

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Avoiding Losses as Important as Increasing Earnings

TO LOWER the operating ratio is the particular concern of every interurban manager at this time. This is leading to an energetic search for new business to counteract the falling off in normal regular business, but another equally important pursuit to the same end is the curtailment of the outgo of money earned.

An example of unavoidable expenditure is the payment of lost and damage claims on merchandise handled. Some figures presented on the Central Electric Railway Association boat trip and published in this paper show that in 1920 thirty-four out of sixty-six interurban member companies of the Central Association paid out \$142,744 in freight claims. This association has taken steps to start a campaign of education among employees who handle freight and among the shippers to secure better marking, packing, billing, loading and handling. A similar campaign conducted by the American Railway Express Company has brought remarkable results, and gives promise of marked savings for the effort on the electric lines. The companies in the Central territory should give full measure of co-operation in making this campaign effective, and the idea is well worth emulation by groups of companies or individual companies in other sections. If expenditures such as these, which are purely waste, can be eliminated, the results will be helpful on the general showing of the individual companies and of the industry as a whole.

Making the Most of the Public's Representatives

ONE of the major reasons for whatever success has been had with the Tayler franchise in Cleveland is embodied in the habit of John J. Stanley to secure the personal friendship and respect of the city councilmen, particularly those who serve on the local transportation committee. This is not incidental with Mr. Stanley; it is his first order of business. He gives these matters his personal attention and sits in all meetings in which the company is concerned so that he may be on hand to answer any questions, or to explain away any misconceptions of the street railway business that may arise. When he is sitting across the table from an alderman, whom he addresses by his front name and who, in turn, knows Mr. Stanley as "John," there will hardly be a disposition on the part of that public representative to take action without full and fair discussion, and that is the way it has worked out. Probably because it is the easier way, many railway executives hold themselves aloof from the meetings and particularly from the personal friendship of the public officials. They are busy with other things and send some one down in the organization to listen in at the meeting (not take part in it), and report back what the committee or Council did. How much better it is

to have the final authority of the company present as an active participant. It is human nature for aldermen to appreciate the attentions of no lesser person than the chief official of the company. And if he is just "John" to them, the company's interests, while fair and right, are not likely to suffer severely.

Plan How to Remove Fare Discriminations and Inconsistencies

DURING the period when rates were advancing, the simplest method of making the change from a lower to a higher rate of fare was usually a horizontal increase, as from 5 cents to 6, 7 or 8 cents. The reason for this is not far to seek. No matter how thoroughly a community recognized the need of the railway for more money and became reconciled to a higher fare, the change could never be a particularly popular one. The public was willing to accept it, but one reason which made acquiescence easier was the knowledge that the burden fell on all equally.

With a material reduction in wages and in cost of materials, there will be popular demands for reductions in fare. Railways should be as interested in reducing the cost of living as other industries, and doubtless there may be places where reductions in the basic fare will actually gain for the railways an increase in both gross and net, but modifications of rates of fare which will reduce the net receipts of the companies are not warranted until the credit of the railways is restored and they have an opportunity to carry out deferred maintenance and build up some surplus. Nevertheless, it is not premature to consider the ways in which a reduction in fare might best be made when the time comes to put them in force.

It is to be hoped that the method used when the rates were increased will not be followed when the rates are reduced, that is to say, that there will be a horizontal reduction, unless the conditions are such as to make such a step the best possible solution of the problem. Usually this will not be the case. On most systems the fare limits are an inheritance from the ordinances of early days or from ancient franchises, and it is obvious that they are not the best which can now be drawn. This, then, is the time when each management ought to be considering seriously what fare system is best adapted to its particular property. Then when the time comes that reductions in fare are made, these reductions can be such as to bring about a logical fare system.

