Constitution and By-Laws.
- 4. Formal Ratification of Constitution and By-Laws.
- 5. Report of Committee on Plan and Scope.

AFTERNOON SESSION

- 2 P.M. 1. Report of Committee on Budget.
- 2. Report of Committee on Resolutions

EVENING SESSION

- 8:30 P.M. 1. Introductory remarks by the President of American Engineering Council.
- 2. Address by Herbert C. Hoover, President, A. I. M. & M. E.
- 9:30 P.M. Informal Reception and Smoker.

Saturday, Nov. 20, 1920

- 9 A.M. Organization Meeting of the Executive Board of American Engineering Council.

The first meeting of American Engineering Council has been called for Nov. 18, 19 and 20 at the New Willard Hotel, Washington, D. C. Every member society has at least one representative on the council. The program of this first meeting, as proposed by the Joint Conference Committee, is given herewith.

After the organization conference in Washington last June, the Joint Conference Committee of the four Founder Societies was appointed the *ad interim* committee of the Federated Societies. This committee has since issued bulletins from time to time, mention of many of which has been made in these columns, answering detailed questions as to the function and methods of operation of American Engineering Council. Copies of these may be obtained from the committee at 29 West Thirty-ninth Street, New York. They also tell of the past work of Engineering Council, which turns over its work and problems to American Engineering Council on Jan. 1, 1921, and of the important questions now before Engineering Council, which the new organization will have before it for consideration and solution.

Another aftermath of the Washington conference of June was the almost universal approval of the new organization, as reflected by the technical press of the nation. These editorial opinions and analyses of the Federated Societies were compiled and published as a booklet, called "Engineers Unite," by the McGraw-Hill Company. The opinions of engineers of the country, as reflected in this way, indicate the necessity for and interest in the proper functioning of the Federated Societies.

The Washington meeting will thus mark an important step in the engineering world and the beginning of the engineers' entrance into larger national affairs. Added to the interest of the business of the meeting itself will be the address of Herbert Hoover and other engineering leaders of national prominence.

New Terminal at Milwaukee Opened

Chicago, North Shore & Milwaukee Railroad Has Completed a Handsome Station at the North Terminus of Its Line Which Is Well Arranged to Serve Patrons and Unique in Inspection Facilities



THE NEW MILWAUKEE TERMINAL FRONTS ON SYCAMORE STREET AT SIXTH AVENUE, THREE BLOCKS FROM THE HEART OF MILWAUKEE

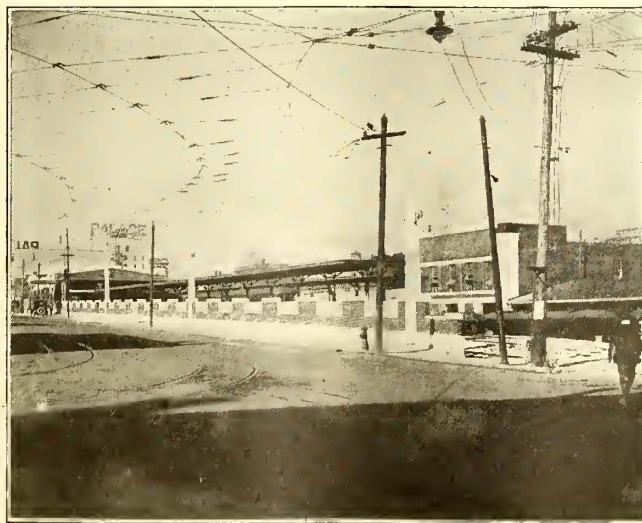
IN ORDER to secure adequate terminal facilities for the handling of its rapidly growing patronage and for the proper inspection of equipment, the Chicago, North Shore & Milwaukee Railroad purchased a site for, and recently completed the building of, a magnificent new station in Milwaukee, Wis. It is very well located at the northeast corner of Sycamore and Sixth Streets, one block south of Grand Avenue, which is the main business street of the city, and only three blocks from what is probably the center of the business district. Furthermore, Sixth Street is to be widened to 160 ft. and made the principal north and south thoroughfare of the city. Heretofore, the road has had a station which was satisfactory from the standpoint of the patrons, particularly the location virtually at the center of the business district, but unsatisfactory from the operating standpoint, since there were no terminal facilities for the cars except those afforded in the street.

For the formal opening of the new terminal, Britton I. Budd, president, sent out invitations to about two hundred business men, public officials, bankers, representatives of the chambers of commerce and other prominent citizens located along the line of the road to attend the ceremony in the new station. A special three-car train was run

from Chicago to Milwaukee and luncheon was served in the "diner" to some eighty guests from Chicago and points en route. At Milwaukee Mr. Budd gave a luncheon at the Milwaukee Athletic Club to ninety-four guests, who went from there to the new terminal for the opening.

At the opening ceremony Phil Grau, secretary of the Milwaukee Chamber of Commerce, presided. Daniel W. Hoan, Mayor of Milwaukee; Walter Carlson, president Milwaukee Association of Commerce; Samuel Insull, chairman of the board North Shore Lines; Joseph R. Noel, acting president, and R. B. Beach, business manager Chicago Association of Commerce, and Mr. Budd addressed briefly the more than two hundred guests assembled. These included from Milwaukee, in addition to those already mentioned, five judges, twenty-four aldermen, twenty-one railroad men representing all the steam lines entering the city, the presidents of the Milwaukee Club, Milwaukee Athletic Club, City Club, congressmen and others. Similarly prominent men from other points along the line were present.

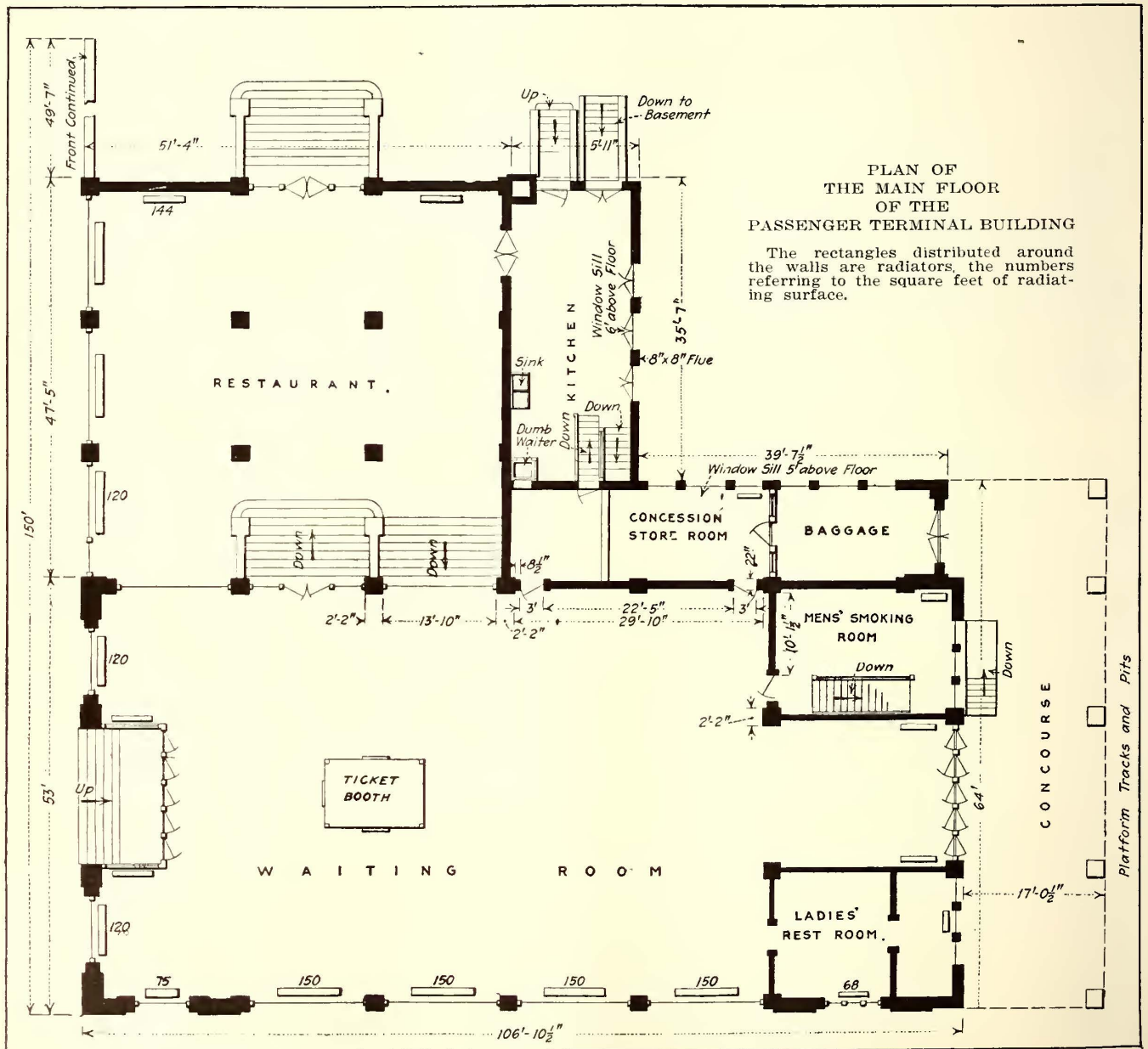
In his talk Mayor Hoan declared the new station to be the most modern and efficient railway terminal in America. In extending the greetings of the city to



BRICK AND WHITE STONE ORNAMENTAL WALL TO THE REAR OF THE STATION ALONG SIXTH AVENUE

the railway officials, he said that he did so not only because of the excellent transportation facilities which the North Shore Line was giving to the residents of Milwaukee, but because of the splendid spirit of co-operation of the road's officials with the officers of the city. He remarked that if all utility managers would co-operate in the same spirit Milwaukee would be happy indeed. He spoke in a very complimentary way about the manner in which the North Shore Line had gone to unusual ends to relieve the distress in Milwaukee which prevailed during the railroad strike, and assured the company that the city officials were not un-

co-operation of the city authorities all along the line and the state regulatory bodies, which had been very sympathetic and helpful when they had come to understand the policies of the road. He spoke with some pride of the fact that the North Shore Line was one of the very few roads in the country which had been able to continue the betterment work right through the period of high prices. He said that the policy pursued in the past had been to supply all equipment and facilities necessary to meet the traffic demands, and that the same policy would be continued, and he assured his audience that even though the business of the road continued



aware of what this company was doing for Milwaukee. In his brief address, Samuel Insull referred to the fact that the service on the North Shore Line is being perfected only through the expenditure of large sums of money, which can be obtained only as a result of holding the confidence of the people served. He said that in financing the improvements on the road the present management had had to cope with the disadvantage of the history of the road, it having gone through the courts, but that the officers were succeeding in developing a high-speed railroad, thanks to the

to grow at the present rate, there would be provided ample means for handling it in the future. He concluded his talk by saying that the primary object of the management was to make the property a great financial success by establishing with the communities served a reputation for it as the "Road of Service." Other speakers addressed many compliments to the operating officials for the splendid improvements which have been made in the operation of the road, and assured them of the whole-hearted co-operation which their policies deserve.

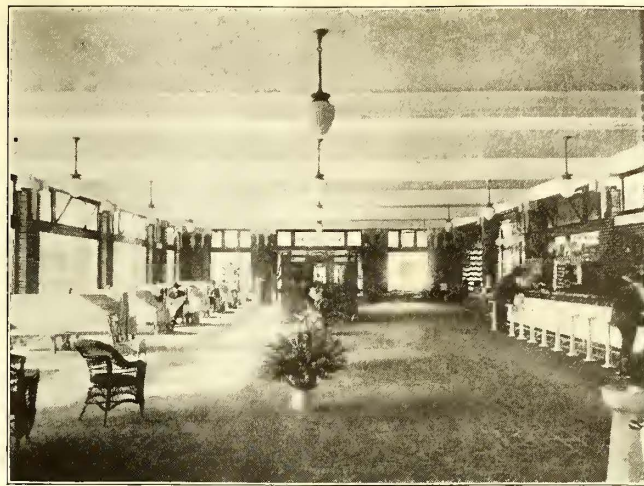
The opening of the new station marked the initiation of a new train service between Chicago and Milwaukee. A train known as the Badger Limited will leave Milwaukee daily at 4.30 p.m. and run through to Chicago in two hours and ten minutes. The running time of the other express trains of the North Shore Line is two hours and forty-five minutes, while competing steam lines cover the distance between Chicago and Milwaukee in two hours and ten minutes. The fare on the North Shore Line between Chicago and Milwaukee is \$2.50, while the steam lines charge \$3.30.

In general, the passenger terminal building, loading platforms and tracks and a new merchandise dispatch station occupy a strip of ground 420 ft. long by 150 ft. wide. It is a stub-end station, served by three tracks, two of which will accommodate five passenger cars and the third four, making a total capacity of fourteen of the standard passenger cars.

The passenger station is constructed of red tapestry brick with wide raked-out joints and all brick set with a template, giving a very attractive appearance. A composition wood and steel roof was used, the steel trusses having been erected in the areaway of the attic. The floor of the main waiting room was constructed of concrete covered with red tile, with variegated colored tile arranged in an art design. All of the white cement stone trim for the building proper and the ornamental wall extending along Sixth Street were cast on the job.

The smoking room and the ladies' rest room were finished off with terrazzo floors and likewise the stairs. The floors and walls in the toilet rooms were finished in white tile.

The main waiting room is made unusually light and



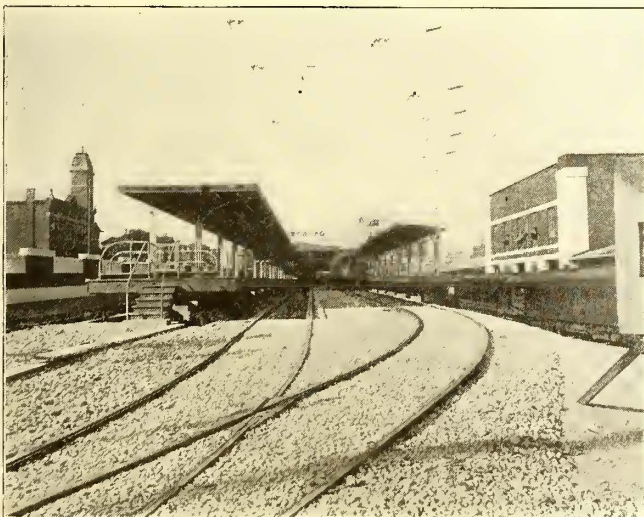
THE ATTRACTIVE MAIN WAITING ROOM WITH TICKET OFFICE IN CENTER, THE DOOR TO THE RIGHT LEADING TO RESTAURANT, A FEW STEPS BELOW

attractive by the very large windows, extending practically from ceiling to floor along two sides. The ticket booth is arranged in a central position and heavy wood ornamental benches are distributed along the side of the room adjacent to the windows on the Sixth Street side. A confectionery and light-lunch concession, soda fountain, etc., occupies a position along the opposite side of the room, and behind this is a small room which serves as a storeroom and workroom for the concessionaires and also as a parcel check

room. A buff-colored beamed ceiling with ornamental lighting fixtures finishes off the waiting room.

On a slightly lower level, owing to the location of the building on a hillside, a fairly large restaurant has been built and equipped. This communicates with the main waiting room by a wide stairway and it is the idea that this restaurant will be used only at meal-times. Lunches will be served from the concession in the main lobby at other times. A feature of the arrangement is that the kitchen serving the restaurant will also communicate with the concession by stairway, so that hot meats from the kitchen may be taken directly to the workroom behind the concession, where sandwiches and the like may be prepared.

The basement of the station will be utilized at present as a storeroom, with the south end set aside as a tool-room and workshop for the shop department inspectors. These basement rooms in the south end of the building communicate directly with the pits serving the three terminal tracks. In the basement also are provided a trainmen's room and a locker and report room, employees' toilet and another toilet room for concession employees. For the trainmen there are stairways leading to their room from the platforms and from the track



THE TRAINS MAKE A REVERSE CURVE OFF SIXTH AVENUE INTO THIS STUB-END TERMINAL, IN WHICH THE THREE TRACKS PARALLEL SIXTH AVENUE. MERCHANDISE DISPATCH TERMINAL AT RIGHT



A VIEW SHOWING THE PITS AND PLATFORM CONSTRUCTION, ENABLING INSPECTORS TO PASS DIRECTLY FROM ONE PIT TO ANOTHER. THE SPACE BENEATH THE PLATFORM IS OPEN

level. The basement will be further finished off later on and a concession given to a barber shop and other patron conveniences.

In the areaway to the east of the station a space has been provided for the parking of ten or twelve automobiles so that any one may drive up to the station and leave his car off the street in a protected place while he goes to Kenosha, Chicago, or some other point on the line.

LOADING AND INSPECTION FACILITIES DISTINCT FEATURES

The south end of the main waiting room of the station opens through a group of doors onto a platform which connects with the two long loading platforms. Both these platforms are constructed of steel, one being an island platform 16 ft. wide with the overhead shelter centrally supported, while the other is a side platform 10 ft. wide with the roof supported on a single cantilever. Both of these platforms are supported on steel columns which rest on concrete walls, butt walls extending out from the track wall. The entire space underneath the platforms has been left open and openings provided at 50-ft. intervals in the track walls so that inspectors may pass from one pit to the others directly without the necessity to climb out of the pit or go around to the ends. The inspection facilities thus provided for looking after the equipment are a distinct feature of the new terminal. Two of these tracks are provided with a pit 260 ft. long, while the third track, which will generally be used for local cars, is provided with a pit 80 ft. long.

The rails for the terminal tracks are laid directly on the concrete walls which form the pit, without the use of any ties, giving full access to the equipment underneath the cars. The rails are set on ordinary tie plates, which in turn rest on $\frac{3}{8}$ -in. plates of lead used to protect the concrete from the impact of the wheels, the noise being somewhat deadened at the same time. Concrete stairways were built at the outer ends of all of the pits, while at the station end they communicate directly with the basement.

MERCHANDISE DISPATCH TERMINAL OCCUPIES ADJACENT POSITION

Adjacent to the new passenger terminal in Milwaukee is what is termed the new merchandise dispatch station of the North Shore Line, although a part of this building was built four years ago for the use of the express company which was then operating on the North Shore Line. Recently this building was extended 189 ft. to the north, after some old buildings belonging to the company had been wrecked and cleared away. This gives a freight station 341 ft. long and 30 ft. wide, arranged with two tracks which will accommodate twelve cars along one side of the building and a 20-ft. driveway in addition to the alley width along the opposite side of the building for teams and trucks. A central section of this building 51 ft. long by 60 ft. wide is of two-story brick construction. The first floor is open and is merely a continuation of the freight-handling floor. The second floor has been given over to office space.

This merchandise dispatch terminal may be seen to the right in one of the accompanying photographs. All merchandise dispatch business originating in or shipped to Milwaukee will be handled at this terminal, while the carload freight will be received at a station at Harrison Street, in the outskirts of the city.

B. J. Fallon, chief engineer, and A. U. Gerber, architect for the North Shore Line, are responsible for the engineering and architectural features of the new Milwaukee terminal.

Standardization of Overhead Line

A SUB-COMMITTEE of the Municipal Tramways Association has made a very interesting report on overhead line material and its standardization. The committee sent a questionnaire to all operating companies in England and found a remarkable condition in the industry as regards standardization. There were more than thirty different sizes and sections of trolley wire used; one firm alone manufactured fifty different sizes of insulated bolts; another firm had patterns for more than 1,000 different line ears, and in general a very great need for standardization was found.

The committee recommended No. 0 to No. 0000 as standard trolley wire sizes for future use, and as a result of many tests for strength, vibration and elongation it wrote a specification for the standard wire and groove. The committee also prepared specifications for overhead fittings and for steel span and guard wires, but was unable to recommend any insulator specification at this time. The trolley wire specifications conform to the standards of the A. E. R. E. A. in general, although the minimum tensile strength is less and the elongation differs slightly. For steel span and guard wires the committee fixed the tensile strength between the limits of 28 and 35 tons per square inch with an elastic limit not less than 35 per cent of the breaking stress. The breaking stresses of the various wires were specified as follows:

No. 8 S.W.G.	1,261 to 1,576 lb.
No. 7/12 S.W.G.	3,500 to 4,375 lb.
No. 7/14 S.W.G.	2,100 to 2,625 lb.
No. 7/16 S.W.G.	1,400 to 1,750 lb.

The wire must not show any copper after having been dipped three times in a copper sulphate solution, for one minute each time, at 60 deg. F., and the wire must also stand a bending test on a 1-in. thimble for all sizes excepting No. 8, which must stand the test on a 2-in. thimble.

In the specifications for the overhead fittings the gunmetal mixture is specified as follows: Copper, 88 per cent; tin, 10 per cent; zinc, 2 per cent. The tensile strength is not to be less than 15 tons per square inch, with an elongation on fracture of between 15 per cent and 20 per cent measured on an 8-in. length.

The malleable iron must stand a 90-deg. bend on a 1-in. radius without fracture and must have an ultimate tensile strength of 17 tons per square inch, with an elongation of 4 per cent in a 2-in. length. Hot galvanizing is to be used whenever galvanized fittings are to be used. The steel must show a tensile breaking strength between 25 and 35 tons per square inch, with elongations of 27 and 20 per cent respectively in a length of 2 in.

Composite fittings must stand a 2,500-volt insulation test after having been soaked in water for twenty-four hours and then dried. Double and single pull-offs must stand a straight pull of 1,500 lb. without distortion and a tensile stress of 4,000 lb. Straight line hangers must stand a stress of 3,500 lb. on the span wire. Globe insulators must stand a tensile stress of 5,000 lb. without fracture when heated to 100 deg. F. and the insulator bolts must be one-piece steel drop forgings.

Relaying Downtown Track in St. Louis

Machines Played Important Part in Job on Olive Street, Where
New Rails Were Laid on Old Foundation and
One-Half the Street Was Left Open

RAIL renewal recently became necessary on Olive Street from Twelfth Street to Broadway, a distance of 2,195 ft., or 4,390 ft. of single track, in the heart of the business district of St. Louis, Mo. One track at a time was rebuilt, keeping the other half of the street open for one-way car and vehicular traffic, that in the other direction being diverted to other streets. The density of traffic in this locality made it highly important that the work should be accomplished in as brief a period as possible, and to this end a very extensive use of machines was called into play.

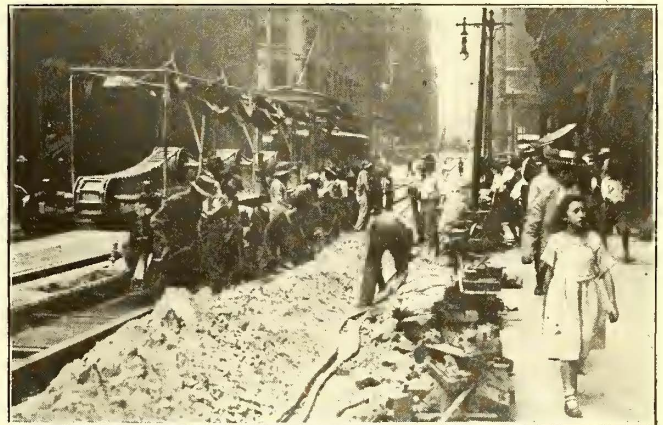
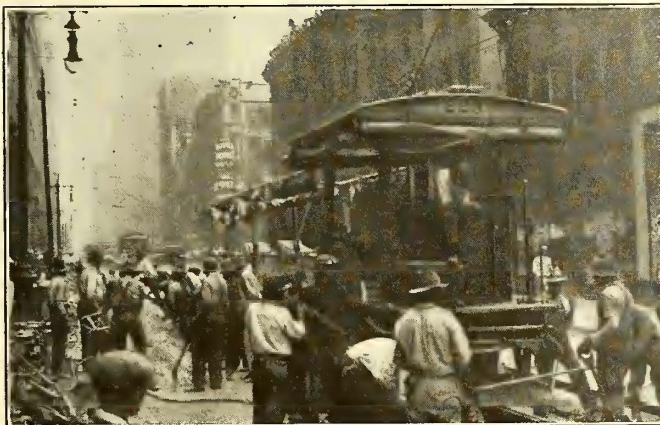
The old track on Olive Street was laid in 1906, with 6 x 8 in. x 7-ft. cypress ties set in a concrete base. The rails employed were 112-lb. 9-in. girders, Lorain section 333. These were fastened to the ties with hook-head spikes and the joints were cast-welded.

Examination of the track disclosed that the concrete base and most of the ties were in good condition and it was decided that the new rail should be relaid on the old foundation. While this complicated the work of

1919, page 531. In preparing for the rail-breaking machine a section of the pavement, 1 ft. square, was removed at the rail every 7 ft., in order to permit hooking the cable tongs under the base of the rail. The notches in the rail base were then burned.

As the rails were pulled up from their bed in the concrete the amount of the concrete which came with them varied from almost none at all, outside of the actual rail base width, to a considerable piece. Now and then a tie would pull out with the rail, and these, as well as the few deteriorated ties, were replaced in laying the new rails with pieces of old T-rail, thus avoiding the necessity to pick out the old tie seat in order to insert a new wooden tie. These pieces of rail were simply suspended from the bottom of the new rail in the seat of the old tie by using the regular rail clamp and bolting it through the base of the cross-tie rail.

No effort was made to preserve the old wood-block pavement as the rails were pulled up, as it was thought necessary to renew this anyway. After the rails were



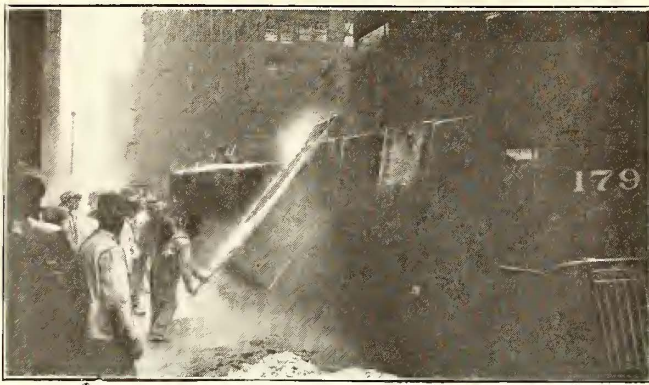
TWO VIEWS OF THE CONTINUOUS CONCRETE MIXER AT WORK ON OLIVE STREET, ST. LOUIS

bringing the new rails to alignment and grade, it saved the material necessary for constructing the concrete foundation and also the time and labor involved in removing this old concrete.

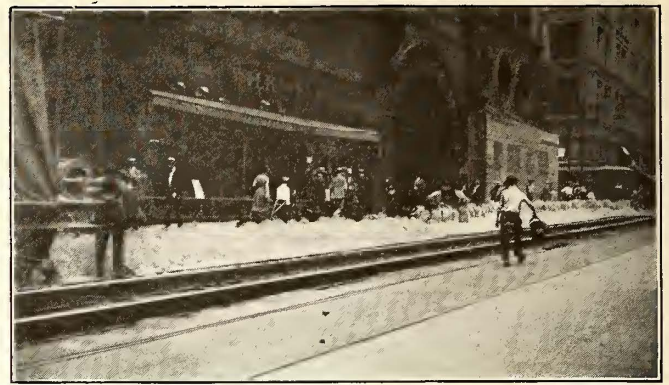
The first step in the reconstruction of the track was to tear up the old rails. This was done by a special rail-breaking car which the company has employed in this work for a number of years. This powerful machine consists of a 50-ton two-drum hoist. The two cables are hooked over the ends of the two rails and the hoisting machinery is set in operation. This lifts the ends of the rails and breaks them in 7-ft. lengths, the breaking point of the rail having first been determined by burning a slot in one side of the rail base. As the two pieces of rail are pulled up they are separated by using an acetylene torch to burn off the tie rods at both ends. The sections of rail were later removed from the street, either by loading by hand onto a work car, using two men on a rail piece, or by dragging the pieces up skids mounted on the side of a special car which was described in the *ELECTRIC RAILWAY JOURNAL* for Sept. 13,

out of the way, therefore, it was necessary to strip the trackway of the paving block and all loose material. A considerable amount of labor with hand picks was then necessary to break away the concrete base further where it interfered with a proper bearing of the new 132-lb. 9-in. girder rail, Lorain section 440.

The new rails were then laid in place and roughly aligned and graded by temporary spiking through a tie now and then. The next step was to complete the joints. The Nichol joint used consists of two heavy loose-fitting angle bars, which extend under the base of the rail and up under the head, riveted together through the web of the rail by means of 16-in. 1 $\frac{3}{4}$ -in. rivets. These rivets were heated in a small blacksmith's forge carried on the car on which was mounted the Hanna riveter. After the riveting was completed, the joint was filled with spelter, which not only serves to bring the angle bars into absolute contact with the rail but forms the bond as well. Tests made to determine the current-carrying capacity of these joints have shown the joint to have 120 per cent of the conductivity of the



MATERIALS SIDE DUMP SPREADER DISTRIBUTING A COURSE OF CRUSHED ROCK ALONG THE TOP OF THE SAND, PREVIOUSLY DISTRIBUTED IN THE SAME MANNER



MANNER OF DISTRIBUTING SAND, ROCK AND CEMENT IN PREPARATION FOR CONCRETE MIXER. AT THE LEFT ARE THE CEMENT SACKS THAT HAVE BEEN EMPTIED ALONG THE TRACK

rail. This Hanna riveter handles one rivet at a time and is capable of exerting an 80-ton pressure upon it. The United Railways has more than 10,000 of these Nichol joints in use, some of which have been in for eight years, and according to C. L. Hawkins, engineer maintenance of way, not one has ever broken down.

The task of bringing the rail to permanent grade and alignment was a particular job, under the conditions imposed from making use of the old concrete foundation. This was done by selecting certain ties on which the rail would rest at the proper grade, making use of a thin tie plate, and then adzing off other ties or building up above them with steel tie plates to obtain a uniform bearing of the rail on each tie. This involved more or less fitting and trying. For the purpose, tie plates of $\frac{1}{4}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in., $\frac{5}{8}$ in., $\frac{3}{4}$ in. and 1 in. thicknesses were supplied, all drilled with two diagonally opposite spike holes. Where two or three tie plates were used on one tie, it was necessary to place them evenly so that the spike holes would match up. Where the blocking up necessary was much more than 1 in. use was made of a 1 x 6 x 18-in. tie-board made of oak reinforced with two $\frac{1}{2}$ -in. square rods with the ends bent over at the edges of the board, so that if the latter should split it would still be held together and form a substantial support.

When the rail was at proper grade, $\frac{3}{4}$ -in. holes were bored in the ties and 7-in. screw spikes driven through the rail clips and the tie plates. For boring the spike holes in the ties use was made of Duntley drills, and Duntley spike drivers were also used for screwing down the spikes, these small machines alone saving an

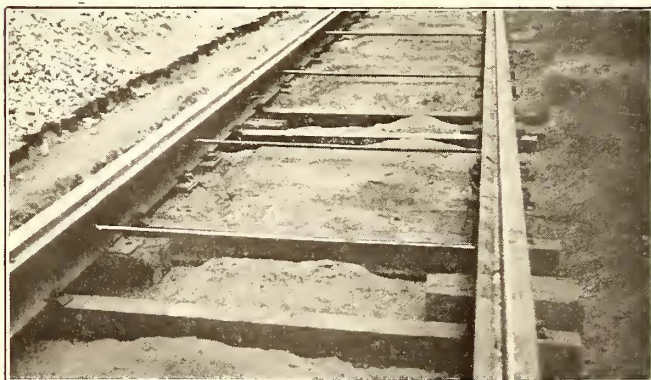
immense amount of time and labor, according to the roadmasters, who were very enthusiastic about them.

Tie rods of $\frac{3}{4}$ in. round section on standard 6-ft. spacings were used.

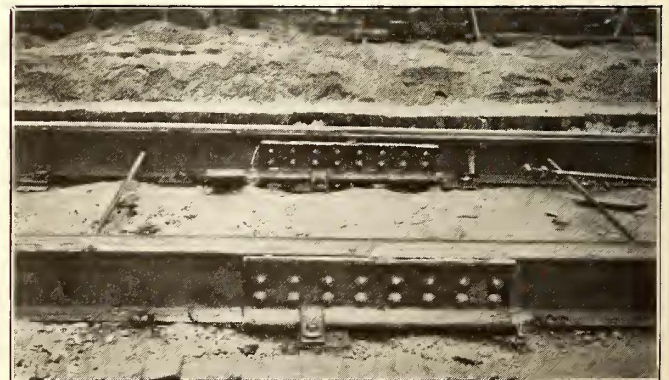
Concreting in followed the grading of the rails, and this was done with great rapidity through an efficient method of distributing the materials and the use of a continuous mixer, which is pictured herewith, though it has been in use by the company for a number of years and was described in this journal several years ago. This concrete mixer runs on the track that is to be concreted, gradually moving backward as the concrete is poured. The entire length of one track between Twelfth Street and Broadway was concreted in the time between 7 a.m. and 2 p.m. The capacity of the machine is said to be easily 450 ft. an hour.

Ahead of the concrete mixer a layer of sand, then one of crushed rock and finally cement are distributed along in a continuous pile in the proper proportions and in the quantity determined by the depth and width of the excavation. Then as the mixer proceeds a gang of men shovels these materials on the chain conveyor which carries the dry mix into the mixer. The materials are not dry mixed other than that which comes from simply shoveling the three materials collected in one pile onto the car.

The distribution of the sand and crushed rock was facilitated by two dump-spreader cars operated in a train, one of which was a trailer and the other a motor car. These dump-spreader cars are the newest addition to the company's track equipment, and while the officials feel that they are as yet somewhat crude in their work-



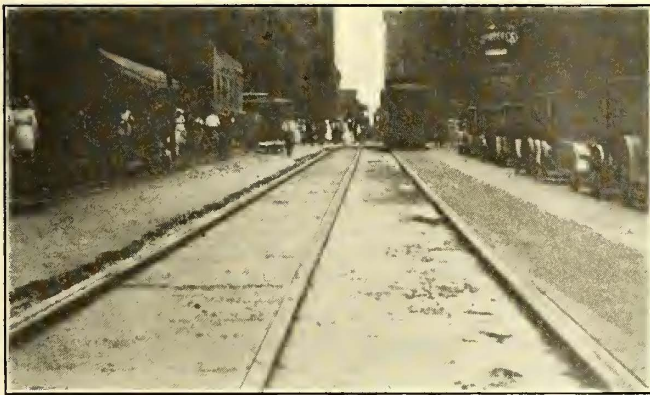
TIES THAT PULLED OUT OF THE CONCRETE FOUNDATION OR HAD DETERIORATED WERE REPLACED BY SECTIONS OF OLD T-RAIL



THE RIVETED AND SPALTERED JOINTS AND BOND WHICH HAVE GIVEN SATISFACTION FOR YEARS IN ST. LOUIS

ing, they have greatly facilitated the work on this Olive Street job, and with some refinements are expected to be a big factor in the distribution of material in future trackwork. Each car comprises eight steel-lined boxes, each having a capacity of 64 cu.ft., which are so mounted on the car that when they are dumped the material clears the track on which the car is running by more than 3 ft. The operation in dumping the box is this: A heavy wood pin, which prevents the box from sliding to the right during transportation, is removed and a lock on the box is tripped. By a slight downward pressure on the top of the box end the box is caused to tilt to the right, when gravity causes it to slide outward sideways from the car until it reaches a limiting position, when it stops its sliding motion and the outer end pivots downward, dumping the material, as seen in an accompanying photograph. The car is then moved along slowly so that the material is distributed in the thickness, or quantity, required to give the 1:3.6:6.25 mix used. It is expected that a more detailed and complete description of this dump spreader will be available after it has been somewhat refined.

The concrete from the mixer was poured up to a level even with the tie rods and permitted to set. After this a 1-in. layer of grout was poured to form the



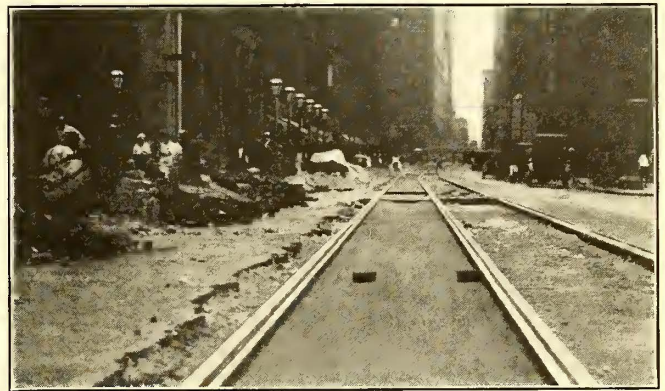
APPEARANCE OF TRACK SURFACE ON OLIVE STREET AFTER THE NEW CONCRETE HAD BEEN POURED

angle bars do not have any direct contact with the rail, they are usually undamaged after a long period of service. The spelter which is used to make an absolute bearing between the plates and the rail is then recovered by melting. Since the present worth of the spelter recovered per joint is about \$2 and that of the joint plates is about \$6, whereas the cost of labor involved is well under \$2, it is seen that it is very profitable to go to the trouble of reclaiming these old joints. After the spelter has been melted off the joint plates are sand-blasted and then dipped in hot tar oil to protect them from corrosion while in storage. They are then sand-blasted again to remove this tar oil before reusing.

The estimated cost of the Olive Street job described was \$54,000. The total time involved in completing the eastbound track was six days. The completion of the other track was delayed by a pavers' strike.

Relation of Standardization to Accident Hazard

IN A PAPER presented to the Association of Iron & Steel Electrical Engineers in New York on Sept. 20, Walter Greenwood, Carnegie Steel Company, Youngstown, Ohio, made some comparisons of the number of



APPEARANCE OF TRACK AFTER GROUTING AND SURFACING (BETWEEN THE RAILS) READY FOR THE WOOD BLOCK PAVING

paving foundation, the surface being smoothed off by pulling along the track a square drag, the four corners of which rest on the rails and the lower edges smooth off the surface of the grout at the proper level. The space underneath the flangeways of the rails was plastered full by hand with a 1:1 mix, the same as that used for the paving grout. After this grouting was dry a layer of pitch was put over it and the paving restored.

In distributing the material along the track for the concrete a system has been worked out such that the receiver is enabled to judge with great accuracy the amount of material to be dumped per foot of track. This is accomplished by means of a set of tables, which have been worked out so that by proper reference to car number and proper column for depth and width of excavation one may read off the proper thickness of material for the particular mix employed.

While the reclamation of old Nichol joints forms no part of the Olive Street job, it is interesting in the light of showing what disposition is made of these joints when they are taken out upon rail renewal. The pieces of rail comprising a joint are taken to the track store yard and a rivet gun used to cut off the rivet heads so that the angle bars may be removed. Inasmuch as these

accidents in steel mills resulting in personal injuries to determine if possible the relation of standardization in electrical equipment to safety. Similar conditions exist in railway shops. He said that the analysis of results is convincing that standardization does reduce the accident hazard. Standardization of parts increases the quality, convenience and uniform arrangement of the controlling parts. The maximum hazard is reduced by quality in that breakage cannot occur unless capacity is exceeded. Capacity cannot be overtaxed where control is properly regulated. The uniform arrangement of controlling parts manually operated reduces hazard by reducing the liability of operating the wrong movement. Convenience reduces hazard by making situations and parts easily accessible. Interchangeability reduces the hazard and it classifies with convenience. Going back from the operating end, interchangeability simplifies construction and through efficiency in construction of interchangeable parts hazard is again reduced. Collectively considered, efficiency in maintenance reduces hazard, and this efficiency is increased by standardization. The most popular demand for standardization is on account of economy in production and operation. Accident hazard reduction is equally important.

Novel Type of Paving Successful in Toledo

Alternate Rows of Brick and Wood Blocks Provide Composite Paving Having Merits of Both—
In Use Since 1916

BY A. SWARTZ

Assistant Manager of Railways Toledo Railways & Light Company, Toledo, Ohio

THE city authorities of Toledo use creosoted wood block for paving residential and business streets quite extensively. This class of paving has been used on a number of streets where the street railway tracks operate and the track strip has been paved with the same material. When the writer first came with the railway we were paving with wood blocks, using a nose block that fitted under the head of the rail. Without going into the details of the troubles that have appeared from various causes with our wood block pavement we tried an experiment which we thought would overcome some of these troubles.

We have very little complaint on the subject of wood block pavement and are thoroughly convinced of its practicability for street railway. We determined to lay a paving consisting of one row of vitrified paving brick and the next row of wood block, using nose blocks next to the rail. A strip of track about 300 ft. long was thus laid in the summer of 1916.

The blocks were laid on a $\frac{1}{2}$ -in. cushion of sand on top of a concrete foundation. The wood blocks were laid about $\frac{1}{8}$ in. higher than the paving brick, with the idea that the edges of the wood block would mash down and cover the joint between the block and the brick, by way of protecting the brick from chipping on the edge.

This method was also intended to provide a foothold for horse traffic and at the same time furnish a paving which would be easily and quickly gripped by automobile tires in any kind of weather.

PAVEMENT IS GOOD FOR VEHICLES

There seems to be no question about the riding qualities, for vehicular traffic, of this type of pavement, and the surface condition of the paving during this tryout period has remained almost the same as when it was first laid. The wood block has mashed down and has provided an almost impervious pavement and we are very well satisfied with the results.

In the summer of 1918 we laid one block of this paving on double track in the busiest part of the downtown section, with results so far the same as we found on the original experimental strip. On the latter stretch of track we operate eleven lines of interurban cars, which involve the passing each day of 560 cars weighing an average of 70,000 lb. each, as well as five city lines operating 800 cars per day weighing about 36,000 lb. each. This gives a total of about 125,000,000 tons and 4,000,000 car wheels per year passing a given point on this track. This traffic is certainly heavy enough to demonstrate the qualities of the pavement with relation to the track.

This information is given to the readers of the ELECTRIC RAILWAY JOURNAL so that those who wish may profit by the experiment that we have been making.

There is another point in connection with this type of paving, namely: Every street railway is in a business way expected to give its patronage to various manufacturers and local dealers in all kinds of supplies.

Paving supply companies expect railways to buy bricks and wood-block manufacturers expect them to buy blocks, and there is no reason why railways should not patronize both interests.

Financial Situation of English Municipal Tramways

ACCORDING to *L'Industrie des Tramways et Chemins de Fer* (the *Tramway and Railway Industry*), which quotes official statistics prepared by M. J. Beckett, general secretary of the Association of Municipal Tramways of Great Britain, many of the British municipal undertakings are in a precarious condition.

An examination of the results obtained during the fiscal year 1918-19 on the sixty-six municipal tramway systems leads to the following figures:

Receipts per car-mile	Number of systems
Between 13 and 14 pence	1
Between 15 and 16 pence	5
Between 17 and 18 pence	6
Between 18 and 19 pence	8
Between 19 and 20 pence	10
Between 20 and 21 pence	9
Between 21 and 22 pence	8
Between 22 and 23 pence	6
Between 23 and 24 pence	5
Between 24 and 25 pence	2
Between 25 and 26 pence	1
Between 26 and 27 pence	1
Between 27 and 28 pence	3
Between 30 and 31 pence	1
	66

Crowding and overloading are general on most systems at certain hours of the day and during week-ends. The growth in the number of passengers carried per car-mile is extremely marked from 1913 to 1919.

From the results of the year 1918-19, the last on which complete returns are available, it appears that:

Fifty-seven systems show a surplus, without its being possible to set anything aside as a reserve for replacements and renewals, of £1,381,153, while nine systems show a loss of £23,669, so that for all sixty-six systems the surplus is £1,357,484.

On the basis of the very low rate of 1d. per car-mile for renewals, the sum which ought to be set aside for renewals is £916,913. There remains then only a margin of about £440,551. From budget allowances for 1920-21 apparently only twelve systems will produce a surplus.

Food Prices Coming Down

ACCORDING to a report of the United States Department of Labor, recently issued, the average family expenditure for twenty-two articles of food decreased from July 15 to Aug. 15 in each of the fifty-one cities from which monthly prices are secured.

In Minneapolis the decrease was 11 per cent; in St. Paul, 10 per cent; in Detroit, 9 per cent; in Chicago, Cleveland, Indianapolis, Kansas City, Milwaukee, Omaha, Peoria and Springfield, Ill., 8 per cent; in Denver and Memphis, 7 per cent; in Butte, Cincinnati, Columbus, Newark, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City and Seattle, 6 per cent; in Baltimore, Birmingham, Bridgeport, Buffalo, Dallas, Fall River, Louisville, Manchester, Rochester and Washington, D. C., 5 per cent; in Atlanta, Boston, Houston, Los Angeles, Mobile, New Haven, Portland, Maine, Portland, Oregon; Providence, San Francisco, Savannah and Scranton, 4 per cent; in Little Rock, New Orleans and Norfolk, 3 per cent; in Jacksonville and Richmond, 2 per cent, and in Charleston, 1 per cent.

PUBLICITY

for the Electric Railways

Publicity as a Byproduct in Toledo The Railway Company Utilizes the Installation of Expensive Special Trackwork to Emphasize the Magnitude of Necessary Investment

THE Toledo Railways & Light Company has just completed the installation of an extensive piece of special trackwork at the intersection of Jefferson Avenue and Summit Street. This piece of work cost more than \$30,000 and the company utilized the public interest in the job to advertise its cost. For this purpose a large sign was prepared, and mounted on a nearby trolley pole, with the total cost and some of the detailed costs tabulated thereon in bold letters. The sign and a part of the track layout are shown in an accompanying illustration.

The lettering on the sign is as follows: "This work will cost \$30,479. Trackwork—materials \$10,006, labor \$7,950; paving—materials \$2,734, labor \$1,000; foundation—materials \$3,950; labor \$5,000; total \$30,479."

In order to utilize the advertising possibilities of this work still further, the company printed in the current issue of *Sparks*, the official organ of the Doherty Fraternity and Sorority, some data regarding the special trackwork which could be used by employees in conversation with patrons. The points made were briefly these: Installation similar to this one would have cost about \$12,000 in 1915. This layout weighs, exclusive of straight rail, approximately 41 tons. Its cost delivered

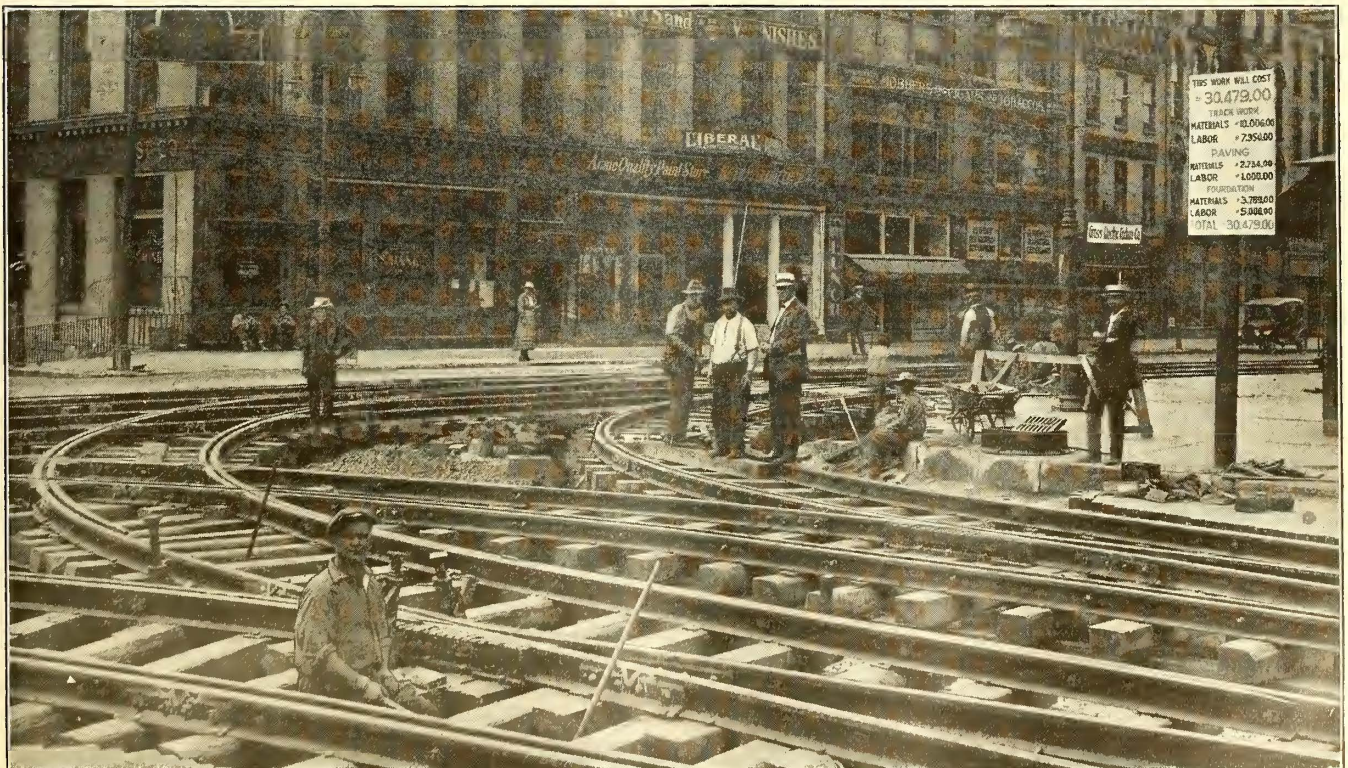
at the Central Avenue yards was 10.2 cents per pound. Four hundred and eighty-five ties, each costing about \$1, including freight and unloading, were used. The layout contains 756 ft. of 100-lb. rail. This rail cost \$1.09 per foot, whereas the pre-war price of such rail was about 50 cents. Each track bolt used cost 13 cents, as compared with 6 cents five years ago. Two thousand bags of cement were used in providing a foundation. Based on the average labor rate this job will represent a total of 25,364 man-hours, or 3,170½ eight-hour days.

Under present schedules 996 cars turn at this intersection daily and 1,203 cars pass through on Summit Street, making a total of 2,199 car movements per day over this special trackwork. These figures are exclusive of interurban and tripper runs which do not follow regular routes.

Do Persistent Publicity and an Advertising Slogan Pay?

PROPOUND this question to William J. Baldwin, director of publicity, New Orleans (La.) Railway & Light Company, and he probably would say, "Let's see if they do." Then, in all probability, he would reach down into a drawer of his desk, or into a pigeon-hole, and pull out an envelope, facsimile of which is here shown.

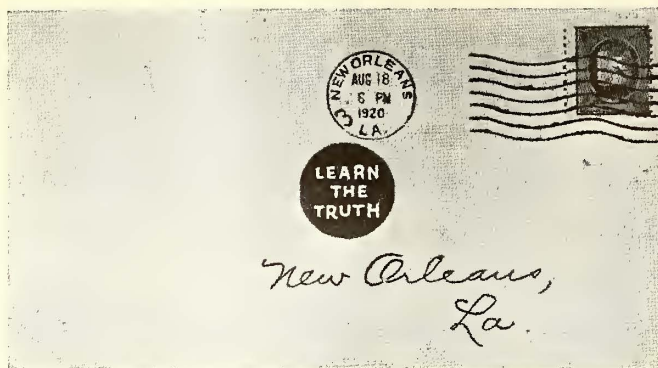
Mr. Baldwin has never doubted the value of judicious advertising and an advertising slogan, but he just



ADVERTISING SIGN USED IN TOLEDO TO IMPRESS UPON PUBLIC THE COST OF A PIECE OF SPECIAL TRACKWORK

could not resist the temptation to give his publicity work down in Crescent City an acid test. Accordingly, he wrote to himself. Instead of addressing the letter in the usual way, he clipped one of the little "Learn the Truth" slogans from a local newspaper, pasted it on the face of the envelope, wrote the words "New Orleans, La.," underneath the slogan, dropped the letter into a mail box and awaited results. The

following morning the letter was duly reposing on his desk, having gone through the regular channels of Uncle Sam's post office and back to the writer. The significance is this: If nobody else in New Orleans is familiar with the railway's advertising slogan, Uncle Sam's postal forces are.



THIS ENVELOPE PROVES THAT ADVERTISING SLOGANS PAY

accepted the company's statements with a grain of salt.

So thoroughly established is this slogan, a stranger on entering the city could ask the first person he meets to direct him to "Learn the Truth" and straightway he would be directed to the offices of the New Orleans Railway & Light Company.

The "Learn the Truth" slogan was adopted by Mr. Baldwin when he first took charge of his company's publicity work, about one year ago. From that day until this the slogan has appeared in all of the company's advertising. It has become a household expression, a subject for jest and a purveyor of truth, so forcefully presented as to win for the railway company the confidence of thousands who formerly ac-

The Next Step in Publicity Work

Extraordinary Educational Power of Motion Pictures Should Be Capitalized by the Railways—A Nationalization of Such Publicity Suggested to Begin With and a Follow-Up Picture Dealing With Local Particulars

An Editorial Suggestion

WHAT is the next step in Publicity Work? What additional means can be utilized for putting the story of the electric railways and their transportation and economic problems before the public?

What about the motion picture? Does not the "movie" offer a tremendously powerful educational medium through which to reach the public and of which the electric railway industry should make full use? So far, this industry has made practically no use of the "movie" and yet many manufacturers and commercial organizations have seized upon this means of putting the story of their products or their business before the public.

The motion picture is a unique publicity medium. Unlike newspaper publicity, that put forth through the silent drama is read by 100 per cent of the subscribers, and, in addition, a much clearer comprehension of the theme is obtained by the average person when it is visualized in motion pictures. Furthermore, the percentage of newspaper subscribers who read publicity matter as printed in behalf of an electric railway is probably very small. Likewise, the number of passengers who will "take one" of the company's own leaflets from the little box on the car is a very small proportion of the total number of riders served.

This is not meant to be a disparagement of the good that can be derived from printed publicity, but what is meant is to point out what is believed to be a quicker, more direct, more perfect medium for use in the essential problem of gaining the confidence and co-operation of the public through understanding. It should be used not to the exclusion of printed publicity, but as a strong addition thereto.

An incident which brought this point out quite forcibly occurred in Detroit and was related in the *ELECTRIC*

RAILWAY JOURNAL, May 22, page 1071. A few months ago, when the people of that city were about to vote on the question of whether the city should engage in the street railway business in competition with, or to the exclusion of, the Detroit United Railway, the Mayor became alarmed a few days before the election that his pet project was not going to carry. Some one conceived the bright idea of making a final presentation of the municipal plan in the moving picture theaters. A Chicago film company was hastily summoned and a thousand feet of film prepared.

This film flashed a map of Detroit on the screen and then showed by animated drawings just how workmen living in certain sections of the city have to take a very circuitous route with several transfers to get to work in another section. Then actual scenes were shown picturing greatly overcrowded cars, cars that would not stop and other exasperating things. By various scenes of this latter kind, the audiences got all worked up, so the report goes, against the alleged deficiencies and inadequacies of the company's service.

Then, reverting to the city map, the proposed municipal lines were built in before the eyes of the audience, which could hardly help but be impressed with what a great convenience these new short-cut lines would be in the daily transportation problem. In other words, the municipal plan was visualized for the public in its completed aspects as it never had been visualized from the printed descriptions. The people thought "what a fine thing that would be" and many attribute the positive vote to the effects of the film. Yet it cannot be contended that the people were not informed of the true outlook of the project, for the Detroit United Railway certainly laid bare the bones of the municipal plan with all the force at its command.

The main point of this Detroit incident is that the motion picture visualized the plan for the public and probably assisted in putting the bond election over, when it was thought to be lost. What the railways want to do is to use the power of the "movie" to put over the truth. Incidentally, such uses of the film as that in Detroit point to the desirability of the railways acting promptly to the features of the "movie" before opponents take advantage of them in any local controversy.

HOW CAN MOTION PICTURES BE USED?

The question immediately arises as to how motion pictures can be employed to present to the public the prosaic story of the electric railways. The first aspect of this question is obviously the film itself. Of course the success of any motion picture publicity will depend on the character of the film. And just now this part of the problem seems formidable, but that is because we in the railway business are not trained in motion picture psychology and technic. The planning and execution of the film should be left largely to the men who make that their business, although the intricacy of the railway problem will doubtless require the generous co-operation of the railway officials, at least for a time until the motion picture industry produces some man with a genius for this particular field. The fundamentals of such films can be set forth, however, and they are these—the films must be acceptable and interesting to the public; they must be acceptable to the motion picture theater managers, and they must carry their mission. Assuming, then, that good railway publicity films can be produced (not easily at first, perhaps, but if enough good heads get to work on the problem, a satisfactory result will be accomplished) a few suggestions may be in order.

It is rather costly to produce a film. The charges of the producer will vary per foot of film, depending on equipment and personnel needed, setting, the special lighting required, amount of art work, etc., averaging perhaps over \$2 per foot. This makes this form of publicity prohibitive for the small railway companies and suggests a broader plan.

A great many phases of the street railway problem are common to practically all cities and will permit of uniform treatment. This points to the logic of some one undertaking to develop a thousand or two thousand feet of film, or perhaps a series of 1,000-foot pictures, dealing with these common aspects and then making this picture available for use in all the cities where there are street railways. Such a film would be solely a "good-will" picture, for that is the primary need in every city, and it would make no mention of fares or any subject which might not be timely from a local standpoint.

The distribution and showings could be arranged by one of the film companies or, more logically in this case, through the local railway company in each city. A showing of an educational film can be secured in almost any theater, sometimes without charge and sometimes upon payment of a small sum. If the railway used window posters advertising "William S. Hart in 'The Deep Purple' at the Blackstone Theater tomorrow," the theater manager would undoubtedly take advantage of that free advertising and be glad to run the railway film in return. Incidentally such car advertising would be ideal from the railway standpoint, for it would induce a large attendance at the theater showing the railway film and would cost but little.

No amount of time and thought would be too much to spend in producing this national railway film, in order to make it a picture which would "take" and at the same time really perform its mission.

There are half a dozen film producers eager to start such an undertaking, but who shall be sponsor for it? It might be taken up by the publicity committee of the American Electric Railway Association, or, better still, it might form a major part of the general publicity work of the Committee of One Hundred. If the right film is conceived and produced, it appears, and this opinion is shared by a number of railway executives with whom the proposition has been discussed, it would serve a tremendous influence in converting public distrust and condemnation into sympathetic understanding and approval. It has been estimated that such a film could be produced for from \$3,000 to \$5,000 and some 20,000,000 to 30,000,000 people effectively reached in the course of a few months by securing an adequate number of duplicate films or prints made from the original. The cost of these prints and the small theater expense would be in addition to the \$3,000 first cost.

The uses to which such a film could be put are self-evident and this general film could be followed by films of local interest to bring out the details of local problems. What is an expenditure of \$1,000 to \$3,000 for a company, if it will gain the public's understanding and co-operation?

MOTION PICTURES HAVE BEEN USED

The proposed use of the motion picture in street railway work is not wholly without precedent. Last winter the New Orleans Railway, Light & Power Company used a motion picture film in several of the local theaters to present publicity matter on the railway situation. This film simply carried reading matter without trying to lend interest to the real message through pictures, or provide a story as the vehicle to "get over" the railway's true situation. Nevertheless, even this bold use of the movies was very helpful. The Kansas City (Mo.) Railway is having a film made the object of which is to give the local people a better understanding of the immense variety and extent of the plant that is required to enable the company to furnish transportation. The Chicago, North Shore & Milwaukee Railroad has had a film produced the object of which is purely to stimulate traffic through appealing to the interest of the public in speed and comfort and good scenery in traveling. By weaving in some romance of the historic Indian days that preceded the interurban line the film holds an audience and carries its mission.

There have been a few other instances where the "movie" has been employed by an electric railway, but there has been no real appreciation of the possibilities of the motion picture as a medium for reaching the understanding of the public. One prominent railway executive concluded a discussion of this idea by saying that "even though it might turn out a failure (and he didn't think it would), it is certainly worth trying, for it has such great potentiality, and we would be *doing something* and not just sitting by while the industry flounders." The crux of the idea is in getting the right kind of scenario and then in picturing it well. This is considerably more than a one-man or a one-mind job. That is why the association could well undertake the work, for it is organized to call in the best brains in the industry to co-operate with the scenario writers of the

American Association News

MOTOR BUSES AND TRUCKS, FUEL SUPPLY, FREIGHT AND EXPRESS TRAFFIC, LABOR PROBLEMS, ELECTRIFICATION, SUPER-POWER SURVEY AND AUTOMOBILE HAZARDS ARE AMONG THE TOPICS CHOSEN FOR CONSIDERATION AT ATLANTIC CITY

Atlantic City Convention Programs

American and Affiliated Associations Have Provided Programs Which Are Marked by Concentration Upon a Few Topics of Pressing Importance

THE following tentative program has been prepared. While this is revised up to the hour of going to press it is understood that some slight revision may still be necessary.

PROGRAM OF AMERICAN ASSOCIATION

MONDAY, OCT. 11

9:30 a.m. to 5 p.m.

Registration and distribution of badges at booth, right of entrance. Young's Million Dollar Pier.

TUESDAY, OCT. 12

9:30 a.m. to 12:30 p.m.

Meeting held in Greek Temple
Annual address of the president.
Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees.

(a) On resolutions.

(b) On nominations.

(c) On recommendations in the president's address.

Reports of committees:

(a) On compensation for carrying United States mail.

(b) On electrolysis.

(c) On national relations.

Address on "Problems of Fuel Supply," by Eugene McAuliffe, president Union Colliery Company, St. Louis, Mo.

Reports of committees:

(d) Committee of One Hundred.

(e) On publicity.

Discussion of the report of the Federal Electric Railways Commission.

WEDNESDAY, OCT. 13

9:30 a.m. to 12:30 p.m.

Meeting held in Greek Temple

Reports of committees:

(a) On fare systems.

(b) Aera advisory.

(c) On company membership.

Papers on "Possibilities of Trans-

porting Other Than Passengers."

(a) Urban and suburban lines, name of speaker to be announced.

(b) Interurban lines, by Britton I. Budd, president Metropolitan West Side Elevated Railway and Chicago, North Shore & Milwaukee Railroad, Chicago, Ill.

Paper on "Training of Electric Railway Personnel," by Martin Schreiber, manager Southern Division, Public Service Railway, Camden, N. J.

Address on "Settlement of Labor Disputes in the Interest of the Public and Its Influence on Fares," by Hon. Henry J. Allen, Governor of Kansas.

THURSDAY, OCT. 14

9:30 a.m. to 12:30 p.m.

Meeting held in Greek Temple

Report of committee on valuation.

Paper on "Rate of Return," by Cecil F. Elmes, engineer Sanderson & Porter, Chicago, Ill.

Paper on the "Place of the Motor Bus," by Frank C. Pick, commercial manager London Electric Railway, London, England.

Paper on "The Place of the Motor Bus as a Supplement to Electric Railways," by R. Gilman Smith, Milwaukee Railway & Light Company, Milwaukee, Wis.

Address on "The Motor Vehicle—Competitor or Ally?" by G. M. Graham, vice president Pierce-Arrow Motor Car Company, Buffalo, N. Y.

Address on "An Outside View of the Electric Railway Industry," by Melville E. Stone, general manager Associated Press.

Reports of convention committees:

(a) On recommendations in the president's address.

(b) On resolutions.

(c) On nominations.

Unfinished business.

General business.

Election of officers.

Installation of officers.

Adjournment.

PROGRAM OF ACCOUNTANTS' ASSOCIATION

MONDAY, OCT. 11

9:30 a.m. to 12:30 p.m.

Registration and distribution of badges at booth.

2 to 5 p.m.

Meeting held in Accountants' Hall
Annual address of the president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees:

(a) On resolutions.

(b) On nominations.

Joint meeting with Transportation & Traffic Association.

Report of committee on collection and registration of fares.

TUESDAY, OCT. 12

2:30 to 5 p.m.

Meeting held in Accountants' Hall
Reports of committees:

(a) Accounting-claims.

(b) Accounting-engineering.

(c) On standard classification of accounts.

Paper on "Cost-of-Service Accounting," by H. J. Davies, secretary-treasurer Cleveland Railway, Cleveland, Ohio.

Paper on "Accounting for Material Received and Used, Including Inventories," by R. A. Weston, certified public accountant, New Haven, Conn., formerly general storekeeper New York, New Haven & Hartford Railroad.

WEDNESDAY, OCT. 13

2:30 to 5 p.m.

Meeting held in Accountants' Hall

Paper on "Financial Problem Confronting Public Utilities During the Period of Reconstruction," by Harry E. Mendes, member of Touche-Niven & Company, certified public accountants, Cleveland, Ohio.

Paper on "The Accounting Profession," by George L. Vannais, certified public accountant, Hartford, Conn.

Reports of convention committees:

(a) On resolutions.

(b) On nominations.

Election of officers.

Installation of officers.
Adjournment.

PROGRAM OF
ENGINEERING ASSOCIATION

MONDAY, OCT. 11

9:30 a.m. to 12:30 p.m.

Registration and distribution of badges at booth.

2:30 to 5 p.m.

Meeting held in Engineers' Hall
Annual address of the president.
Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of committee on resolutions.

Report of committees:

- (a) On equipment.
- (b) On heavy electric traction.

TUESDAY, OCT. 12

2:30 to 5 p.m.

Meeting held in Engineers' Hall
Meeting of purchasing agents and storekeepers.

Papers on "Standardization and Its Effect on Stores," as follows:

"From a Storekeeper's Standpoint," by P. F. McCall, storekeeper South Side Elevated Railway, Chicago, Ill.

"From the Purchasing Agent's Standpoint," by a purchasing agent.

Joint meeting with Transportation & Traffic Association.

Meeting held in Transportation & Traffic Hall

Report of committee on safety-car operation.

Address on "Electrification of Railroads," by A. H. Armstrong, chairman electrification committee General Electric Company, Schenectady, N. Y.

WEDNESDAY, OCT. 13

2:30 to 5 p.m.

Meeting held in Engineers' Hall

Reports of committees:

- (a) On power distribution.
- (b) On power generation.

Address on "The 'Super-Power' Line," by W. S. Murray, chairman Super-Power Survey, United States Geological Survey.

THURSDAY, OCT. 14

2:30 to 5 p.m.

Meeting held in Engineers' Hall

Report of committees:

- (a) On way matters.
- (b) On buildings and structures.

General business.

Election of officers.

Installation of officers.

Adjournment.

PROGRAM OF
TRANSPORTATION & TRAFFIC
ASSOCIATION

MONDAY, OCT. 11

9:30 a.m. to 12:30 p.m.

Registration and distribution of badges at registration booth.

2:30 to 5 p.m.

Meeting held in Greek Temple
Annual address of the president.
Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees:

- (a) On resolutions.
- (b) On nominations.

Joint meeting with the Accountants' Association.

Report of committee on collection and registration of fares.

Joint meeting with Claims Association.

Report of committee on code of traffic principles.

TUESDAY, OCT. 12

2:30 to 5 p.m.

Meeting held in Greek Temple
Joint meeting with Engineering Association.

Report of committee on safety-car operation.

WEDNESDAY, OCT. 13

2:30 to 5 p.m.

Meeting held in Greek Temple
Report of committee on economics of schedules.

THURSDAY, OCT. 14

2:30 to 5 p.m.

Meeting held in Greek Temple
Reports of committees:
(a) On express and freight traffic facilities and costs.
(b) On merchandising transportation.

General business.

Reports of convention committees:

- (a) On resolutions.
- (b) On nominations.

Election of officers.

Installation of officers.

Adjournment.

PROGRAM OF
CLAIMS ASSOCIATION

MONDAY, OCT. 11

9:30 a.m. to 12:30 p.m.

Registration and distribution of badges at registration booth.

2:30 to 4 p.m.

Meeting held in Claims Hall
Annual address of the president.

Annual report of the secretary-treasurer.

Report of the executive committee.

Appointment of convention committees:

- (a) On nominations.
- (b) On resolutions.

Reports of committees:

- (a) On membership.
- (b) On subjects.
- (c) On safety.
- (d) On ways and means.
- (e) On statistics.
- (f) On constitution and by-laws.

Joint meeting with Transportation & Traffic Association.

Report of committee on code of traffic principles.

Paper on "Automobile Hazards," by C. M. Talbert, commissioner streets and sewers of St. Louis and chairman of public safety section, National Safety Council.

TUESDAY, OCT. 12

2:30 to 5 p.m.

Meeting held in Claims Hall
Paper on "Automobile Hazards," by Ralph Stickle, assistant superintendent accident department Cleveland (Ohio) Railway.

Written discussion prepared by L. H. Roche, general inspector associated bureaus Pittsburgh (Pa.) Railway; W. G. Fitzpatrick, general claims attorney Detroit (Mich.) United Railway, and J. H. Handlon, claim agent United Railroads of San Francisco, Cal.

WEDNESDAY, OCT. 13

2:30 to 4:30 p.m.

Meeting held in Claims Hall
Paper on "Accidents—Cause and Prevention," by F. E. Shumate, general attorney Atlanta Northern Railway, Atlanta, Ga.

Written discussion on "The Influence of Welfare Work," by R. N. Hemming, superintendent of transportation Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind.

Written discussion on "Effect of Bonus System," name of speaker to be announced.

Written discussion on "Co-operation of Trainmen," by J. E. Duffy, general superintendent New York State Railways, Syracuse, N. Y.

Convention Entertainment

A fine entertainment program has been prepared under the direction of Martin Schreiber. Details will be given in a later issue.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

Havana Has a Strike

Frank Steinhart, Ex-Soldier and Cosmopolite, Refuses to Pass Increased Wage Burden to Public

Frank Steinhart is again the talk of all Cuba and of those in the United States who are interested in affairs on the Island. He it was who made a success of the Havana Electric Railway and who later succeeded in bringing about the consolidation of the railway, light and power interests there as the Havana Electric Railway, Light & Power Company, of which he is now president.

OPPOSED TO FARE INCREASE

Mr. Steinhart has peculiar ideas about transportation service and peculiar ideas about fares and the burdens that labor should seek to impose on the public and on struggling enterprises. So when the motormen and conductors of the Havana company went on strike on Aug. 7, thinking that all the company had to do in order to meet an increase in wages was to advance fares to the public, Mr. Steinhart had a little surprise in store for them. He rejected their proposal. And in doing so he explained as follows:

I am giving our employees all it is possible to give. The total wage increase granted them since Jan. 1 of this year has been \$1,300,000. We cannot give more unless the fares are raised.

However, I am opposed to an increased fare and will not accept one. I do not favor charging all of the public 1 or 2 cents a ride more to be turned over to a relatively few men and even partly into the company's coffers. I may be wrong in my ideas, but there must be an end to increasing wages and then increasing prices with the public bearing the burden. We must all strive to bring the cost of living down and I am willing to bear the brunt of making the start in this matter.

In view of the prevalence of the jacking up of wages and then jacking up prices to a proportionate level it may seem that my ideas are wrong. But I have weighed this matter carefully and my action is based upon study of the situation. In the first place I have not seen any benefits from the practice of increases. The public pays in the rise in the cost of living.

It might be well enough to raise the fares here to pay the increase the men demand, if that were the end. But it will not be the end. In January, for example, there may well be another demand for higher wages and that would mean raising the fares again. That can't go on forever and I am going to start fighting it right now.

Still the strike was on and not a wheel moved. The police arrested about thirty men as agitators. Two days after the strike started, the company began to put in effect a carefully worked out plan for restoring the service. New men were employed and these, together with inspectors and starters, took out cars under police protection. The company began to build up a new organization from the bottom. The new men were carefully picked; more were rejected than accepted. Fifty students who volunteered were rejected with the comment that this was not a "lark."

The new men are said to have received less than the former employees.

The shop men went out in sympathy and then the taxi drivers. Mr. Steinhart held fast and increased his service. He uttered no word of denunciation of the strikers. The public backed him up. There was no excitement. Meanwhile the Government began deportation proceedings against fourteen Spaniards arrested in the strike. This started talk of a general strike. Mr. Steinhart did not alter his course. Finally a committee representing the associated unions called on Mr. Steinhart and asked him to intercede with the Government officials to halt the deportation proceedings because this would hamper efforts to settle the situation. Mr. Steinhart refused to "intercede," but agreed to convey the request to Secretary of Interior Charles Hernandez. The Secretary said he would put the cases over for one sailing. The next day the former employees began to apply for their old jobs. The railway strike was broken. The sympathy strikes collapsed.

P. R. T. Rejects Two Franchises

The Philadelphia Rapid Transit Company has rejected two franchises for the proposed Hunting Park-Erie Avenues and Roosevelt Boulevard extensions. The former was not accepted for the reason that the ordinance contained a specific provision for the completion of the project within twelve months from the date of approval, and provides for a bond in the sum of \$50,000 conditional upon the carrying out of the terms of the ordinance. Since the company is not now able to build these tracks, and cannot build them until its financial position is bettered, it cannot contract to build them and give its bond for the faithful performance of that contract.

In the case of the Boulevard ordinance, the rejection was caused by the fact that the proposed line would not be expected to pay operating costs for several years. According to the ordinance, the city would have the right after ten years to order the company to remove its tracks and rebuild the line over an adjacent route. The salvage value of the tracks, if removed under the conditions of the ordinance, would barely pay the cost of restoration. These facts make the securing of money for this franchise impossible.

The company will accept the Sansom street, Twentieth to Twenty-second street ordinance, but will not be able to build these tracks until its financial condition has been bettered by the securing of additional revenue, for which application is now being made.

Work Going Ahead

Contracts for \$1,711,570 of Construction Have Been Placed by Detroit Municipal Railway

The Detroit (Mich.) Municipal Street Railway is progressing with its track construction at various points. It has been announced by the Street Railway Commission that its working staff will lay the concrete foundations for the new lines at the rate of 1,200 ft. a day.

On the city's south line on Harper Avenue, where the Detroit United Railway owns the north track, the city tracks are down and the Department of Public Works is completing the final pavement. Bids have been asked for copper trolley wire sufficient for about 28 miles of track. Bids on supporting cable and a track welding machine are also asked and poles have been contracted for.

Although contracts for \$1,711,570 worth of work and supplies have been awarded and bonds amounting to \$1,750,000 have been authorized and sold, the track construction covered by existing contracts is only a small portion of the trackage proposed under the Mayor's municipal plan. No contracts have yet been let for the erection of carhouses or for the purchase of cars and other equipment.

RESIDENTS' PROTESTS UNHEEDED

On the advice of the Corporation Counsel the Street Railway Commission has declined to abandon its plan of constructing a part of the municipal system on Pennsylvania Avenue notwithstanding the protests of residents.

No final agreement has been reached by the city and the Detroit United Railway in regard to the construction of the proposed loop for turning Woodward Avenue cars at Elizabeth Street and Grand Circus Park. If a definite arrangement can be made, the Street Railway Commission will build the loop and rent it to the Detroit United Railway on a percentage basis of the cost of construction.

The session of the Street Railway Commission and officials of the Detroit United Railway held to discuss the track situation in the vicinity of St. Jean and Kercheval Avenues did not result in any definite agreement. It was decided, however, that a representative of the company would inspect the locality in company with a representative of the commission to see what could be done from an operating standpoint providing all other matters involved could be adjusted as between the commission and the company. The Detroit United Railway maintains it is necessary that these matters be first determined by agreement or in the courts.

Syracuse Survey Presented

\$12,415,000 Fixed as Value of Lines—Ten-Cent Cash Fare Recommended—Service-at-Cost Considered

The value of the present property of the New York State Railways in Syracuse has been placed at \$12,415,000 against \$21,012,201 claimed by the corporation, and a 10-cent cash fare and a ticket fare of 7½ cents have been recommended under a service-at-cost plan by the Syracuse Street Railway Investigating Commission in its report to Mayor Harry H. Farmer. There are six findings and eighteen recommendations in the report. To bring the service in Syracuse to an adequate level, the report says, would require from \$1,000,000 to \$1,250,000. The return which the corporation is entitled to is fixed at 6 per cent and to improve the service the commission holds that the present system of fares and transfers and control of the lines must be radically altered. The report of the commission refers to and includes recommendations from a report and valuation submitted to it by the city's engineers, Ford, Bacon & Davis, New York. The report of the engineers covered valuation, at the figure recommended by the commission, new money requirements, recommendation as to the average fare, reduction of taxes, the use of one-man cars, rerouting plans and many details of traffic co-operation between company and city.

HIGHER toll charges are advocated for the suburban and interurban lines. The recommendation is made that the railroad be permitted to engage in package and express carrying business. It also is recommended that the company be permitted to operate buses as supplemental means of transportation. Consolidation of certain lines and abandonment of others proving unprofitable is urged and rerouting is suggested.

OPERATING ECONOMIES URGED

The skip-stop is advocated and the installation of a better sign system is recommended. Provision also is made in the recommendations for the purchase and operation on the Syracuse lines of one-man cars. The board would straighten the traffic in the congested down-town section and consolidate lines running in adjacent parallel streets.

Other recommendations made by the commission include that the regulation and control of service in the city should be through an advisory board of control and a street railway commissioner, subject to the jurisdiction of the Public Service Commission as provided by law; that the sprinkling tax now assessed as a cost of operation to the railway be abolished; that certain taxes and charges for maintenance and replacement of pavement now assessed against the railway be reduced; that a charge for transfers be permitted; that an extra charge for after-midnight service be permitted; that separate books of accounts and records of operation be kept in Syracuse, covering the Syracuse lines, and that the financial reports of the Syracuse lines be published at regular and frequent intervals.

EXTENSIONS BEING URGED

The company should make extensions and additions to trackage as soon as practicable, the report says, and it recommends that in the interest of speed, regularity of run and economy of operation fewer car stops be made; that the proposed Fairview carhouse, on which \$50,000 already has been spent, be completed to provide ample carhouse facilities.

The proposed street railway commissioner would be named by Mayor Farmer and would be paid an annual salary of \$10,000. The commissioner would be empowered to order capital additions, renewal and replacements, abandonment or replacement of property; routing or rerouting of cars; fix schedules, rate of speed, mode of operation, fix or approve car stops and direct generally everything that will improve service. All disputes are to be settled by arbitration. The commissioner would have power to employ accountants, engineers and other necessary assistants.

An annual budget of the railroad is made mandatory. The report says:

On the first of December of each year the company is required to submit to the commissioner of street railways an estimate of its gross receipts and the cost of service for the ensuing calendar year. The budget of expenses must be itemized so as to show the amount expended for each expense involved in the cost of service, including operating, maintenance, taxes, amount of return to the company and all other expenses which the company and the commissioner of street railways agree shall be paid from the general fund provided in the agreement. No operating expenditures other than those specified in the budget can be made by the railroad company except with the approval of the commissioner of street railways. Any controversy between the commissioner and the company is to be settled by arbitration.

ROCHESTER SERVICE-AT-COST PLAN FOLLOWED

The agreement provides that there shall be deposited in an account to be known as the renewal and depreciation fund an amount equal to 2 per cent per annum of the capital value of the railroad property. The moneys in this fund shall be disbursed only for renewals and replacements as the commissioner of street railways shall direct, it being the intent that the cost of maintenance shall be paid as operating expense.

It ought perhaps definitely to be made known that stocks, bonds or any securities issued by the company have had no part whatever in the valuation made by the experts and approved by the commission. The commission has not concerned itself as to those things, but only as to the property actually used and useful in the operation of the road.

The commission says that its proposed service-at-cost plan is modeled after that in effect in Rochester. The report adds:

It is to be noted that the Rochester agreement makes the initial fare 7 cents with ten tickets for 65 cents, while our recommended agreement makes the initial fare 10 cents with six tickets for 45 cents.

In comparing the initial fare in the two

cities it must be borne in mind that the Rochester initial fare is based upon an estimated capital value so that the fare is likely to be changed as soon as the actual capital value has been determined. In Syracuse the initial fare has been based upon the actual capital value as found by Ford, Bacon & Davis, and the fare fixed in expectation of covering all the estimated obligations of the agreement for at least the first year, when it is hoped that increased patronage resulting from improved service will make the fare lower. Also Rochester is a larger city than Syracuse with many important conditions more favorable for low cost of street car service than Syracuse.

The committee which has reported was appointed by the Mayor some months ago. It was headed by Giles H. Stillwell. The company would of course continue to manage its own affairs, but would be guided by the Street Railway Commissioner, being subject to penalties if the orders of that official were not obeyed.

Hartford Mayor Appeals for Trolleys

Acting Mayor C. D. Allen of Hartford, Conn., has addressed to each member of the local Board of Aldermen a copy of a report dealing with the dispute between the Connecticut Company and the jitneys in Bridgeport. The report in question was presented to the Bridgeport Common Council by the local transportation committee. The question of bus regulation in Hartford will come before the Board of Aldermen of that city at its meeting on Sept. 27.

In calling the attention of the board members to the report, acting Mayor Allen said:

I feel very sure that the enclosed report of the trolley-jitney committee of Bridgeport will be of much interest to you. There are several vital points brought out, as follows:

The unfairness of competition, the trolley company being obliged to maintain right of way, pay portion of cost of bridges and pay a percentage of gross receipts to the city.

Which method of transportation can serve Hartford best in winter?

I would call your attention to the congestion of streets with trolleys, which has got to be relieved. There is a necessity that the jitneys combine so that the city may deal with one or more responsible parties or corporations rather than with any individual bus or jitney driver.

The city would be saved money by the use of the trolley lines for carrying freight and express. This question not only affects the city but the surrounding towns which make Hartford their buying center.

Jolt for H. C. L. at Los Angeles

Arrangements have been made by the Los Angeles (Cal.) Railway whereby employees may share in purchasing a carload of government food supplies at reduced prices. The company explained that while it would be impossible to quote exact prices until the goods arrived and the freight and incidental expense could be determined, the maximum price of the bacon would be \$2.90 per 12-lb. can, 19 cents per pound can for the roast beef and approximately 25 cents per pound for the corned beef, with corresponding prices for other products.

The Los Angeles Railway is financing the purchase of the supplies, which will involve about \$7,000.

\$12,000,000 for Improvements Work Now Being Carried Out in Milwaukee Will Total That Amount —Separate Power Company

Announcement has been made of the incorporation of the Milwaukee Power Company. This company has been formed to finance a new \$6,000,000 power plant now under construction at St. Francis, a suburb of Milwaukee, for the Milwaukee Electric Railway & Light Company.

SEPARATE COMPANY FOR POWER DEVELOPMENT

John I. Beggs, president of the Milwaukee Electric Railway & Light Company, is reported by the press as having stated that the formation of the new company was forced by the inability to obtain money to complete the plant, because bankers would make no loans upon secondary mortgages. The new corporation, which will have a nominal capitalization of \$1,000,000, was not formed for profit.

The power plant as thus far completed is to be sold to the new company for what has been expended on it by the Milwaukee Electric Railway & Light Company. Power produced by the new power plant will probably be sold to the Milwaukee Electric Railway & Light Company under contract. The new company will issue bonds with the power plant as security.

Mr. Beggs is further reported to have said that the Milwaukee Electric Railway & Light Company contemplates expending approximately \$12,000,000 on new projects. Of this amount half will be used for the power plant mentioned above, \$1,500,000 for transmission lines to the various substations, \$1,500,000 for new distribution lines and \$3,000,000 for new cars.

PRESENT FACILITIES TAXED TO LIMIT

According to the reported statement of Mr. Beggs, the present power facilities of the Milwaukee Electric Railway & Light Company are being taxed to the limit. Equipment is being overloaded as much as 50 per cent at times and when poor coal is encountered it is with the greatest difficulty that the load is carried.

Lakeside, as the new power plant is known, it is claimed, will be one of the most modern electric plants in the country and one of the largest. It will use pulverized fuel and is thus expected to achieve marked economies. The first unit is expected to be completed in the fall of this year. It will add 40 per cent to the available supply of electrical energy of Milwaukee.

Utility Board Defended

During the first day's defense of the Board of Public Utility Commissioners of New Jersey, the official acts of which are being investigated by Governor Edwards at the instance of the municipal authorities of Jersey City, L. Edward Herrmann, counsel for the board, contended that in the performance of its

duties the board had uniformly followed the state courts' rulings.

George L. Record, counsel for Jersey City, mentioned as his "basic and fundamental charge" that the Utilities Board does not represent the public, but "has deliberately taken the part of the corporations." The board, he said, has turned itself into a court instead of acting in its legal capacity as an administrative body.

One of the bulwarks of our system of government, said Mr. Herrmann at the conclusion of Mr. Record's comprehensive opening, has been that the courts shall pass upon the relative rights of parties to controversies. If regulation has failed it has done so because of abnormal conditions, not through any fault of the board. According to Mr. Herrmann we are passing through an era of unrest throughout the world, with dissatisfaction centering upon regulatory bodies. He said that any one who feels aggrieved over the board's acts, whether of omission or commission, should quarrel with the courts and not with the board. Mr. Herrmann further pointed out that the very statute under which the board functions provides for a review of its acts by the Supreme Court at the instance of any person or group who may have cause to complain.

\$3,500,000 for Improvements in Pasadena

H. B. Titcomb, vice-president of the Pacific Electric Railway, Los Angeles, Cal., on Sept. 17, announced plans calling for an expenditure of approximately \$3,500,000 for improvements covering virtually the entire northern division of the Pacific Electric Railway. The improvements contemplated include the transformation of the Southern Pacific Station at Colorado Street and Broadway, Pasadena, into a joint terminal for the use of both steam and electric lines, a tunnel under Raymond Hill in order to shorten the distance between Los Angeles and Pasadena, and changes that will affect the service between Los Angeles and Alhambra, San Gabriel, Azusa, Glendora, Arcadia and other Northern Division points. At present the Pacific Electric Railway has no terminal in Pasadena.

With reference to the tunnel, it is proposed to construct a bore from Fair Oaks Avenue to Broadway through which all interurban trains will pass, running up Broadway to the new terminal. If the building of the tunnel is not feasible a new line will be constructed on Glenarm Street or south of that street to connect with Broadway.

The general situation with respect to the operation of the Pacific Electric Railway in Pasadena and the tentative plans for the new work to be carried out there were described by Edward Hungerford in his article "California and Her Traction" in the *ELECTRIC RAILWAY JOURNAL* for Sept. 11, page 490.

Property Owners Objecting Residents of Highly Restricted Detroit District Protest Municipal Railway Construction

A suit which was anticipated following the delivery of an opinion by the Corporation Counsel to the Council of Detroit, Mich., to the effect that the Council had no power to change the routing of the municipal lines to streets other than those set forth in the ordinance, passed on April 5, has been filed in the Wayne County Circuit Court by 110 residents of Clairmount Avenue. The petition asks for an order to show cause why an injunction should not be issued restraining the city from building the Clairmount-Owen-Holbrook line.

BASIS OF COMPLAINT STATED

Among the points made in the complaint are that the ordinance passed on April 5 differs from the Mayor's statements relative to the plan for the proposed railway; that the ordinance is defective as to route in that it authorizes the building of a line through Hamtramck, a village which is entirely surrounded by the city of Detroit, without the consent of the residents of the village, and also that it authorizes the taking over of the Linwood Avenue line without providing for the purchase of that line from the Detroit United Railway. It is also contended that contracts made by the Street Railway Commission for material for use in the construction of the lines are defective.

Work has been started on another section of the municipal lines, the Charlevoix-Buchanan crosstown route. This will be the first line to be constructed on the west side of the city.

Through its publicity department the Detroit United Railway has summarized the results of the five months' effort on the part of the city to construct the municipal lines. The statement is made that none of the track work with paving is actually completed and none of the overhead system installed, so that the cars even if they were purchased and delivered could not be operated.

ULTIMATUM TO D. U. R.

The city's ultimatum to the Detroit United Railway to vacate St. Jean Avenue with its tracks and use instead the double tracks to be built by the city on that street will be answered soon by the company, it is expected. When the company was ordered to remove its track on St. Jean Avenue, it refused to comply on the claim that it was granted permission to build the line by the City Council in 1914. This track is used by the company for Y-purposes. The Street Railway Commission has informed the Detroit United Railway that it intends to go ahead with its double track on St. Jean as part of the municipal system, and that the company will be allowed to use the city tracks for Y-purposes if it desires to do so.

Einstein Theory and Strikes Need Seen for Application of the Doctrine of Relativity to Life in Labor Disputes

Professional papers as well as the daily press have given attention to the Brooklyn strike. Among the interesting comments on the situation in Brooklyn and on collective bargaining in general is the following editorial from *Chemical & Metallurgical Engineering* for Sept. 15. It is entitled "A Little Homily on the Brooklyn Strike" and reads as follows:

As these lines are written the Borough of Brooklyn is tied up tight on account of a strike of the street railway employees. They were under agreement not to strike—and the Mayor of New York went to their meeting and took from them a pledge to withhold all action until he should have had a conference with their employers. His Honor is a comedy character whose ambition seems to be to make the laborin' man feel sure that the Mayor is with him, right or wrong, no matter what he does—as long as he belongs to some union. Unless he has a big organization with many thousand votes behind him he is not a laborin' man—down at City Hall.

CHAOS AND BRICKBATS

At 2 o'clock a.m. when the night gang left work they had another meeting of their own, and they voted to strike, despite the previous resolution at the general meeting, because somebody is said to have said, which it is admitted was not true, that a number of men had been discharged. Then those who voted against the measure at the general meeting followed the strikers out. Now chaos reigns and brickbats fly.

This speed on the trigger, this German military principle of smashing up everything and making the results as *schrecklich* as possible in order to give emphasis to an opinion, is both expensive and, in the long run, bound to be unprofitable. Now to be a street-car conductor is to engage in a respectable and honorable calling. The intellectual demands may be slight, but some of us do not respond successfully to intellectual demands, and it is well for the world that there are plenty of jobs that do not require the burden of thought. But a respectable and honorable calling does not warrant either one man or a thousand of them to throw a million people into misery and to rob them of their chance to gain a living. Surely the world is neither so stupid nor so bad as to make it necessary to paralyze a whole community every time a number of persons engaged in similar employment want something.

COMPULSION INHIBITS BARGAINING

What we need is the application of the doctrine of relativity to life. Relativity teaches us first to consider the dimensions of ideas, and then to compute the effect of their application. That is Einstein's procedure, and it is a very good one. We talk of collective bargaining, and most of us are disposed to favor the abstract idea, but isn't it time we began to think of what we mean by collective bargaining? What is bargaining? It means to negotiate beforehand; to trade. Its dimensions which we must study, in order to understand the effects of bargaining, are service, or goods, and money. Bargaining means bargaining whether done by two persons or by many. Force or compulsion does not enter into it, because as soon as it does bargaining ceases.

If A has a house and B wants to buy it they may bargain to reach an agreement and sale, but if B knocks A on the head and threatens to keep it up until he wants to pay we cannot call it a bargain. A strike is not a part of collective bargaining; it is compulsion, and compulsion inhibits bargaining. Discharging one man or locking out a thousand is not bargaining, either. It is also compulsion.

We are in favor of rapid and effective punishment of the employer who exploits labor; who tricks the men that work for him, or even who does not recognize his great obligations to those who cast their lots with him and throw their lives and fortunes into his enterprise. We believe that every employer is in bondage to his obligations and that the man who is unfair to those who work under him should be deprived of the privilege of administering affairs that involve the employment of men and women. But we are equally convinced that the man who works with his

hands by the day is also in bondage to his obligations. And if many of them form a union the union also has obligations, not only toward its members but to the general welfare. The doctrine of relativity applies here too, but we forget it in practice, and so, often, do the strike leaders. Just because we sport a union card is no reason why we should think we have privileges which are denied to others. Neither this nor the election to executive office by a board of directors will release us from our obligations.

MORE QUANTITATIVE THINKING

Relativity teaches us this, and it is very sound philosophy. We need more of it; and more quantitative thinking. Whenever the Rule of Wrath begins we lose our count, and then there is the devil to pay. Should we not profit by the example of Germany?

Amalgamated Rejects Arbitration Award

Motormen and conductors of the United Railways, St. Louis, Mo., have voted to refuse to be bound by the decision of the Missouri Public Service Commission against reopening the wage question. A letter has been mailed to the commission informing it officially that the commission's decision would not be recognized by the men. This letter is quoted as follows:

We are in receipt of your notice of Sept. 4 of the action of the Public Service Commission in the case No. 3527 of Sept. 3. I am instructed by the members of Division No. 788 of the Amalgamated Association that we do not recognize the award as binding and just, inasmuch as the decision was arrived at, not by considering the evidence that was submitted in the case in compliance with the submission jointly signed by the receiver for the United Railways and the committee representing Division No. 788, but was based wholly on the fact that to have granted an increase to the members of Division No. 788 would mean an increase in tariff.

The submission signed jointly by the receiver and the committee representing Division No. 788 was for the purpose of an adjustment of the wage disagreement fairly on the evidence in the case and was in no way contingent on the question of tariff.

Col. Albert T. Perkins, manager for the receiver for the United Railways, asserted that the company has no choice under orders of the federal court but to accept the decision of the arbitration board.

Wage and Fare Increases Recommended

The long-awaited report of the three masters in chancery on the problems of the New Orleans Railway & Light Company, New Orleans, La., has been presented in New Orleans by Judge Foster's appointees. It recommends raising wages of all trainmen, re-values the property at \$41,500,000, recognizes the union and recommends an 8-cent fare instead of the present 6-cent fare but with tickets at 7 cents. The wage increase is less than the men asked when they went on strike in July. It represents an average of nearly 30 per cent. The rehabilitation of the lines and service are among the aims. The increase is retroactive to July 1. The increase in fares is subject to the approval of the City Commission of New Orleans. The report of the masters must have the approval of the judge. The masters began their inquiry several weeks ago, immediately after the men returned to work after a strike of almost a month.

Hydro-Radial Policy Stated

Canadian Premier Explains Government's Attitude on Hydro-Radial Railways in Ontario

At the annual meeting of the Ontario Municipal Association held in Toronto on Sept. 3 Premier E. C. Drury outlined the position of the Ontario Government with respect to the proposed construction of hydro-radial railways by the Ontario Hydro-Power Commission on behalf of the municipalities and the action taken by his government in halting further expenditure until the special commission under the chairmanship of Justice Sutherland has investigated the whole Hydro undertaking and made its report.

DELAY CAUSES CRITICISM

Premier Drury said that the action of the government in holding up the hydro-radials pending an inquiry had caused much criticism. The inquiry was without bias to determine what was best to be done. The Premier said:

Hydro-radials is not a hydro-electric development. It is a very different thing for a municipality to launch into the owning of expensive railways. The inquiry into one question does not mean we will not support the other. But the launching of the Government and municipalities into hydro-radials is a different thing. It has nothing to do with hydro development or distribution of power. We don't hold with the policy of saying that because the people have voted, we should go ahead. Ultimately the Government will have to support it.

I am not saying the hydro-radials will be unprofitable. We are just investigating it, like any business man would do.

This commission is investigating the hydro-radials. I said once in a joke they were mediocrities. This was used by one newspaper to hurt the Government. They are not mediocrities, but the best men we could get.

If the report of the commission is that the policy is sound, we can finance it in much better shape. If the policy is not sound we shall expect the municipalities and the Hydro-Electric Commission to accept the reasonable conclusions as final in the matter.

There have been two changes since the hydro-radials were considered. The Dominion Government has taken over the Canadian Northern Railway and Grand Trunk Railway. These were bankrupt roads. The trouble is we have too many railroads. The two lame ducks have been taken into the fold and the Government is trying to run them. We are finding ourselves with increased freight and passenger rates because of too many roads.

When hydro-radials were brought forward it was said that competition would help us. Now we would only be competing against ourselves. Another reason for the inquiry is that ultimately the Government will be responsible for the money if necessary.

AUTO AS A FREIGHT HANDLER

The third reason is that we are entering upon a period of road development, which is important to the rural sections and to the cities. This policy was necessitated by the change of transportation. As the auto has displaced the horse in a large degree, so motor trucks have displaced the railway for handling freight. That is the reason for good roads policy. The money spent on that will give better results than money spent on railways.

This does not mean that we won't use electricity for freight and passenger service. The province can sell the electricity developed to the railways to electrify their roads. This whole matter has led us to say, "We want to be shown."

We are not making any accusations against any one. And I don't think that Sir Adam Beck is objecting greatly to the investigation, or that there is much objection from that quarter. We are not opposed to hydro-electric development, but we have reasonable doubts about the advisability of going ahead with hydro-radials till we have looked into the matter a little further.

Denver Service Normal

Service is now practically normal on the lines of the Denver (Col.) Tramway. The company has recruited a full force of trainmen to take the places of the strikers, and has stopped hiring new men. G. Y. Harry, federal mediator, has left the city. Mr. Harry went to Denver several weeks ago, shortly after the calling of the walkout, to try to effect a settlement.

The members of the executive committee of the union, who had been sent to jail for contempt of court, were released on bail of \$1,500 each on Sept. 18. Sporadic attacks on car operators by former employees of the company continue. The motorman and the conductor on a car of the Fairmont line were beaten and robbed by strikers at midnight on Sept. 18. After locking the men in the car vestibule and starting the car, the thugs made their escape. The car struck a switch half a mile further on and was derailed but was not overturned. Another attack was made on an "owl" car on Sept. 20, but no one was seriously injured.

News Notes

Strike Ends at Nashville.—The striking carmen of the Nashville (Tenn.) Traction Company returned to work on Sept. 23. The men walked out on Aug. 22, tying up service throughout the company's system. The company restored partial service with aid of strike breakers. During the course of the strike one person was killed while riding on one of the company's cars.

One-Man Cars Win.—The employees of the Eastern Pennsylvania Railway, Pottsville, Pa., went on strike on Sept. 17 in consequence of a dispute over the operation of one-man cars, recently acquired. When the men reported for duty on Sept. 17 they refused to operate the cars. The officials of the company met this opposition without any signs of compromise. For five days the system centering in Pottsville and running through many towns in the coal region of Schuylkill County was tied up.

Wage Dispute Will Go to Arbitration.—Agreeable to the officials of the Boston & Worcester Street Railway, Boston, Mass., and the employees, the matter of the wage dispute is to be left to a board of arbitrators. Guy W. Cox, Boston, will represent the company, and James H. Vahey, Boston, will represent the men. The wage increase when granted will probably be retroactive to Sept. 1. The men asked for an increase in wages from 52 cents an hour to 95 cents, and a working day of eight hours in ten instead of nine hours in eleven.

Purchase Proposal Before Voters.

At the next election the voters of San Francisco, Cal., will have two amendments submitted for their approval. The first, in the form of a proposed charter amendment, will be the question of the city's acquiring the property of the United Railways under the "pay as you go" plan. The second of these provides for an increase of the interest rate on the city bonds. This course was determined on after a conference held in the office of the Mayor on Sept. 7. The proposals will be prepared at once by City Attorney George Lull and Attorney Robert M. Searles.

City Would Revoke Franchise.—City Counsel Charles E. Bird plans to apply to Attorney-General Thomas F. McCran for authority to bring a suit in the name of the State to require the New Jersey & Pennsylvania Traction Company, Trenton, N. J., to show cause why its franchise in the city of Trenton should not be revoked for violation of the franchise contract. The application grew out of the refusal of the company to arbitrate the recent differences with its employees over wages and other matters. It is contended that in the franchise of the company there is a paragraph which binds it to submit differences with its labor to arbitration.

Advance for Stockton Men.—The Stockton (Cal.) Electric Railway has announced increases in the salaries of all employees. Advances range from \$12 a month for new platform men to \$16 a month for men who have seniority with the company. Other motormen and conductors will receive an increase of \$14 a month. New men who have been receiving 45 cents an hour will now receive 51 cents. Second-year men are paid 52 cents, third-year men 53 cents, while fourth-year men receive a monthly bonus of \$5. All motormen and conductors who have been in the employ of the company for one year or more are allowed twelve days' vacation on pay.

Men Told to Arbitrate.—A committee representing the employees of the Grand Rapids (Mich.) Railway appeared before the City Commission on Sept. 2 to seek help in settling their wage demand. The commission was in favor of arbitration in view of the contract of the men which stated that wage controversies should be settled by arbitration. The committee was headed by R. L. Reeves. The members told the commission that if a rise in fare were authorized the company could undoubtedly meet the increased wage demands of the men. Commissioner Emery suggested a referendum at the November election if an agreement could not be reached between the men and company before that date.

Purchase of Road Urged by Council.

The Town Council of Port Colborne, Ont., has adopted a resolution urging the Hydro Commission to take over the Niagara, St. Catharines & Toronto Railway on these terms: That the commission assume the obligations stated to be outstanding against the company;

that a bond of undertaking of the Hydro Electric Power Commission be given to the government in payment of the proposed purchase price and that this should constitute a first mortgage charge upon the railway; that the commission shall on behalf of the municipalities enter into priority agreements for the interchange of traffic between the railway and the Canadian National Railway.

Employees Ask Mayor's Aid.—A delegation of the Co-operative Welfare Association of the Louisville (Ky.) Railway, composed of employees of the various departments called upon Mayor Smith on Sept. 15 with a request to use his influence toward securing an increased fare for the company. The company is desirous of granting an increase in wages to its men, but the men themselves know that this is impossible with the present fare rate. J. P. Barnes, president of the railway, has announced a plan involving the purchase of fifty cars, the consolidation of power plants and an increase in wages for employees, dependent upon an advance in fares. It would require \$60,000 a year to pay 1 cent an hour more to the 1,600 employees of the company.

Threat of Strike in London.—Dissatisfied over the payment of a bonus of 1 cent an hour on their wages for the month of July, trainmen employed on the London (Ont.) Street Railway threaten to strike. The bonus is the dividend from the \$600 surplus the railway and municipal board is able to show on the business for July. The men only recently called off a strike when the company promised to give them a bonus based on the surplus each month. The employees were to receive 48 cents an hour and a division of the surplus remaining after operating costs and bond interest had been paid. The municipal board insists it also included redemption, and this the men dispute. If the board agrees to forego bond redemption the men claim their wages would be about 52 cents an hour.

Five Cents More for Wilmington Men.

—The trainmen of the Wilmington & Philadelphia Traction Company, Wilmington, Del., have accepted the offer of the company of a wage increase of 5 cents an hour retroactive to Sept. 5. The new scale brings the rate to 56 cents an hour for the first three months' service, 58 cents for the next nine months and 60 cents for one year's service and thereafter. Thomas W. Wilson, vice-president of the company, says that a wage advance of 10 cents an hour was granted the trainmen a year ago at which time the company filed a petition with the Public Utility Commission for a fare increase. This was refused until a few weeks ago. However, during all this time the company has been paying the advance wage to the men without any increased revenue. Consequently a deficit of \$95,000 now remains. He exhorted the trainmen to work in co-operation with the company in order to maintain efficiency of operation.

Financial and Corporate

Another San Francisco Plan

Nearly All Creditors Have Agreed to Reorganization Proposal Now Before California Commission

For the third time in four years a plan has been presented to the Railroad Commission of California for the reorganization of the United Railroads, San Francisco, Cal. The latest plan has the approval of 97 per cent of the creditors. Under it the present capitalization and bond issues of the United Railroads would be cut down from \$81,945,600 to \$47,516,000 and the Market Street Railway would acquire all properties now owned by the United Railroads. The plan was put before the State Railroad Commission on Sept. 10, in the form of an application for authorization to issue stock, bonds and notes, and to take proceedings pursuant to such reorganization plan.

OBLIGATIONS REDUCED

Contemplated reduction of obligations through means provided by the reorganization plan will mean a lessening in interest charges of from \$1,685,650 to \$843,000 a year. Mr. Von Phul, president of the company, explained that duplication of the plant would cost approximately \$60,000,000 at this time and actual appraisal by engineers of the company places its present value at \$52,210,195. Separate appraisal by engineers of the State Railroad Commission fixes the present value at \$37,237,211.

The company, through lack of revenue, has defaulted in interest payments since Oct. 1, 1916. Negotiations looking toward possible purchase of the system by the municipality have been going on for more than three years.

Advocates of the reorganization plan told the commission that none of the other creditors of the United Railroads would be adversely affected by the proposed plan, because it contemplates that the new organization will assume current liabilities and obligations of the United Railroads.

FIXED CHARGES REDUCED

Under the proposed plan the Market Street Railway, which now has an authorized capital stock of \$18,750,000, all of which is owned by the United Railroads, will be recapitalized, so that it will have an authorized capital of \$32,150,000, divided into four classes of stock, and the Market Street Railway will issue \$5,200,000 of notes, which will be secured by \$5,200,000 of Market Street Railway bonds and the properties of the Sutter Street Railway, Sutro Railroad and San Mateo lines. It also will issue \$3,525,000 of Market Street Railway bonds, all in exchange

for the properties of the United Railroads.

In presenting the matter to the commission, officials of the company contended that the proposed new capitalization and bond and note issues of the Market Street Railway, aggregating \$47,516,000, will be justified by the reproduction cost, less depreciation, of the properties of the United Railroads as they now stand, excluding all amounts for going value, franchises or intangible values of that nature. The aggregate amount of the proposed bond and stock issues, it was asserted, is also less than the cost value of the property, plus the amounts since put into the property.

P. R. T. Net Income Approaching Deficit

The Philadelphia Rapid Transit Company has a large decrease in its net income both for August and for the eight months ended Aug. 31. In August, 1919, the net income was \$53,523, while for 1920 it became a deficit of \$112,854. For the eight months the decrease was 59 per cent. A deficit has not been encountered as yet in the income statement beginning Jan. 1, but unless steps are immediately taken looking toward relief for the company in the shape of a fare change of some kind a deficit is apparently not far off.

PHILADELPHIA RAPID TRANSIT COMPANY INCOME ACCOUNT

Month of August	1920	1919
Operating revenue.....	\$2,999,199	\$2,916,816
Operation and taxes.....	2,348,570	2,093,034
Operating income.....	\$650,628	\$823,782
Non-operating income.....	55,252	43,462
Gross income.....	\$705,881	\$857,244
Fixed charges.....	818,735	813,721
Net income.....	*\$112,854	\$53,523
Deferred wage adjustment— one month.....	\$187,500	
5% return on P.R.T. paid in capital—one month.....	125,000	
Amount by which gross revenues are insufficient to provide for operating expenses, taxes, fixed charges, and the 5% re- turn upon P.R.T. stock.....	\$425,354	

Eight Months Ended August 31	1920	1919
Operating revenue.....	\$24,760,738	\$22,964,499
Operation and taxes.....	18,175,498	15,833,330
Operating income.....	\$6,585,239	\$7,131,169
Non-operating income.....	361,602	354,087
Gross income.....	\$6,946,841	\$7,485,258
Fixed charges.....	6,535,970	6,483,664
Net income.....	\$410,871	\$1,001,594
Deferred wage adjustment —three months.....	562,500	
5% return on P.R.T. paid in capital—eight months.....	1,000,000	
Amount by which gross revenues are insufficient to provide for operating expenses, taxes, fixed charges, and the 5% re- turn upon P.R.T. stock.....	\$1,151,628	
* Deficit.		

Dominion to Wait

Will Not at Present Accept Hydro Bonds of Municipalities for Purchase of Electric Railways

Some time ago it was announced that Sir Adam Beck was negotiating with the Dominion Government for the purchase by him on behalf of the Ontario Hydro Commission acting in the interest of Ontario municipalities of the holdings of the Dominion Government in the Toronto Suburban Railway, the Niagara, St. Catharines & Toronto Railway and the Toronto Eastern Railway, which were acquired by the Federal Government when it took over the lines of the Canadian Northern Railway system.

ALTERNATIVE PROPOSAL MADE

When the Ontario (Drury) Government announced its policy of having an independent inquiry by a commission into the economic feasibility of the hydro-radial projects in Ontario before guaranteeing bonds for the construction of these lines, proposals were made to the Dominion Government to accept hydro bonds of the municipalities without provincial guarantees in payment for the three electric roads.

The proposal met with some encouragement at the start and there was a prospect that it might be acceded to. The question was deferred until the return of J. D. Reid, Minister of Railways, from Europe. It is now suggested that the hydro proposition be allowed to remain in abeyance. It is stated that nothing will be done in the matter till the commission investigating the radial project shall have made its report. The appointment of this commission was mentioned in the ELECTRIC RAILWAY JOURNAL for July 24, page 197. It is composed of Justice Sutherland, T. A. Russell, Fred Bancroft, W. A. Amos and A. F. McCallum. The sittings of this commission are all public. The chairman is Justice Sutherland.

The opinion is expressed that an awkward situation might arise if the Dominion Government should accept municipal bonds over the head of the Province, which has the power to define, enlarge or restrict municipal borrowing powers. It is very doubtful, therefore, if the electric lines of the Canadian National system will pass to the Hydro Commission unless the condition is such as will meet with the approval of the Dominion and Provincial governments and the directorate of the Canadian National Railways, who are understood to have considerable influence in connection with the proposal.

PURCHASE PRICE \$7,000,000

Nearly \$7,000,000 is the purchase price quoted by the Federal Government for the sale of the three electric roads—\$2,628,000 for the Toronto Suburban, \$3,544,000 for the Niagara, St. Catharines & Toronto, and \$708,000 for the Toronto & Eastern lines.

Big Reduction in Interborough Deficit

In Spite of Enormous Increase in Traffic on Subway Lines, Net Corporate Income Shows a Deficit of More Than \$2,000,000

The annual report of the Interborough Rapid Transit Company, New York, N. Y., for the year ended June 30, 1920, shows a deficit after taxes and charges of \$2,235,835, as compared with a deficit of \$3,810,340 in the preceding year. The aggregate number of passengers carried on subway and elevated lines was 955,133,110, against 809,335,658 in 1919. The report places great emphasis upon the need of New York City for more subways. The present trunk lines have about reached the limit of their capacity and conditions will become almost unbearable before new lines can be completed, even if construction were to begin immediately. The 5-cent fare is inadequate, as the annual deficit shows.

GROSS operating revenue for the year ended June 30, 1920, was \$51,478,411, an increase over 1919 of \$8,271,201, or 19.2 per cent. This result was caused by a gain of \$6,990,765 or 28.4 per cent on the subway division, and a gain on the Manhattan railway division of \$1,280,436 or 6.9 per cent. Operating expenses were \$31,695,209, as compared with \$26,233,326 last year, an increase of \$5,461,883 or 20.8 per cent, of which \$3,783,588 was on the subway division. This was caused by an increase of 3,755,213 car-miles operated, an increase of 2 per cent in the number of miles of road operated at the close of the year, and the continued tendency to increased cost of labor, coal, and other supplies.

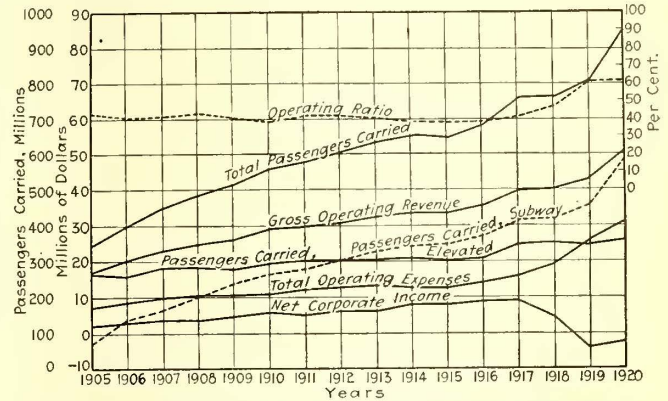
The net operating revenue was \$19,783,202, an increase of \$2,809,318 or 16.6 per cent, the result of a gain on the subway division of \$3,207,177 or 31.3 per cent and a loss on the Manhattan Railway division of \$397,858 or 5.9 per cent.

The number of passengers carried was 955,133,110, compared with 809,335,658 in 1919, an increase of 145,797,452, or 18 per cent. This was the result of a gain on the subway division of 124,951,575 or 27.1 per cent and a gain on the Manhattan Railway division of 20,845,877 or 6 per cent. The gain on the subway division was the result of an increase of 79,840,319 in passengers carried over the lines constructed and equipped under Contract No. 3 and an increase of 45,111,256 in the traffic over the old subway lines.

During the year \$7,619,911 was spent for maintaining the structure, road-way, power houses, electrical equip-

ment and rolling stock, including strengthening of the elevated structure.

The net expenditures during the year amounted to \$5,295,014, including the company's contribution toward new extensions, also the completion of miscellaneous work under way last year. Improvements on the subway included the installation of remote control circuit breakers, and the relocation of section breaks. There were put into service 7.78 miles of new a.c. cables and 2.11 miles of new d.c. cables. On the Manhattan they included the installation of interlocking plants, and signals connected therewith on local and express tracks, block signal system on express tracks, and signaling on local track curves on Second, Third



COMBINATION CHART COVERING FIFTEEN YEARS

and Ninth Avenue lines of the elevated. The operations of the last fiscal year demonstrate that even the subway itself, with all its congestion, cannot, on

INCOME STATEMENT* INTERBOROUGH RAPID TRANSIT COMPANY

Year Ended June 30	1920			1919			Total Percentage Change
	Manhattan Railway Division	Subway Division	Total	Manhattan Railway Division	Subway Division	Total	
Revenue from transportation.....	\$18,469,433	\$29,309,893	\$47,779,326	\$17,422,288	\$23,052,286	\$40,474,574	+18.1
Other street railway operating revenue.....	1,386,005	2,313,080	3,699,085	1,152,714	1,579,922	2,732,636	+35.4
Gross operating revenue.....	\$19,855,438	\$31,622,973	\$51,478,411	\$18,575,002	\$24,632,208	\$43,207,210	+19.2
Operating expenses:							
Maintenance of way and structure.....	1,250,892	2,150,362	3,401,254	1,159,024	1,499,086	2,658,110	+28.0
Maintenance of equipment.....	1,528,869	3,225,543	4,754,412	1,441,476	2,317,639	3,759,115	+26.4
Traffic.....	241	860	1,101	2,683	934	3,617	-69.5
Transportation expenses.....	9,777,378	11,512,603	21,289,981	8,323,457	9,527,755	17,851,212	+19.2
General expenses.....	976,342	1,272,119	2,248,461	928,788	1,032,485	1,961,273	+14.6
Total operating expenses.....	\$13,533,722	\$18,161,487	\$31,695,209	\$11,855,428	\$14,377,899	\$26,233,327	+20.8
Net operating revenue.....	\$6,321,716	\$13,461,486	\$19,783,202	\$6,719,574	\$10,254,309	\$16,973,833	+16.6
Taxes assignable to railway operations.....	2,186,645	436,765	2,623,410	2,251,981	882,175	3,134,156	-16.3
Operating income.....	\$4,135,071	\$13,024,721	\$17,159,792	\$4,467,593	\$9,372,134	\$13,839,727	+24.0
Non-operating income.....	73,523	534,846	608,369	112,358	494,944	607,302	+0.2
Gross income.....	\$4,208,594	\$13,559,567	\$17,768,161	\$4,579,951	\$9,867,078	\$14,447,028	+23.0
Income deductions.....	9,075,383	10,928,613	20,003,996	8,682,662	9,574,706	18,257,368	+9.6
Net corporate income.....	*\$4,866,789	\$2,630,954	*\$2,235,835	*\$4,102,771	\$292,372	*\$3,810,340	+41.3
Dividends.....						1,750,000	.....
Net income.....	*\$4,866,789	\$2,630,954	*\$2,235,835	*\$4,102,771	\$292,372	*\$5,560,340	+60.0
Accruals under Contract No. 3 and related certificates.....	\$7,088,164	\$1,145,396	\$8,233,560	\$5,895,025	\$1,605,046	\$7,500,071	+9.8

* Deficit.

STATISTICAL INFORMATION INTERBOROUGH RAPID TRANSIT COMPANY

Year Ended June 30	1920			1919			Total Percentage Change
	Manhattan Railway Division	Subway Division	Total	Manhattan Railway Division	Subway Division	Total	
Miles of road.....	40.14	62.59	102.73	40.14	60.58	100.72	2.0
Miles of single track.....	135.18	201.26	336.44	135.29	195.13	330.42	1.8
Total passengers carried.....	369,034,477	586,098,633	955,133,110	348,188,600	461,147,058	809,335,658	18.0
Daily average passengers carried.....	1,008,291	1,601,362	2,609,653	953,941	1,263,417	2,217,358	17.7
Per cent expenses to earnings, excluding taxes.....	68.16	57.43	61.57	63.82	58.37	60.71	1.4
Per cent expenses to earnings, including taxes.....	79.17	38.81	66.66	75.95	61.95	67.97	1.9
Passenger revenue per mile of road.....	\$461,500	\$468,000	\$465,000	\$435,000	\$381,000	\$402,000	15.7
Passenger revenue per mile of single track.....	\$136,500	\$145,600	\$142,000	\$128,800	\$118,000	\$122,300	16.1
Passenger cars (motor and trailer).....	2,213	1,816	4,029	2,217	1,806	4,023	.....
Service cars.....	60	57	117	60	57	117	.....
Total all cars.....	2,273	1,873	4,146	2,277	1,863	4,140	.....

a 5-cent fare, earn the interest and sinking fund on the bonds and notes issued for its construction and equipment. While the net corporate income during the past year was \$2,630,954 in excess of fixed charges, it would have to be more than double this amount to pay interest and sinking fund on other moneys invested, including approximately \$100,000,000 by the city. The latter's debt for new subways amounts to between \$200,000,000 and \$250,000,000 and is constantly increasing.

The average yearly increase in passengers carried in the subway since 1905 is 16.4 per cent. The year previous to the opening of the present extensions constituting the "H" system the subway carried 418,337,666 passengers. For the following year 1919 it carried 461,147,058, an increase of 42,809,392 or 10.2 per cent, and during the past year 586,098,633, or an increase of 27.1 per cent. By taking the average yearly increase, if construction of new lines were inaugurated immediately, during the intervening period, estimated at four years, before operation of new lines could be commenced, there would be added to the number now carried each year 489,088,652 passengers, almost doubling the present number in the four-year period.

Frank Hedley, president and general manager of the Interborough, in commenting upon the future of the company, discussed the possible conditions if the Interborough went into the hands of a receiver. He said that if a receivership was followed by the cancellation of the elevated railroad lease, it would involve serious loss to the public both in transportation privileges and in money.

The Manhattan Railway is an integral part of the Interborough system and is being operated for the same fare as the subway. If the lease is broken and it is operated separately, the fare on certain of its lines may under its charter be increased to 10 or even 15 cents. In that event a large proportion of the passengers now using that line would undoubtedly attempt to use the subway. The result would be disastrous from the operating standpoint.

The subway has carried more than 4,000,000,000 passengers since it opened on Oct. 27, 1904, with a loss ratio of passengers on trains of less than two passengers to 1,000,000,000 carried.

In the accompanying chart, covering the operation of the Interborough from 1905 to 1920, are shown the yearly increases and decreases of several items. The operating ratio was about 40 per cent until 1918. It was 61.7 per cent in 1920. The total passenger traffic has been increasing considerably each year. In 1905, 339,104,820 passengers were carried; in 1915, there were 647,378,266, almost doubling those in 1905, and in 1920, only five years later, the passengers carried almost trebled those of 1905, reaching the total of 955,133,110. This increase in the number of passengers has been mainly due to the subway increase.

Riding Habit Shows Increase

Despite Increase in Average Fare, Passengers per Car-Mile Increase from 7.3 to 7.5

Conditions in the electric railway industry during the last six months are reflected in the accompanying tables of operating statistics compiled by the bureau of information and service of the American Electric Railway Association from the monthly operating reports of fifty electric railways. On the whole the tables are encouraging. While there is no indication that the electric railways will have to struggle with the difficulties and problems said to accompany a too sudden visitation of prosperity after lean years, there is evidence that by wise management and careful economy the companies may manage to keep themselves off the rocks until the slowly returning tide of good business conditions sets in and lifts them gently but none the less surely beyond the reach of possible default, receivership and foreclosure.

THE most favorable feature of these tables is the increase in the net income after all expenses and charges were paid. Table I shows that the net income, or profits, of these fifty companies increased from \$3,506,965 in the six months ended June 30, 1919, to

The increase in net income should be considered always in connection with this ratio of net income to revenue or one is apt to be led to misleading conclusions.

It should not be forgotten also that the increase is calculated over a

TABLE I—COMPARATIVE SUMMARIZED INCOME STATEMENT OF FIFTY ELECTRIC RAILWAYS FOR THE SIX MONTHS ENDED JUNE 30, 1919 AND 1920

	Six Months Ended		Increase or (d) Decrease	Per Cent Increase
	June 30, 1920	June 30, 1919		
Railway operating revenue.....	\$94,414,507	\$79,032,511	\$15,381,996	19.5
Railway operating expenses.....	72,208,325	58,901,475	13,306,850	22.6
Net operating revenue.....	22,206,182	20,131,036	2,075,146	10.3
Operating ratio (per cent).....	76.5	74.5	.....	.....
Net revenue: Auxiliary operations.....	\$4,214,060	\$3,423,253	\$790,807	23.1
Taxes.....	5,868,809	5,248,082	620,727	11.8
Operating income.....	20,551,433	18,306,207	2,245,226	12.3
Non-operating income.....	2,084,354	1,861,676	222,678	11.9
Gross income.....	22,635,787	20,167,883	2,467,904	12.2
Deductions from gross income.....	17,124,030	16,660,918	463,112	27.8
Net income.....	5,511,757	3,506,965	2,004,792	.....
Ratio: Net income to operating revenue.....	5.8	4.4	.....	.....

\$5,511,757 for the same period in 1920. On a per car-mile basis, as shown in Table III, these profits amounted to 1.6 cents per car-mile in 1919 and 2.5 cents in 1920.

year which was next to the worst one in the history of the industry, when the margin of profit was not far from the vanishing point. If the net incomes for the last five years of a group of

TABLE II—COMPARATIVE SUMMARIZED STATEMENT OF THE OPERATING EXPENSES OF FIFTY ELECTRIC RAILWAYS FOR THE SIX MONTHS ENDED JUNE 30, 1919 AND 1920

	Six Months Ended		Increase 1919-1920	Per Cent Increase
	June 30, 1920	June 30, 1919		
Way and structures.....	\$9,062,506	\$7,433,558	\$1,628,948	21.9
Equipment.....	8,945,533	7,919,729	1,025,804	13.0
Power.....	9,762,125	8,829,480	932,645	10.6
Conducting transportation.....	32,261,860	25,671,933	6,589,927	25.7
Traffic.....	154,117	127,313	26,804	21.1
General and miscellaneous.....	9,174,637	7,666,861	1,507,776	19.7
Transportation for investment—Cr.....	51,834	41,084	10,750	26.2
Total operating expenses.....	\$72,208,325	\$58,901,479	\$13,306,846	22.6
a Includes \$2,899,381 undistributed expenses.				
b Includes \$1,293,689 undistributed expenses.				

The ratio of net income to operating revenue is shown in Table I to have been 4.4 per cent in 1919 and 5.8 per cent in 1920. This means that out of every dollar taken in as revenue the company's share amounted to 4.4 cents in 1919 and 5.8 cents in 1920.

companies is placed side by side, it will be seen at a glance that the industry was a long way from the normal conditions prevailing in 1914. However, any disposition to exaggerate the importance of the increase in net income should be immediately restrained by

TABLE III—COMPARATIVE SUMMARIZED INCOME STATEMENT (ON A CAR-MILE BASIS) OF FIFTY ELECTRIC RAILWAYS FOR THE SIX MONTHS ENDED JUNE 30, 1919 AND 1920

	Six Months Ended		Increase or (d) Decrease (Cents per Car-Mile)	Per Cent Increase
	June 30, 1920 (Cents per Car-Mile)	June 30, 1919 (Cents per Car-Mile)		
Railway operating revenue.....	43.0	36.8	6.2	16.8
Railway operating expenses.....	32.9	27.4	5.5	20.1
Net operating revenue.....	10.1	9.4	0.7	7.4
Operating ratio (per cent).....	76.5	74.4	.....	.....
Net revenue: Auxiliary operations.....	1.9	1.5	0.4	18.7
Taxes.....	2.6	2.4	0.2	8.3
Operating income.....	9.4	8.5	0.9	10.6
Non-operating income.....	0.9	0.9	.....	.....
Gross income.....	10.3	9.4	0.9	9.6
Deductions from gross income.....	7.8	7.8	.....	.....
Net income.....	2.5	1.6	0.9	.....

a consideration of the ratio of the net income to the revenue. In spite of the increase in the net, this ratio amounts to less than 6 per cent and when it is remembered that out of this 6 per cent, sinking funds and other reserves must be credited, it can be appreciated that there is apt to be little left for dividends—nothing at all in fact for the common stock.

OPERATING RATIO INCREASES

Another significant feature of the tables is the increase in the operating ratio, which rose from 74.5 per cent in

Fixed charges remained practically constant. There was an increase of 2.8 per cent in the actual amount, but the amount per car-mile, 7.8 cents, was the same in both years. This would indicate that very little new financing has been done by these companies, due, probably, to the high price of money.

OPERATING EXPENSES INCREASE

In Table II the operating expenses of these fifty companies are subdivided according to the main divisions of the Interstate Commerce Commission's classification of accounts, and the per

months increased 10.6 per cent in 1920 over 1919. The cost per car-mile in 1919 was 4.1 cents and in 1920 4.4 cents, an increase per car-mile of 7.3 per cent.

The general and miscellaneous operating expenses, including the cost of injuries and damages and the salaries of general officers and general office clerks, increased 19.7 per cent. The cost per car-mile of this item was 3.6 cents in 1919 and 4.2 cents in 1920, the increase per car-mile being 16.7 per cent.

RIDING HABIT GROWS

In Table V are shown the revenue passengers, passenger revenue, transfer passengers, car-miles operated, miles of single track and number of cars operated daily. Following these are a number of ratios derived from the above data. The most interesting of these is probably the average fare per passenger, which, as before mentioned, increased from 6.1 cents in 1919 to 7.0 cents in 1920.

Another interesting fact brought out in this table is the increase in the number of passengers per car-mile from 7.3 in 1919 to 7.5 in 1920. This increase in the riding habit is especially significant at this time in conjunction with the increase in fare, and refutes the statement, often made, that higher fares would stunt the growth of electric railway transportation.

The ratio of transfer passengers to revenue passengers fell off slightly, from 25.0 per cent to 24.3 per cent, reflecting the elimination of fare transfers by a number of electric railway companies.

The number of car-miles per car and per mile of single track increased slightly, indicating more efficient use of the existing equipment.

Duluth Decrease Continues

A falling off of \$21,918 was shown in the net income of the Duluth-Superior Traction Company, Duluth, Minn., during July, as compared with three years ago. Though the company's gross revenue gained \$20,624, operating expenses scored an increase of \$37,665. For the year to July 31, the net income of the system showed a decrease of \$131,140, as compared with the same period in 1917, though the gross revenue increased \$229,037.

Comparative operating figures of the railway for July and for the year to Aug. 31 as reported by the company were:

Month of July	1920	1917
Gross revenue.....	\$163,339	\$142,715
Operating expenses.....	125,609	87,944
Net revenue.....	\$37,730	\$54,771
Interest, sinking fund, and taxes.....	29,604	24,727
Net income.....	\$8,126	\$30,044
Year ended Aug. 31	1920	1917
Gross revenue.....	\$1,145,487	\$916,450
Operating expenses.....	922,048	577,340
Net revenue.....	\$223,439	\$339,110
Interest, sinking fund, and taxes.....	182,729	167,260
Net income.....	\$40,710	\$171,850

TABLE IV—COMPARATIVE SUMMARIZED STATEMENT (ON A CAR-MILE BASIS) OF THE OPERATING EXPENSES OF FIFTY ELECTRIC RAILWAYS FOR THE SIX MONTHS ENDED JUNE 30, 1919 AND 1920

(Subdivided according to the Interstate Commerce Commission classification)

	Six Months Ended			Per Cent Increase
	June 30, 1920 (Cents per Car-Mile)	June 30, 1919 (Cents per Car-Mile)	Increase, 1919-1920 (Cents per Car-Mile)	
Way and structures.....	4.1	3.5	0.6	17.1
Equipment.....	4.1	3.7	0.4	10.8
Power.....	4.4	4.1	0.3	7.3
Conducting transportation.....	14.7	12.0	2.7	22.5
Traffic.....	0.07	0.06	0.01	16.7
General and miscellaneous.....	4.2	3.6	0.6	16.7
Transportation for investment—Cr.....	0.02	0.02	.....	.....
Total operating expenses.....	a32.9	b27.4	5.5	20.1

a Includes 1.3 cents per car-mile undistributed expenses.
b Includes 6 cents per car-mile undistributed expenses.

1919 to 76.5 per cent in 1920. The cause of this is not far to seek—expenses are still increasing faster than revenues, as Table I clearly shows. Revenues increased 19.5 per cent while expenses were increasing 22.6 per cent. Only the increase in fares ameliorated the situation.

Reference to Table V shows that the average fare of these fifty companies

cent increase of each item is shown. It will be noted that the cost of conducting transportation shows the greatest increase, 25.7 per cent, which, of course, was to be expected as it includes the wages of trainmen and consequently reflects the recent increases in the price of labor. It cost these fifty companies \$6,589,927 more to operate their cars during the first

TABLE V—MISCELLANEOUS STATISTICS AND DERIVED RATIOS FOR THE SIX MONTHS ENDED JUNE 30, 1919 AND 1920, OF THE FIFTY COMPANIES SHOWN IN TABLES I TO IV

	Six Months Ended	
	June 30, 1920	June 30, 1919
Revenue passengers.....	1,306,067,021	1,246,096,316
Passenger revenue.....	\$74,530,625	\$60,930,523
Transfer passengers.....	324,472,362	311,825,847
Car-miles operated.....	219,447,784	214,708,299
Miles of single track.....	7,265	7,265
Average maximum number of cars operated daily (38 companies).....	9,168	9,168
Ratio: Transfer passengers to revenue passengers (per cent).....	24.3	25.0
Average fare per revenue passenger.....	7.0c.	6.1c.
Revenue passengers per car-mile.....	6.0	5.8
Total passengers (revenue and transfer), per car-mile.....	7.5	7.3
Car-miles per car-annually thirty-eight companies.....	*38,500	*37,804
Car-miles per mile of single track—annually.....	*60,406	*59,102
Passenger revenue per mile of single track—annually.....	*\$25.186	*\$25.20
Passenger revenue per car-mile.....	41.7c.	5.4c.
Passenger revenue per maximum revenue car operated—annually.....	*\$16,258	*\$13,292

* Estimated figure for the year based on six months' report.

increased from 6.1 cents in 1919 to 7.0 cents in 1920 or 15 per cent. Without this increase in fares the moderate surplus now shown would have been a deficit too large for the industry to carry.

The electric railways continue, however, to pay their share of taxes. In 1919 taxes amounted to \$5,248,082 and in 1920 to \$5,868,809, an increase of 11.8 per cent. Table III shows this amounts to 2.4 cents per car-mile in 1919 and 2.6 cents per car-mile in 1920, a greater amount, it will be noted, than the net income. These companies paid more money to the government in taxes than they took out of the business in profits.

six months of 1920 than it did during the same period in 1919.

The next item in point of increase was maintenance of way and structures, which increased 21.9 per cent. Maintenance of equipment, on the other hand, increased 13.0 per cent. Both increases were due to increased costs of labor and materials. The relatively greater increase in the costs of maintenance of way and structures was probably caused by the companies spending extra amounts on improving their lines this year to make up for deferred maintenance during the war period.

The actual cost of power to operate the cars of these companies for six

Conference Committee Appointed

At the annual meeting of the stockholders of the Union Traction Company, Philadelphia, Pa., on Sept. 15, the retiring directors were re-elected, except that John A. Murphy was chosen to fill the vacancy caused by the resignation of Thomas E. Mitten.

The directors met on Sept. 20 and re-elected the retiring officers. Action was taken upon a letter received from the Philadelphia Rapid Transit Company asking for a conference with representatives of the board, to discuss the issuance of \$6,000,000 equipment trust certificates. The following committee was appointed: Joseph Gilfillan, Charles Heed, Charles McManus and Arthur Morton.

After the meeting all inquiries were referred to Mr. Gilfillan. He said the sub-committee appointed is really a continuance of the old committee, and cannot consider or even discuss the rentals of the underlying companies. When asked as to what the sentiment of the board meeting was regarding the helping of the Philadelphia Rapid Transit Company over its present difficulties he said that "the United Traction is willing to go in and help the Philadelphia Rapid Transit all we can."

Financial News Notes

Midland Road Resumes.—The first car to be put into operation for passenger service on the Midland Railway, Staten Island, N. Y., which suspended in January, left St. George, S. I., at 8 o'clock on Monday, Sept. 20, for Four Corners.

Car-Finance Plan Before Commission.—The Empire State Railroad Corporation, Syracuse, N. Y., has asked the Public Service Commission for the Second District, for authority to issue \$70,000 in equipment trust notes to enable the company to purchase three new interurban cars, one double-truck snow sweeper and one double truck snow plow.

No Payment on London Underground Incomes.—The New York Stock Exchange on Aug. 30 was informed that the profits of the Underground Electric Railways, Ltd., London, England, for the six months ended June 30, 1920, do not warrant the payment of any interest on the 6 per cent income coupon bonds, due in 1948, and therefore Coupon No. 25 has no value.

Syracuse Lines Valued.—The commission which has been considering the street railway situation as it affects the Syracuse lines of the New York State Railways has reported a present property value of \$12,450,000 against \$21,012,201 claimed by the corporation. It has also, in its report to the Mayor,

suggested a 10-cent cash fare and a ticket fare of 7½ cents under a service-at-cost arrangement. The report is referred to at length elsewhere in this issue.

Memphis Went Behind.—The report of the Memphis (Tenn.) Street Railway for August will show a deficit of approximately \$13,000 according to unofficial information. Officials of the company declare that had the 7-cent fare been effective throughout the month, however, a surplus of several thousand dollars would be shown. Approximately 4,500,000 passengers were carried during the month. This is regarded as good business for that particular month. Seven-cent fare became effective on Aug. 18, giving the company fourteen days under the increased rate during the month.

St. Louis Earnings Improve.—The United Railways, St. Louis, Mo., cleared \$235,092 for the month of July, according to the monthly report of Rolla Wells, receiver, filed in the United States District Court. The receipts were \$1,730,704, while disbursements were \$1,495,612. The balance on hand July 30 was \$585,602. On June 30 the balance was only \$350,511. The receiver has deposited \$83,165 for the payment of bond coupons, \$50,000 of the amount being set aside to take care of the St. Louis & Suburban Railway consolidated mortgage bonds. Bond coupons due since the receiver took charge amount to \$610,887, according to the report. A report for the Missouri Electric Railroad was also filed. It gives receipts at \$22,650 and disbursements at \$13,627.

Sale of Collateral Ordered.—The 181,860 shares of stock of the American Railways, Philadelphia, Pa., pledged as collateral for the 4-6 per cent bonds of the National Properties Company, will be sold at public auction on Nov. 8 at the Federal Building, Wilmington, Del., by special master. The proceedings in the case were instituted by the Continental-Equitable Trust Company, trustees for the bonds, at the request of the so-called Randolph committee. The order for sale was made by the United States District Court. The plan provides the usual authority for the committee to buy in the collateral at the sale for purposes of the proposed reorganization. The plan for the reorganization has been referred to previously in the ELECTRIC RAILWAY JOURNAL.

\$1,000,000 Reissue Proposed.—The Dallas (Tex.) Railway has applied to the City Commission for permission to reissue \$1,000,000 gold certificate notes, which matured on June 15, 1920, and at that time were taken up by the General Electric Company. In its application for permission to reissue the notes, Richard Meriwether, vice-president and general manager of the traction company, explains that this note issue of \$1,000,000 was originally sold to Scandinavian interests and bore 7 per cent interest. A bonus of \$50,000 was paid to the Scandinavian interests, which brought the cost of the money to 9 per

cent. The company can now reissue these notes and effect a saving of 2 per cent, Mr. Meriwether explained, by extension of date of maturity to Dec. 1, 1927, as the General Electric Company has agreed to carry these notes to this date at 7 per cent.

Seeks to Issue Bonds for Improvements.—The Poughkeepsie & Wappingers Falls Railway, Poughkeepsie, N. Y., in an application to the Public Service Commission for the Second District, asks for authority to issue \$243,000 of 6 per cent mortgage bonds, to realize not less than \$208,980 instead of \$130,000 authorized by the commission in July, 1919, for new construction and betterments to its system between Poughkeepsie and Wappingers Falls. The company alleges that changes in the market prices of materials and labor have occurred since 1919 and that the estimated cost of \$130,000 does not represent amounts which will in all cases be required to be expended for prosecution of the work. The company now asks that the \$130,000 order be so amended as to permit the company to issue the larger amount of bonds, to be charged to the company's fixed capital.

Sale of Carhouse Properties Authorized.—For the benefit of the first mortgage holders Judge Julius M. Mayer in the Federal District Court at New York has issued a decree of foreclosure and sale directing the receiver for the New York Railways to sell five large parcels of property now in his possession. An upset price of \$2,500,000 is put upon parcel A, which contains the entire block between Thirty-second and Thirty-third Streets and Fourth and Lexington Avenues; parcel B, comprising 711 to 717 East Eleventh Street; parcel C, most of the frontage between East Tenth and East Eleventh Streets, Avenue C and Dry Dock Street; parcel D, the block front on the west side of Madison Avenue between Eighty-fifth and Eighty-sixth Streets, and parcel E, a plot between Broad and Moore Streets, consisting of a storage warehouse building on a plot.

Redemption Plan Advanced.—Rolla Wells, receiver for the United Railways, St. Louis, Mo., has issued a circular to bondholders of the old St. Louis Railroad offering to replace the 4½ per cent bonds of the old company with three-year receiver's certificates bearing 7 per cent interest. The bonds aggregate \$1,900,000. They matured on May 1, but under the terms of the mortgage, six months grace was allowed. This period of grace ends on Nov. 1, when the bonds must be paid if a foreclosure is to be avoided. The bonds are a lien on only one line, the Broadway line. Some opposition to the plan has been manifested by bondholders because the receiver proposes to pay only 4½ per cent interest upon the bonds for the period of grace instead of 6 per cent. Several bondholders contend also that the receiver's certificates should bear interest at 8 per cent or better instead of 7 per cent in view of existing rates for money on loan.

Traffic and Transportation

Retrenchment Ordered

Cincinnati Company Directed to Cut Non-Rush-Hour Service to Preserve 8-Cent Fare

Adoption by the Cincinnati (Ohio) Traction Company of a policy of retrenchment has been ordered by William C. Culkins, City Street Railway Director. Mr. Culkins has directed the railway to cut its non-rush-hour service to the bone and to introduce other economies of operation. These steps are necessary, states Mr. Culkins, if the company is to continue to operate on an 8-cent fare.

INCREASE IN BUDGET REFUSED

The railway recently applied to Mr. Culkins for an increase in its operating allowances which, if granted, would have raised the total of operating expenses for the current year from \$5,499,346 to \$6,373,434. The company stated that this supplementary allowance was made necessary by the advance in costs incidental to the recent switchmen's strike and the award of an 18 per cent raise in pay to its employees. Mr. Culkins denied the company's request, ordering the reduction of service as an alternative. In taking this course he maintained that by adhering to a policy of rigid economy the railway would be able to care for the added operating costs at the present fare.

Under Mr. Culkins' plan service is to be adjusted to meet varying traffic conditions. A recent traffic survey showed that the number of cars operated during the non-rush-hour periods was unnecessarily large. The standard of service called for under the new ruling requires that during the non-rush hours there shall be provided in each half-hour period an average of as many seats as there are passengers. During the morning and evening rush hours sufficient cars are to be operated in each quarter-hour period to provide fifty seats for each eighty passengers on cars of the cross-seat type and fifty seats for each 100 passengers on cars of the longitudinal-seat type.

Mr. Culkins explained the reasons for his order as follows:

The change of a few minutes in headways during the middle of the day would produce no appreciable inconvenience, but would materially reduce the operating expenses on the whole system and benefit the car-riding public, who will, I am sure, cooperate cheerfully in the working out of any economy which does not reduce service below the standard established.

ECONOMIES SUGGESTED

I call your attention to the matter of improved running time on many lines and adjustments on others and the substitution as soon as possible of double-truck for single-truck cars where conditions allow. As soon as finances permit cars should be equipped with fare boxes, and whenever necessary remodeled to standardize collection methods, and with recording meters for better

control and saving of power. One-man car operation, through-routing, cross-town connections and other matters have been previously called to your attention, and the need of conservation is greater now than at any other time.

The total supplementary allowances requested would increase the total operating expenses for the year 1920 from \$5,499,346 to \$6,373,434 and require a total including taxes, rentals and other deductions of \$9,628,111. The total receipts for the first eight months of this year were \$5,809,471.

TRAFFIC INCREASE SLIGHT

It seems reasonable, however, in view of the fact that the unusual weather and other conditions in the past summer were abnormal, to expect an increase in traffic, but the number of revenue passengers for the last four months of 1920 will probably not

133 Cities, Approximately 10,000,000 People, Paying More Than 7c Fares

Cost of Street Railway Transportation Varies

As Cost of Production Varies

On July 1, 1920, 133 cities in the United States, representing approximately 10,000,000 people, were paying more than a "street car fare".

These cities have changed their rate of fare many times, in an effort to produce sufficient earnings to care for necessary repairs.

The theory of a fixed fare (6c, 7c, 8c, or even 10c) has been explained. Thinking people now realize that the fare laws that govern the cost of concrete and clothing must govern transportation.

All of these factors, uncertain and unstable, create conditions that make it impossible for the Traction Companies to determine in advance just what rate of fare must be charged.

The public generally has extended the right of "Service at a Fair Profit," and also means that the Traction Companies of today must base their rates on the cost of production. When the cost of production reaches a definite level, fare rates can be determined with some certainty.

Do You Know That—

The street car business in San Antonio paid in city, county or State taxes during the year 1919 \$120,467.11 and during the year 1920 has paid \$151,261.13

(Figure how many "fares" must be taken in to pay these taxes.)

And do you know, that the company's pending obligations are a great deal more than these listed here?

(Read this Editorial from the Elgin, (Illinois) Daily News)

STREET CARFARE

It would seem that the street car business in this city has not only increased its operating expenses, but also its tax burden. There is an obvious need for a better plan for the operation of the street car business.

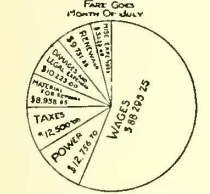
The Company desires to place all the facts regarding its operation tomorrow for further information concerning YOUR Street Railway

The San Antonio Public Service Company

Street Railway Fares Effective Monday, August 16

Cash Fare 8c
Metal Tickets, Four for 30c
Those entitled to half fare will pay as follows:
Cash Half Fare 4c
Half Fare Tickets, Four for 15c
Net Metal Fare Rate 7 1/2c
Net Half Fare Ticket Rate 3 3/4c
Metal and Half Fare Tickets may be purchased on cars or at offices. Metal and Half Fare Tickets will not be sold in smaller lots than four.

Fearing that the public is interested in the distribution of street car fares, detailed figures for the month of July are given herewith:



AVAILABLE FOR INTEREST ON INVESTMENT—NOTHING

FACTS THAT NEED NO COMMENT
San Antonio's Municipally Owned Street Railway has raised street railway fares 100 per cent. Effective July 25th the cash fare was established.

NEWSPAPERS AND PUBLIC UTILITIES
Read This Editorial From the Montrose (Ill.) Press

FORCE OF HABIT
As a general proposition, public utility corporations are the best of all businesses the public can have. They are, in fact, a part of the life of the community. They are the only business that can be run on a non-profit basis. They are the only business that can be run on a public basis. They are the only business that can be run on a cooperative basis. They are the only business that can be run on a democratic basis.

Read the Papers tomorrow for further information on the Street Railway situation
San Antonio Public Service Co.

Street Railway Fares Seeking Higher Level

The process of readjusting street railway fares to the depreciated dollar is proceeding all over the country. Initial increases have generally proven insufficient to meet the still rising costs of operation. At this time it seems impossible to arrest any point at which street railway fares will come to a rest July 1, 1920, the following rates obtained in the country:

69 cities charging 10c fares
2 cities charging 9c fares
30 cities charging 8c fares

32 cities with a 7c basic fare, plus additional transfer charges or special zone charges.

All but 56 of the 273 cities in this country having a population of over 25,000 had obtained one or more fare increases as of February 1, 1920.

Throughout the entire country this period of experimentation with different rates is in progress.

The principle of "Service at a Fair Profit" is being generally recognized. Street railway fares are rapidly seeking a higher level.

The following editorial from Leslie's Weekly is an expression of sentiment, showing the new attitude of the public toward the Traction industry and toward increased rates.

San Change in Public Sentiment
The public is beginning to realize that the street car business is not a business that can be run on a non-profit basis. It is a business that can be run on a public basis. It is a business that can be run on a cooperative basis. It is a business that can be run on a democratic basis.

The Company desires to place all the facts regarding its operation before the public. Read the papers tomorrow for further information concerning YOUR Street Railway

The San Antonio Public Service Company

THESE FARE "ADS" GOT RESULTS

exceed 42,500,000, or 2,500,000 more than in 1919. This would produce at an 8-cent fare approximately \$3,440,000, or a total for the year of \$9,249,000, or \$379,000 less than the total allowance under the supplementary budget as requested. However, I am of the opinion that with the economies suggested the company will be able to pay the new wage scale and still materially reduce expenses so that it will be possible to avoid increasing the present rate of fare.

Safety Cars for Jersey

One-man safety cars have made their appearance on the lines of the Public Service Railway of New Jersey. Several months ago the company ordered 200 of these cars together with 100 trailer cars for use on the various parts of its system. The first batch of "safeties" has now arrived and the cars have been placed in service on three lines in Paterson, an industrial center in the northern part of the state. As more cars are commissioned for service they will be placed in operation in other cities served by the railway.

of the proposed change in fare in its cars, it ran large advertisements in the San Antonio daily newspapers, explaining to the public just why higher fares were necessary.

S. J. Ballinger, the company's advertising and commercial manager, was in charge of this educational work. Mr. Ballinger reports that there was little opposition on the part of the car riders to the increase in fare. The 8-cent fare took effect on Aug. 16. Four tickets are sold for 30 cents. Three of the "ads" used by Mr. Ballinger to tell his fare "story" are reproduced above.

In February last the company replaced the zone system with a flat 7-cent fare. Meanwhile the city sought an injunction in the federal courts, and being denied the relief sought, it appealed to the Supreme Court of the United States. The city's appeal is expected to come before the court at the December term.

P. R. T. Must Have More Income

Need for Fare Relief Urged by President Mitten in Statement Before Council Committee—Company "Severely Penalized"

Thomas E. Mitten, president of the Philadelphia Rapid Transit Company, appeared before the members of the transportation committee of the City Council on Sept. 21 to amplify his letter of Sept 14 and to describe the present emergency which confronts that company. Acting under the provision of the 1907 agreement, which requires that fares may be changed from time to time only with the consent of both parties, the company has petitioned the city to assent to the collection of a straight 5-cent fare without transfer or exchange tickets. This is intended as a measure of temporary relief, to continue until the value of the company's property, for rate making purposes, can be finally determined, as required by law.

THE full inventory of the company's property was expected to be ready for presentation to the Public Service Commission on Sept. 23; the pricing of the parts is incomplete, but is expected to be accomplished with sufficient rapidity to keep ahead of the city and Public Service Commission representatives, so that there need be no delay. Verification of the valuation cannot be completed for rate making purposes for many months to come. Meantime, the company must have more money or go to the wall. A synopsis of Mr. Mitten's statement follows:

The company's operating statement, just made public, shows a deficit of \$425,354 for the month of August. An accumulated deficit has been built up by months, in varying amounts, until the deficit now represents \$1,151,628 for the eight months ended August 31. The operating deficit for the next twelve months will exceed \$4,000,000, against which the straight 5-cent fare, without transfers or exchanges, is estimated to bring in about \$350,000 a month. The need of increased earnings is two-fold: the amount required to pay actual operating costs being necessary in order that the cars may be kept running; the amount to pay the agreed 5 per cent dividend on P. R. T. stock is required in order that P. R. T. credit be sufficiently established as to make its guarantee on bonds issued for desired extensions of sufficient value to make them salable.

BENEFITS OF AGREEMENT ANALYZED

Under the agreement of 1907 it was evidently intended that any change in fares should be justified before being agreed to by the city. The true test of a contract, after its having been in effect for thirteen years, and the fairness of its terms, is best determined by a review of the benefits actually received by each of the parties.

The 1907 agreement was accepted by the press and public representatives, after much publicity and investigation, as being the most perfect solution then possible.

The P. R. T. stockholder had already paid in \$18,000,000 and was induced by the making of the 1907 agreement to pay in the remaining \$12,000,000 of the \$30,000,000 P. R. T. capital stock, in the hope and expectation that he would receive 6 per cent per annum on both the \$18,000,000 which he had formerly paid in, as well as 6 per cent per annum on the \$12,000,000 of new money which he was required to pay in under the terms of the 1907 agreement.

What has been the result to this hopeful P. R. T. stockholder? As against his having received 6 per cent per annum on the whole \$30,000,000 of paid in capital, as he had been led to believe, and which would in total represent \$24,000,000, he has actually received in dividends only \$5,847,000. P. R. T.'s stock is, at present market, worth only \$14 a share, or an aggregate of 8,400,000, as against its paid in capital of \$30,000,000.

The P. R. T. stockholder has never received any return upon his \$18,000,000 paid in prior to 1907, and has received an average of 3 per cent per annum upon the \$12,000,000 paid in under the terms of the 1907 agreement. The entire \$30,000,000 of capital stock, if sold on today's market, would bring back only \$8,400,000, or \$3,600,000 less than the money paid in by the stockholder after the making of the 1907 agreement.

What has been the result to the city of

Philadelphia during this same period since 1907?

The city secured the completion of the Market Street elevated, by which West Philadelphia taxable values were increased considerably more than \$100,000,000. This high-speed line is more than \$5,000,000 short of having earned 6 per cent per annum upon its actual cost, but it has been, and is still supplying, a combined elevated and surface car ride for 5 cents, which cannot be continued. It has been urged that the city's consent to increased revenue should be withheld until a valuation is determined, or until something could be done to reduce the rentals to underlying companies. If the city now makes the mistake of refusing to consent to an immediate increase in revenue, P. R. T. must fail, and the city will have exchanged the substance of a management which has already saved millions in operating costs, for a shadow, which is represented in the hope of decreasing P. R. T.'s fixed charges, through the valuation of its property, or a reduction in underlying rentals, neither of which can possibly offset the loss which would follow a return to conditions of labor and management such as were formerly here.

Except for the good work of P. R. T.'s men there is no reason why the Public Service Commission would not before this have been obliged to give the same relief to P. R. T. by way of a 10-cent fare, as the commission has already allowed in Pittsburgh.

No other street-car company in the state has served its city during the war in any way to compare with P. R. T.

No other company serves its people so well and no other company has such a priceless asset to the city it serves as is represented in the loyalty and faithful service of P. R. T. employees; and yet P. R. T. is the only electric railway in Pennsylvania that has been thus far refused increased revenue at the hands of the Public Service Commission.

The Mayor and City Council have urged that the question of increased revenue is for the city to decide under the terms of the 1907 agreement. The company has met this suggestion by withdrawing its July application from the Public Service Commission, and now rests its case, hoping that the city, having assumed the responsibility, will rise to the emergency and assent to the temporary relief required to save P. R. T. from bankruptcy.

Seven Cents in Fort Wayne

The Indiana Public Service Commission, finding that the Indiana Service Corporation, Fort Wayne, has been operating the Fort Wayne city lines at less than a fair profit, has authorized a temporary fare rate of 7 cents with four tickets for 25 cents. The new rates are to stand for a period of sixty days from Sept. 15, pending the final decision of the commission, which will be made as soon as possible.

Robert M. Feustel, president of the company, states that all the employees of the company will be given a wage increase which will total about \$150,000 a year. The men operating the city cars will be given a new scale of 46 to 53 cents an hour. They formerly received 40 to 45 cents. This advance in pay is being granted in spite of the uncer-

tainty concerning the final decree of the commission because, Mr. Feustel says, the company believes that the employees are entitled to recognition for their loyal services during this abnormal period.

Mr. Feustel also expresses the hope that the new wage scale will alleviate the labor shortage from which the company has been suffering for some time. The shortage of men has been felt very keenly by the company and for several weeks there have not been sufficient trainmen to take out all scheduled cars. Track improvement work has also been hindered by the shortage of labor.

In its permanent order the commission is expected to authorize the service-at-cost plan for the local lines. In case this plan should be adopted the initial fare will probably be the same as the rate under the temporary increase.

Service Resumed in Bridgeport

Electric cars made their reappearance in Bridgeport, Conn., on Sept. 20. Their return marked the termination, temporarily, at least, of a long-drawn-out controversy between the Connecticut Company, operating the Bridgeport lines, and the local jitney drivers. It also marked the end of trolley-jitney competition in Bridgeport, a condition of the resumption of service by the company being that motor buses should no longer be permitted to operate in the principal thoroughfares served by the railway.

Bridgeporters were without trolley service for exactly eight weeks. Early in July the company announced that, unless jitney competition were curbed by the city authorities, it would be forced to cease operation of its local lines. The Bridgeport Common Council, after an investigation of local traffic conditions, passed an ordinance which, it was thought, would solve the problem by placing the buses under rigid control. This measure was declared illegal by Judge Banks on the ground that it delegated the power of the Council to regulate traffic to the board of police commissioners.

The company thereupon suspended service on its Bridgeport division. The Council took no immediate action looking to the passage of a new jitney ordinance free from the features ruled out by Judge Banks. Finally, acceding to popular demand for the restoration of trolley service, the Council passed an ordinance barring the buses from the streets containing electric railway tracks. The new law, which also became effective on Sept. 20, designates five routes which the jitanes are required to follow. The bus service is thus made complementary to rather than competitive with that of the railway.

An ordinance barring jitanes from certain streets was recently passed by the Board of Aldermen of New Haven. The measure designates eleven thoroughfares from which the buses are barred.

London Tubes Raise Rates

A bill has been passed by Parliament giving permission to the London Underground Railways to raise their fares. The powers granted to the companies under the new act will permit the continuance of the policy of preference to the long-distance passenger. Under the terms of the act the Underground systems are empowered to charge ordinary fare at a rate not exceeding 1½d. a mile or part of a mile with a minimum of 2d., while workmen's tickets will be issued up to 7:30 a.m. on all the systems, and will be available for the return trip any time during the day, at a rate not exceeding the ordinary single fare on the double trip, with a minimum of 3d. (return).

In a recent statement issued by the companies, it is pointed out that these are maximum rates, designed to provide the companies with a reasonable margin within which to operate, without the necessity of constant reference to Parliament. Even for short trips in the inner areas it may not be necessary to make full use of the maximum charge. It is pointed out that the necessary increases will be imposed where they will be least felt, and the long-distance fare under the new schedule will still be found to work out at a very cheap mileage rate, both positively and relatively.

Transportation News Notes

Searchlight Trips Resumed.—The Niagara Gorge Railway, Niagara Falls, N. Y., has resumed the operation of searchlight trips through the lower gorge of the Niagara River. A flat car equipped with powerful electric searchlights accompanies passenger cars on the trip through the gorge.

May Raise Astoria Fare.—Guy Talbot, president of the Pacific Power & Light Company, Astoria, Ore., has announced that the company will shortly take steps to raise the fare on its Astoria lines. The new rate would be 7 cents. The company now charges a 5-cent fare.

Six Cents on Arkansas Lines.—The City Council of North Little Rock, Ark., has passed an ordinance authorizing the Intercity Terminal Railway to charge a 6-cent cash fare on its local lines. The company is now charging a 5-cent fare. Before becoming effective the increase must be approved by the Arkansas Corporation Commission.

Freight Rates Up in Minnesota.—Thirteen electric railways operating interurban lines in Minnesota have received permission from the State Railroad & Warehouse Commission to raise their freight rates. The advance in the charge for transporting milk is 20 per

cent. Rates for other commodities are advanced 35 per cent.

Standeers May Be Barred.—Standing between the seats of open cars on the New Bedford, Mass., lines of the Union Street Railway will become a misdemeanor if an ordinance now awaiting the consideration of the New Bedford Common Council becomes law. The proposed measure stipulates that no passenger can be permitted to "ride between the seats in open cars."

Asks Rise in Huntington.—A petition requesting permission to advance the basic fare in Huntington, W. Va., from 5 to 6 cents was filed recently with the State Public Service Commission by the Ohio Valley Electric Railway company. The company has applied to the Interstate Commerce Commission for an increase in its interstate rates. It recently raised the fare on its lines in Ironton, Ohio.

Suburban Fare Advanced.—Effective Sept. 9, the fare on the line of the Portland Railway, Light & Power Company between Portland, Ore., and Vancouver, Wash., was advanced from 15 to 17 cents. The increase was accomplished by increasing the fare between Columbia Boulevard and Vancouver from 7 to 9 cents. The new fare is less than half of that charged by the jitneys, which have maintained a rate of 35 cents each way for several months.

Would Charge Ten Cents in St. Joseph.—The St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., has applied to the State Public Service Commission for permission to raise its fare from 7 cents to 10 cents. The application is in the form of a supplementary petition filed with the commission at the opening of a hearing upon a previous application by the company for a 9-cent fare. Attorneys for the company stated that a 9-cent fare, if it is granted, would not prove adequate.

Ten Cents in Sydney.—A 10-cent cash fare was placed in effect on the lines of the Cape Breton Electric Company, Sydney, N. S., on Aug. 15. Tickets are sold by the company at the rate of four for 30 cents. The fare was formerly 6 cents. The increase was authorized by the Nova Scotia Board of Public Utility Commissioners in an order handed down on Aug. 5. The company conducted an extensive advertising campaign, prior to putting the new rates into effect.

"Safeties" Soon on Dallas Lines.—Four of the fifty one-man safety cars recently ordered by the Dallas (Tex.) Railway have been shipped from the factory in Philadelphia, according to notice received by Richard Meriwether, vice-president and general manager, and are expected to arrive in Dallas before the end of September. These cars are expected to arrive in Dallas in time to be put in service for the Texas State Fair which will open Oct. 9 to continue for fifteen days.

Will Halt Transfer Abuse.—To halt the abuse of the transfer privilege on its lines, the Los Angeles (Cal.) Rail-

way is introducing a new form of transfer throughout its system. The modified transfers are designated by letters corresponding with the various lines. The key-letter will be so large that it can be noted at a glance and will stop misuse of the transfer privilege, which has cost the company an average of \$2,000 per day. The new transfers have already been placed in service on five of the company's lines.

Ten-Cent Fare Stands.—Ten cents will continue to be the cash fare charged by the Michigan Railway on its lines in Battle Creek, Mich., for at least sixty days longer. The State Public Utilities Commission at a recent hearing granted the company permission to retain the 10-cent fare temporarily. The city of Battle Creek had sought to have the rate reduced. The fare was raised by agreement among the commission, the city and the company last June. Traffic for the month of July showed a falling off of 24 per cent as compared with the traffic for the same month a year ago.

Six Cents in Sioux City.—Six cents became the fare charged by the Sioux City (Iowa) Service Company on Sept. 10. The company was recently authorized by the voters to raise its rate from 5 cents to 6 cents. The increase had previously been recommended by a committee of citizens after a careful investigation of the company's needs. New tokens and fare registers ordered by the railway are not expected to arrive until October. In the meantime the old tokens are being sold at the rate of seventeen for \$1. The company recently raised the wages of its employees.

Tokens in Dallas.—The Dallas (Tex.) Railway has installed new fare boxes in all its cars for handling metal tokens and pennies. The old boxes were not designed to register pennies, and changes were necessary. Conductors were supplied with pennies and the company has insisted on payment of fares in the form of a nickel and one penny up to this time, but now fares may be paid in any manner desired and 6 pennies dropped into the fare box if the patron desires. The company has put on sale metal tokens in packages of twenty for \$1.20. These may be purchased at all the leading department and drug stores in the city, as well as at the offices of the company.

Would Raise Saginaw Fares.—Russell B. Palmer, general superintendent of the Saginaw-Bay City Railway, Saginaw, Mich., recently appeared before the City Council of Saginaw to ask that the company be allowed a material increase in fare. Mr. Palmer asked the Council for permission to submit figures to show that the present 6-cent fare is inadequate. While asking for no set increase, the company's petition declared that the 6-cent fare, declared insufficient two years ago in a report presented by Dean Mortimer L. Cooley, was not bringing sufficient returns to pay operating expenses and taxes, to say nothing of maintenance,

depreciation or interest on the investment.

Fare Rise Urged for New Orleans.—An 8-cent cash fare is recommended for the New Orleans Railway & Light Company, New Orleans, La., in the report of the three special masters who have been inquiring into the company's financial condition. The masters have just completed their investigation and in their report have approved an increase in the wages of the company's employees amounting to approximately 30 per cent. They began their work shortly after the conclusion of the strike which tied up electric railway service in New Orleans two months ago. Their report will now be submitted for approval to the Federal District Court, which is in charge of the railway's affairs. The fare is now 6 cents.

More Penn Lines Raise Rates.—Several electric railways operating in Pennsylvania have filed with the State Public Service Commission notice of their intention to increase their fare. The Highland Grove Traction Company, McKeesport, will raise its fare from 5 cents to 10 cents. The Lancaster & York Furnace Street Railway, Millersville, proposes to replace the present 5-cent fare with one at 6 cents. The Lehigh Valley Transit Company, Allentown, and the Conestoga Traction Company, Lancaster, will increase their express rates approximately 19 per cent. The Reading Transit & Light Company, Reading, plans to raise its rates for milk transportation and other freight rates.

Kansas City Rise Waits.—Pending a decision by the Missouri Public Service Commission, there will be no increase in fares on the lines of the Kansas City Railways. The commission considered the railway's application for a rate advance at a hearing ending on Sept. 8, and took the matter under advisement, giving the company ten days in which to file a brief and the city twenty days more in which to file a rebuttal. The company is seeking authority to introduce a flexible-fare system, under which the fare would advance from 8 cents straight to 10 cents cash or three tickets for 25 cents. Representatives of the city government appeared at the hearings to oppose the increase, contending that the company's difficulty was due to over capitalization.

Hearing Soon on Connecticut Fares.—The question of whether or not the Connecticut Company, New Haven, Conn., shall be allowed to increase its fare beyond the 7-cent rate authorized by the State Public Utilities Commission two months ago, will come up for settlement before the commission at a hearing on Oct. 1. At the time the 7-cent fare was authorized the company informed the commission that this rate would be insufficient to meet its operating expenses, but the rate was allowed to stand until the commission should have an opportunity to make a more thorough study of the company's needs. Individual trustees of the Connecticut Company have expressed themselves as

being in favor of a 10-cent fare. They contend that any rate less than a dime will prove insufficient to meet the financial requirements of the system.

Mayor Bars Brockton Buses.—Jitney buses will not operate through the streets of Brockton, Mass., for some time to come, if Mayor William L. Gleason has anything to say on the subject. Mayor Gleason has announced that so long as he remains the city's chief executive, the buses, which were barred from the streets on Dec. 1 last, will not be permitted to return. Announcement of the Mayor's attitude is in answer to a demand that buses from the town of Whitman be allowed to enter the city, owing to the recent increase in fares by the Eastern Massachusetts State Railway. Mayor Gleason calls attention to the fact that last fall, when the jitney controversy was before the public, there was an almost unanimous vote in favor of the electric railway and that as a result licenses of 300 jitney operators were revoked.

Traffic Declines as Fares Go Up.—Many commuters who in going to their daily work in Boston and other cities of Massachusetts formerly used the lines of the Eastern Massachusetts Street Railway are now riding on the steam roads. The falling off of traffic on the electric railway followed an advance of its fare throughout its entire system, made necessary by the recent advance in the wages of its employees amounting to \$1,400,000 a year. In most cases the fare on the electric lines was raised from 10 cents to 15 cents in each zone, transfers being abolished. The results of the fare raise are indicated by the case of a steam train leaving for Boston from a nearby city at 6:25 a.m. on Sept. 15. This train carried 146 passengers, whereas formerly the average had been from twenty to thirty passengers.

P. R. T. Seeks Public's Support.—Patrons of the Philadelphia (Pa.) Rapid Transit Company are being given the opportunity to learn at first hand the manner in which they will be affected by the proposed abolition of transfers on the P. R. T. system. Thomas E. Mitten, president of the P. R. T., has adopted the policy of laying the company's case directly before the car-riding public through the medium of advertisements in the Philadelphia newspapers. The company on Sept. 17 printed a full-page map of the city showing the P. R. T. routes to bring out the fact that the great majority of car riders would continue to ride for a nickel. In commenting upon this feature of the contemplated rate change the company pointed out that the discontinuance of transfers would release the equivalent of 300 cars for improved service.

Busmen Unite in Muskegon.—Twenty-four persons operating motor buses in Muskegon, Mich., have incorporated under the name of the Michigan Jitney Bus Company. The new concern is capitalized at \$200,000, of which \$103,

000 is given as the value of the thirty-seven buses owned by the company. Definite routes for the various cars have been mapped out and each bus will operate on schedule time. Snow plows will be purchased, it is said, to keep the routes clear in winter. The fare charged will be 6 cents. No transfers will be given. Each bus will be operated from the outskirts of the city to the main business section. The present rate of fare of the Muskegon Traction & Lighting Company is four tickets for 30 cents or 10 cents cash. The incorporators made the claim that about 60 per cent of the business in Muskegon was now being handled by the buses, which before the incorporation operated individually.

California Buses Ask Rate Increase.—Three motor bus companies operating a system of lines in southern California have applied to the State Railroad Commission for an increase in passenger fares amounting to 20 per cent. The rate advances, if allowed, will affect approximately 90 per cent of the motor buses serving the southern section of the state. The applications for relief were heard by the commission in Los Angeles on Sept. 8. The companies applying for higher fares are the Motor Transit Company, the White Bus Lines, and the Pickwick Stages Company and affiliated lines. These three systems and their affiliations are largely under the control of the Motor Transit Company, the parent organization. They operate 126 autobuses over a system of public highways covering more than 650 miles. This mileage extends from Bakersfield on the north to San Diego and Imperial Valley points on the south. The lines carry 200,000 passengers per month and operate a monthly car mileage of 600,000 miles.

Ten Cents Asked in Albany.—The United Traction Company, Albany, N. Y., has filed a petition with the Public Service Commission, Second District, asking that its fare rate be fixed at 10 cents within local zones, and 20 cents on its through zones as they exist at present. The company also asks that unless the city of Troy waives a franchise restriction, the company be permitted to create a new zone or zones, including the territory within Troy, and that such rates be established within such zone or zones as may be "just and reasonable." The company has suffered a deficit from operations from 1914 up to July 1 of this year, of \$420,671.65, of which \$100,000 was incurred the first six months of this year. The company granted its motormen and conductors an increase in wages of 15 cents an hour on July 28, this increase being retroactive to July 1. The increase raised the wages from 41, 43 and 45 cents an hour, to 56, 58 and 60 cents an hour. The 15-cent increase will mean an additional expense to the company of \$600,000 a year. The new agreement is limited to four months, which will make the expense to the company \$200,000 up to Nov. 1.

Personal Mention

Veterans Honor General Harries

Brig.-Gen. George H. Harries, formerly president of the American Electric Railway Association, was elected commander-in-chief of the Military Order of the World War at the convention of that body at Detroit, Mich. General Harries recently resumed his duties as a vice-president of the Byllesby Engineering & Management Corporation, Chicago, Ill., after serving with distinction with the National Army in France and later as head of the American Commission which had charge of the repatriation of war prisoners.

General Harries' military career dates back to the frontier wars with the Indians, when he served as a scout under Generals Miles and Crook. In the Spanish-American War, as colonel of infantry volunteers, he participated in the siege of Santiago, Cuba. In the World War as brigadier general of the National Army he was in the thick of things at Verdun.

Later he served at Brest during the embarkation of troops for the return to the United States. He was then appointed American commissioner on the repatriation of allied prisoners of war, and was the first American to reach the goal coveted by the soldiers of all the allied nations. Nine months of distinguished service at Berlin during revolutionary turmoil brought to him decorations from several countries, including that of Commander of the Legion of Honor and the Distinguished Service Medal.

W. F. Anderson has been appointed auditor of the Manhattan & Queens Traction Corporation, New York, N. Y. Mr. Anderson is a graduate of Rensselaer Polytechnic Institute, Troy, N. Y. For several months he has been connected with the Doherty Training School for electric railway students at Toledo, Ohio. The New York & Queens Traction Corporation is one of the Doherty properties.

T. H. Mann, terminal freight agent for the Pacific Electric Railway, Los Angeles, Cal., has resigned. Mr. Mann plans to become associated with the Los Angeles office of a steamship company. He has been connected with the Pacific Electric Railway for more than twelve years. He was formerly employed by the old Los Angeles & Redondo Railway, which later became a part of the Pacific Electric Railway system.

Edward T. Moore, formerly vice-president and general manager of the Dallas (Tex.) Consolidated Street Railway, has been elected president and a director of the Simms Petroleum Company, New York, N. Y. Mr. Moore was

manager of the Dallas traction system for fifteen years prior to the consolidation of the lines under the Strickland-Hobson management in April, 1917. Following this consolidation, Mr. Moore went to New York.

B. S. Hanchett Retires

Veteran Operator Resigns as President of the Grand Rapids Railway—
Succeeded by B. C. Cobb

Thirty-seven years after taking up street railway work at Grand Rapids, Mich., Benjamin S. Hanchett has retired as president of the Grand Rapids Railway. B. C. Cobb, of the firm of Hodenpyl, Hardy & Company, investment bankers, and vice-president of the Grand Rapids Railway, has been elected Mr. Hanchett's successor. No change



B. S. HANCHETT

in the policy of the company is contemplated under the presidency of Mr. Cobb, who in addition to his duties as vice-president has been chairman of the operating committee of the railway for several years.

Mr. Hanchett's retirement marks the close of a ten-year period during which he has successfully administered the railway's affairs as its president. Ill health and a desire to take a complete rest were responsible for his resignation. For the time being Mr. Hanchett will withdraw from public life and will take a long vacation in an endeavor to build up his health, which has not been rugged for several months.

Mr. Hanchett was born in 1869. At the age of fourteen years he entered the employ of the Grand Rapids horse-car system as an office boy. Soon thereafter he was promoted to the position of assistant book-keeper, and then to book-keeper. In 1888 he was made chief clerk of the company. Subsequently, he was made paymaster of

the company and later was elected secretary. When the Valley City Street & Cable Railway purchased all the local lines in Grand Rapids and changed the motive power from horses to electricity, Mr. Hanchett was elected secretary and assistant treasurer of this company.

In 1900 the railways in Grand Rapids were taken over by the Grand Rapids Railway, and Mr. Hanchett was elected secretary-treasurer of the new company. In March, 1904, he was appointed general manager to succeed the late Hugh S. Johnson and was continued as secretary-treasurer of the company. The great growth of the system and the perfecting of the system were accomplished under Mr. Hanchett's management. He became president of the company in 1910.

Mr. Cobb, who succeeds Mr. Hanchett is president of the Northern Ohio Traction & Light Company, Akron, Ohio., and is also an official of a number of other traction and power properties throughout the country, representing Hodenpyl, Hardy & Company. Mr. Cobb was born in Boston, Mass., in 1870. He attended the Boston Latin School, and later went to Andover Academy. Mr. Cobb has been in public utility work for about twenty-four years. He began his career in the office of the Grand Rapids Gas Company in 1894. Four years later he became general superintendent of the Detroit (Mich.) Gas Company. Three years thereafter he left Detroit to become vice-president and general manager of the Saginaw-Bay City Railway & Lighting Company. In 1906 he became a member of Hodenpyl, Hardy & Company, with headquarters in New York City.

B. H. Hart, who has been superintendent of maintenance of way of the Texas Electric, Dallas, Tex., with headquarters in Sherman, Tex., has resigned to become superintendent of maintenance of way of the Gulf Coast Lines with headquarters at Kingsville.

Charles T. Doerr has been appointed purchasing agent of the Alabama Power Company, Birmingham, Ala. Mr. Doerr was formerly purchasing agent of the Birmingham Railway, Light and Power Company. Later he served with the Air Nitrates Corporation.

Orrin E. French has been appointed general assistant to P. F. Sheehan, manager of the Brockton Division of the Eastern Massachusetts Street Railway, Boston, Mass. Mr. French is a veteran employee of the Bay State system. Prior to his recent promotion he was foreman of the North Abington carhouse.

Irving S. Fairty, Assistant City Solicitor of Toronto, Ont., has been appointed solicitor to the Transportation Commission recently appointed by the Toronto City Council to take charge of the affairs of the Toronto Railway when the franchise expires in 1921. Mr. Fairty has been connected with the city's legal department since June, 1912.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Big Market for Car Seatings Anticipated

Seat Demand Light, but Good Orders for Repair Material—Steam Roads Expected to Buy Heavily

Manufacturers of car seats report only a fair volume of business at present. The buying of new seats is very small but orders for seating material, such as rattan, are fairly good. Many car builders are now making their own finished seats and this partly accounts for the light demand for that product. On the other hand, a growing volume of orders for bus seats is reported. Electric traction companies are buying seatings for repair purposes only as absolutely needed. Manufacturers say there is an increasing tendency to replace rattan material with slat seats. This is especially true regarding safety cars. Buying on the part of the steam roads has not developed heavily as yet. A big market is anticipated in that quarter as repairs to the seat equipment of steam roads have been at a low ebb. Some producers think it may still be some time before the influence of this buying is felt, but others are optimistic over the prospect of its appearance within the next two or three months. The needs of electric traction companies will be well taken care of in any case, it is said.

The buying of seating material by steam railroads is not expected to affect seriously the supply available for traction companies, it is stated. It may affect production, it is true, if manufacturing facilities should become almost entirely absorbed, but this is not thought to be probable. Furthermore, conditions of raw material in the two markets do not greatly overlap, as steam railroads mostly require plush and imitation leather for seats, while electric traction companies generally use rattan or wood.

MANUFACTURING CONDITIONS IMPROVING

Manufacturing conditions in general are improving at present. No fault is found with domestic labor conditions, though prices of native labor in the Far East, where the rattan is obtained, are said to be high compared with other years. Some manufacturers say rattan is scarce and that ship bottoms to transport the material are difficult to obtain. Other producers are not meeting with these difficulties. As a consequence, the condition of rattan seating material stocks varies considerably. Delivery conditions generally are said to be improving. On wooden seats manufacturers say there is no shortage. On the other hand, reports agree that the supply of plush and imitation

and real leather is very low. To obtain deliveries by next spring on steel seats covered with this material, orders will have to be placed the latter part of this year. Deliveries cannot possibly be made under about four months, according to one large producer, and this figure runs up as long as six months. Deliveries of finished rattan and wooden

slat seats range from four to eight weeks, while the rattan covering itself can be obtained from stock up to two or three weeks. No cancellations have been received.

One of the large manufacturers of this material says the price trend is upward and that higher quotations would not be surprising before long.

Transportation Holding Up Wood Tie Deliveries

Stocks at the Camps Good—Current Orders for Repair Work Only, but Heavier Demand Expected

Demand for wood ties is fairly good at present, but a much larger volume of orders is expected to develop soon, it is stated. This expectation is based on the estimated purchases which steam roads are expected to make. The buying movement from this quarter that was anticipated when the carriers received financial assistance in the form of rate increases has not as yet affected the tie market appreciably. Producers seem to be optimistic regarding the outlook, however.

Normal demand for railroad ties from all interests is about 100,000,000 to 125,000,000 annually, according to the United States Forest Service. During the war and the period of Federal supervision the carriers of the country reduced roadbed extensions and repairs to the level of absolute necessity. Tie purchases were therefore at a minimum. In 1918, according to the same source of information, purchases were slightly under 77,500,000 ties and in ten months of 1919 slightly over 84,500,000. Because of this curtailment in demand during the past few seasons producers are looking for a growing market in spite of present light orders. Buying on the part of electric traction companies is also rather light just now. Producers report that orders from electric railways are almost entirely for repair purposes.

A feature of the demand is the growing influx of Douglas fir ties into Middle Western and Eastern States, according to the Forest Service. These are regions which in the past have largely been supplied by oak cut along the right of way. The excessive cost and uncertainty of an adequate supply of such ties have brought about this change in the source of supply. On the whole, sales thus far this season have not been up to the normal standard of other years, according to representative producers. No cancellations have been received, however.

There are plenty of ties available at the tie camps, but a shortage of cars has made it largely impossible to

market them. Shipments of pine ties as a rule can be made from stock, but deliveries are ranging in the neighborhood of two to four weeks. Many customers are specifying treated ties in their orders and this process adds about 75 to 80 cents to the cost of the tie. The creosote oil used in treating the wood is very scarce at present. About 30 to 40 per cent of the ties are now so treated, it is reported. Prices are holding steady, a standard 8 ft. x 6 in. x 8 in. yellow pine tie being quoted at about \$2.80.

Favorable Conditions in Brake Shoe Production

Deliveries Are Good and Raw Material Situation Is Improved—Possibility of Higher Prices

Deliveries of brake shoes, according to information obtained from one of the leading producers in this line, are being made in good shape and are continuing to improve. Shipments of coal, coke, pig iron, etc., have been slow heretofore, but supplies are now arriving in better time as the freight situation continues to clear up. Raw material requirements of manufacturers are anticipated in advance and reserve stocks of material are kept on hand. This aids in maintaining the supply of the finished product.

The season has been a normal one as regards sales. Orders on behalf of new rolling stock have been a negligible factor in the business. Orders from electric traction companies are apparently being placed only as absolutely needed. The buying movement of steam railroads that has been anticipated since their recent rate increases does not seem to have made itself felt appreciably as yet. Manufacturers are optimistic regarding the future development of this business, however, though they seem to think it may be some time before the buying program of the carriers throughout the country, calling for expenditures of more than

\$750,000,000, is put into operation. About a fourth of the total expenditures, it is estimated, will go for rolling stock, including repairs to existing equipment. No matter how large the orders that may develop in the future from steam roads, manufacturers state that they will be able to take care of the needs of electric traction companies.

Prices on brake shoes have held steady for the past two months. The price tendency, in the opinion of one of the prominent manufacturers, seems to point to further advances being made. This view, it is stated, is based on the prevailing high prices for such material as pig iron, coke and coal. The labor situation in this field is now reported satisfactory.

Definition of Utilities Entitled to Assigned Coal Cars

New Order Aims to Eliminate Abuses of System—Scope of Privilege Is Restricted

Public utilities which are entitled to receive assigned cars for their coal supply are defined by the Interstate Commerce Commission in a new service order. The new order has been worded in an effort to eliminate certain abuses alleged to have been taking place under the old order. It is claimed that assigned cars were being furnished to activities which could not be classed properly as public utilities.

Under the new order assigned cars are limited to those utilities which serve the general public directly under a franchise. When a utility is not owned by a public agency the application for a permit to obtain assigned cars must be approved by the Public Utilities Commission or the Railroad Commission of the state in which the plant is located. The text of a portion of the new order, which the Interstate Commerce Commission designated as Service Order No. 16, is as follows:

It is ordered, That effective Sept. 19, 1920, and until further order of the commission, all common carriers by railroad within said territory to the extent that may be necessary in order that public utilities which directly serve the general public under a franchise therefor with street and interurban railways, electric power and light, gas, ice, water and sewer works; also ice plants which directly supply the public generally with ice; also hospitals, schools and other public institutions of the United States, state or municipal governments, may be kept supplied for current use but not for storage, exchange, or sale, be, and they are hereby, authorized to place, furnish and assign cars to coal mines for the transportation of such coal in addition to and without regard to the existing ratings and distributive shares for mines upon said railroads; provided, no cars shall be so placed, furnished or supplied by any such carriers without written application therefor, showing that such coal is needed solely for the current use of the applicant and not for storage, exchange, or sale, in order that applicant may continue its public service in daily operation, which application, in the case of public utilities not owned by some governmental agency, shall be approved by the public service commission or railroad commission of the state in which said plant is located if there be one, and all such applications shall be concurred in by the delivering railroad; and provided, further, that such coal shall not be subject to reconsignment except to public utilities or public institutions as above described, and that a written report of the

cars placed hereunder shall be made to the Interstate Commerce Commission by the railroad placing the cars as often as once each week.

New One-Man Car Manufacturer

Theodore A. Brewster, former chief draughtsman and engineer for the St. Louis Car Company, has announced the organization of the Missouri Car Company, a \$500,000 corporation, which plans to manufacture one-man street cars. The company, according to Mr. Brewster, will purchase ten acres in the new industrial district in North St. Louis and within the next two or three months will start construction of the first of five units of its manufacturing plants. The first plant will cost about \$250,000 and will employ 500 people. This plant, with a capacity of 600 to 800 cars a year, will be completed in eight or ten months, it is stated, and the first cars will be on the market in less than a year. The car to be manufactured will weigh 14,000 lb. A patented truck claimed to eliminate swinging and jolting has been purchased. The officers of the new company are: T. A. Brewster, president; J. J. O'Brien, vice-president and treasurer, and G. Elmo Holke, secretary. The company will have its offices in the Central National Bank Building, St. Louis.

Issue of \$1,090,000 in Notes to Pay for 139 New Cars

Milwaukee (Wis.) Electric Railway & Light Company has sold an issue of \$1,090,000 ten-year 8 per cent sinking fund equipment trust gold certificates at par and interest through W. A. Read & Company. The notes are dated Oct. 1, 1920, and are issued under the Philadelphia plan against 139 new standard steel street railway cars. The cost of these will be \$1,560,000. An initial payment of \$470,000 has been made by the company. At the time of going to press the certificates were quoted at \$101.

Rolling Stock

Havana Electric Railway, Light & Power Company, Havana, Cuba, announces that it expects to purchase twenty or more 6-yard steel dump cars for coal and construction materials.

Brockton & Plymouth Street Railway, Plymouth, Mass., is reported to have ordered four more safety cars. At least one new snowplow will also be purchased, it is reported.

Poughkeepsie & Wappingers Falls Railway, Poughkeepsie, N. Y., in its application to the Public Service Commission for authority to issue new bonds for extensions and improvements, has included seven safety cars in the contemplated additions.

Empire State Railroad Corporation, Syracuse, N. Y., has asked the Public Service Commission for the Second District for authority to issue \$70,000 in equipment trust notes to enable the company to purchase three new interur-

ban cars, one double-truck snow sweeper and one double-truck snowplow.

Burlington (Iowa) Railway & Light Company will replace the fifteen cars now in use on the system with Birney type safety cars. Six of the safety cars were expected to be put into operation the latter part of this month and these will be followed by nine others, it is reported. Delivery of the new cars, which were built in St. Louis, was promised in August, but shipment was delayed.

Franchises

Knoxville Railway & Light Company, Knoxville, Tenn.—The Knoxville Railway & Light Company has received a franchise to enlarge its system by constructing new and additional tracks on Wall Avenue, Broadway and Fifth Avenue, Walnut Street and Asylum Avenue. Reference to the plans of the company for these improvements was made in the ELECTRIC RAILWAY JOURNAL recently.

Track and Roadway

Trinidad Electric Transmission Railway & Gas Company, Trinidad, Col.—The Public Utilities Commission of Colorado has refused a permit to the Trinidad Electric Transmission Railway & Gas Company to remove its tracks on Pine Street from State to San Juan Street.

Pacific Electric Railway, Los Angeles, Cal.—The State Railroad Commission has approved changes in the trackage of the Pacific Electric Railway in Long Beach. The relocation of the tracks and the construction of crossings at grade over the Southern Pacific and the San Pedro branch of the Los Angeles & Salt Lake Railroad were made necessary by the construction of the flood control channel by the Los Angeles County Flood Control District.

Brockton & Plymouth Street Railway, Plymouth, Mass.—The Brockton & Plymouth Street Railway has started upon plans for a new power house to be located in Kingston.

Springfield (Mass.) Street Railway.—The Springfield Street Railway is starting to lay double track on Front Street. The road is being torn up and the work is being hurried to completion. Permission to lay this double track was granted the Springfield Street Railway some time ago.

Eastern Massachusetts Street Railway, Boston, Mass.—If the City Council of Chelsea acts favorably on the petition of the Eastern Massachusetts Street Railway for the establishment of a prepayment area in Chelsea Square, the company will start at once on the construction of a station in the square. The station plans show a platform 35 ft. x 80 ft. This station will be used as a transfer point and all traffic from the north will make a stop at Chelsea Square, the passengers transferring to

cars for Boston. The cost of this undertaking will be more than \$100,000.

Syracuse & Suburban Railroad, Syracuse, N. Y.—The Public Service Commission, Second District, under an order issued Sept. 3 has directed the Syracuse & Suburban Railroad to reconstruct its track in Genesee Street in Fayetteville and locate it in the center of the street and conform to the new grade. Rails and ties to be used shall be subject to the approval of the commission, the company to submit within fifteen days specifications covering the rails and ties. The company is to notify the commission in ten days whether the order will be obeyed. Fayetteville trustees asked for an order requiring rebuilding of the tracks and their removal to the center of Genesee Street, the road now being located on the northerly side of Genesee Street, in part. Genesee Street is a part of the state highway system and its improvement is under way and the change to the railroad tracks is in connection with the paving operations. Reference to the action of the Fayetteville trustees was made in the *ELECTRIC RAILWAY JOURNAL* for Sept. 4.

Poughkeepsie & Wappingers Falls Railway, Poughkeepsie, N. Y.—In an application to the Public Service Commission for the Second District to issue \$243,000 of bonds, the Poughkeepsie & Wappingers Falls Railway outlines a new construction program. This plan includes the laying of double tracks with concrete pavement, ballast and steel ties between the carhouse and Cherry Street, about 381 ft., and between the east side of Cherry Street on Main Street to Grand Avenue about 3,600 ft. Single track will be replaced on Main Street between Grand Avenue city line and the Arlington switch with tee rail, rock ballast and ties. Overhead trolley equipment will be reconstructed in Main and other streets. The company will also repair its distribution system on Main Street, River to White and on the north side install ties and raise tracks with cinder ballast in Grand Avenue, College Avenue to Driving Park. New ties will also be installed between Lynch's and Allendale.

Cleburne, Tex.—Business men of Fort Worth have shown interest in the proposed interurban line from Cleburne extending westward into the West Texas oil fields, and it is indicated that the Fort Worth Chamber of Commerce may undertake to aid in the financing of the project. Present plans call for an interurban line originating at Cleburne, where a junction will be made with the Fort Worth-Cleburne line of the Tarrant County Traction Company, thence extending westward, touching Glen Rose, Stephenville, Lingleville, Gorman, Hico, Dublin, Cisco, Desdemona and other oil field towns. Several meetings have been held in various towns along the proposed route, and the preliminary work looking to the raising of a fund of \$1,500,000 is already under way. In the Jan. 3 issue of the *ELECTRIC RAILWAY JOURNAL* a reference to this proposal was made

and again in the June 19 issue reference was made to the election of a chairman of the Cleburne Interurban Association.

Power Houses, Shops and Buildings

Public Service Railway, Trenton, N. J.—Thomas N. McCarter, president of the Public Service Railway, Newark, N. J., has announced that the contract for the erection of a trolley terminal at the Federal Street ferry, Camden, N. J., has been signed. Mr. McCarter says there will be two trolley approaches from Delaware Avenue. The cars will discharge the passengers when entering the terminal, turn a loop and run to a loading platform. There will also be an extra spur track for car shortage to meet rush-hour needs. The new terminal will do away with the "bull pen" now used by the trolley company at that point.

Bryan & College Interurban Railway, Bryan, Tex.—The Bryan & College Interurban Railway will purchase current from the city of Bryan for the operation of its cars at 4 cents to 5 cents per kilowatt-hour, according to amount of current used.

Trade Notes

National Association of Railroad Tie Producers will hold its third annual meeting in San Francisco on Jan. 27 and 28, 1921.

The Flexible Steel Lacing Company, manufacturer of Flexco lamp guards, Flexco-Lok lamp guards, alligator steel belt lacing, etc., is now in its new factory at 4607-4631 Lexington Street, Chicago, Ill.

The American Wood Preservers' Association has set the dates of Jan. 25, 26 and 27, 1921, for its seventeenth annual meeting, to be held in San Francisco after convening with the engineers of southern California in Los Angeles on Jan. 24.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., announces that a special stockholders' meeting will be held at the East Pittsburgh office on Nov. 18, for the purpose of considering an increase in capital stock from \$75,000,000 to \$125,000,000 and increasing the company's indebtedness by \$30,000,000.

Dwight P. Robinson & Company, with which is consolidated the former corporation, Westinghouse, Church, Kerr & Company, has announced the appointment of Carl C. Thomas as Western representative, with offices in the Electric Equipment Building, Los Angeles, Cal. Mr. Thomas was formerly professor of mechanical engineering at the Johns Hopkins University, Baltimore, Md.

J. H. Cain, formerly with the Shore Line Electric Railway, Norwich, Conn., has become connected with the Railway Audit & Inspection Company, Philadelphia, Pa. He will serve as the general

representative for New York State and New England.

Greene, Tweed & Company announce arrangements to manufacture their line of automatic lubricators in their new plant at Newark, N. J. In the future all shipments will be made from there and all repairing will be done there instead of at 109 Duane Street, New York, as formerly.

National Association of Purchasing Agents, which will hold its annual convention at Chicago on Oct. 11, 12 and 13, announces that the program of its standardization conference, which will be held at the same place on Oct. 9, will include discussion of standardization of catalogs, invoices and shafting sizes and pricing on the decimal system.

The Roller-Smith Company, 233 Broadway, New York City, announces that its Philadelphia representative, the Perkins-LeNoir Company, has added to its sales force G. C. Unger. He will devote his attention to the various lines of electrical and control apparatus handled by the Perkins-LeNoir Company and will specialize in the Roller-Smith products.

Charles E. Patterson, comptroller of the General Electric Company, has been elected vice-president of the company. Mr. Patterson was previously associated with the New York Central Railroad and the American Locomotive Company. He aided in the development of the Interstate Commerce Commission's accounting system for railways, and was appointed chairman of the standing committee of the Electrical Manufacturers' Council which evolved the standard accounting cost system for the electrical manufacturing industry. In 1901 he became comptroller of the American Locomotive Company. In 1909 he joined the General Electric Company for the purpose of introducing a modern accounting system. In 1913 he was elected comptroller of the company. Mr. Patterson was born in 1866. He will still retain the title of comptroller of the General Electric Company, acting as vice-president in charge of accounting.

New Advertising Literature

Instruments.—The General Electric Company, Schenectady, N. Y., has issued bulletin No. 46,017, to supersede bulletin No. 4,879, on direct-current instruments.

Ammeters and Voltmeters.—The Roller-Smith Company, 233 Broadway, New York City, has recently issued bulletin No. 430, covering its direct-current switchboard-type voltmeters and ammeters; also bulletin No. 450, describing its alternating-current switchboard-type voltmeters and ammeters.

Condulets.—The Crouse-Hinds Company, Syracuse, N. Y., has recently issued a new bulletin on condulets for steam and electric railroads, for car wiring, locomotive wiring, signal-tower battery charging, etc.