Such a system need not, by any means, be the same in every city. Thus, with a system like that in Boston with an inner area provided with expensive subways and surrounded by separate communities furnished with surface traction only, a reduction in fare for a local community ride may be the most logical plan to follow when a reduction is made. On the other hand, in a city where all cars radiate from a central point, as

in Cleveland, it may be that the reduction should first be made in a central zone as a means of building up short-haul traffic. In still another city, the most desirable plan might be to expand the central unit fare zone in some or all directions or to correct glaring inconsistencies in the fare limits where there is more than one zone. In another case, where all the fare limits seem to be consistently arranged, they can remain the same, but a reduced rate ticket or weekly pass can be installed. In other localities, the introduction of a basic fare for the shortest ride, with some means of charging more for the longer ride, such as pay-enter for the first part of the ride and pay-leave for the latter part, may be the most fitting plan.

In fact, there is a multitude of ways of making reductions and no set rule can be laid down. But this at least can be said. The present is an excellent time for the study of this question of straightening out inconsistencies and discriminations in fare limits. Most managers know where these points are on their own systems. Reforms of this kind can probably be made more easily at a time of general fare reduction than at any other time and much more easily than when fares are increased.

A Mile a Day When You Have Your Way

THE article on municipal track construction at Detroit, in this issue, serves to bring out the salient feature of the job, viz.: the large amount of track completed daily. The task of constructing a mile of paved track a day in paved city streets is one of some magnitude, especially when it is noted that the existing asphalt pavement must be torn up. To a large extent the work is a problem involving the utmost possible use of machinery, and the Detroit municipal engineers have assembled a plant which has enabled them to build track on a record-making scale. To a certain extent, also, the type of track as laid this year is of some assistance, since surfacing and lining are at a minimum where the type of steel ties selected is installed, while the "compressed concrete" or Hassam pavement may readily be constructed in a wholesale manner.

Another and essential factor of the speed at which the work is being carried on is the control which the city has over the streets. Probably no private enterprise would be permitted to open streets for such long distances, much less to open them practically over their entire width between curbs or to block entrances to homes and business houses at will. In some instances the only access to private property on the Detroit work has been by way of the sidewalks, and these have been used by automobiles and delivery wagons for block after block. The engineer for any private company who even suggested such a construction procedure doubtless would be forcibly ejected from his home town.

The Detroit work is notable for the adherence to the standards and recommendations of the American Electric Railway Engineering Association in such matters as rails and drainage provisions. Especial attention has been given to the latter. It should not be understood from this that the Engineering Association has recommended the rigid type of construction which has been adopted for the work done this year. Neither has the association recommended the use of the concrete pavement.

Another feature of the work is the adoption of the metallic electrode type of seam-weld rail joints as

standard. In view of the discussion which seam-weld joints are receiving at the hands of track engineers, it will be worth while to watch the performance of the Detroit installation because its extent is sufficient to give the joint an ideal service test. In fact, the entire track installation should afford opportunities for study of the performance of a type of track construction which constantly has been gaining headway. The attention paid to the return circuit is to be marked because exceptional steps have been taken to assure a return of large capacity and one which cannot readily be disrupted.

The entire enterprise gives evidence of careful preliminary study in an attempt to build tracks which will stand up under the poor soil conditions for which Detroit is noted.

Store Door Delivery by Railway and Truck Co-operation

THERE have been many proponents of store door delivery as a means of reducing total transportation costs and of speeding up service, but little actual progress has been made in putting the idea into practice. The opponents or doubters of such a plan should be given food for thought, at least, by the experience in Chicago, related in this issue.

That an increase in rate equal to the delivery charge of independent trucking concerns is not used is to be expected. On an independent basis, then, the delivery will not pay. But that very fact is a part of the reason for increased business. More important, however, is the idea of the service given. It is service which the railway has to sell to its freight customers, and the fact that the customers appreciate this new service in Chicago is attested, according to the data, by so large an increase in volume that the total profits have been favorably augmented.

An articulation of various transporting agencies is a much-needed development today, and the success attending the intelligent use and co-ordination of motor trucks by an electric railway management should encourage others to adopt similar programs.

It is good business for the railway, for the truck and for the public.

"In Business as a Conductor," Not "Working for the Railway Company"

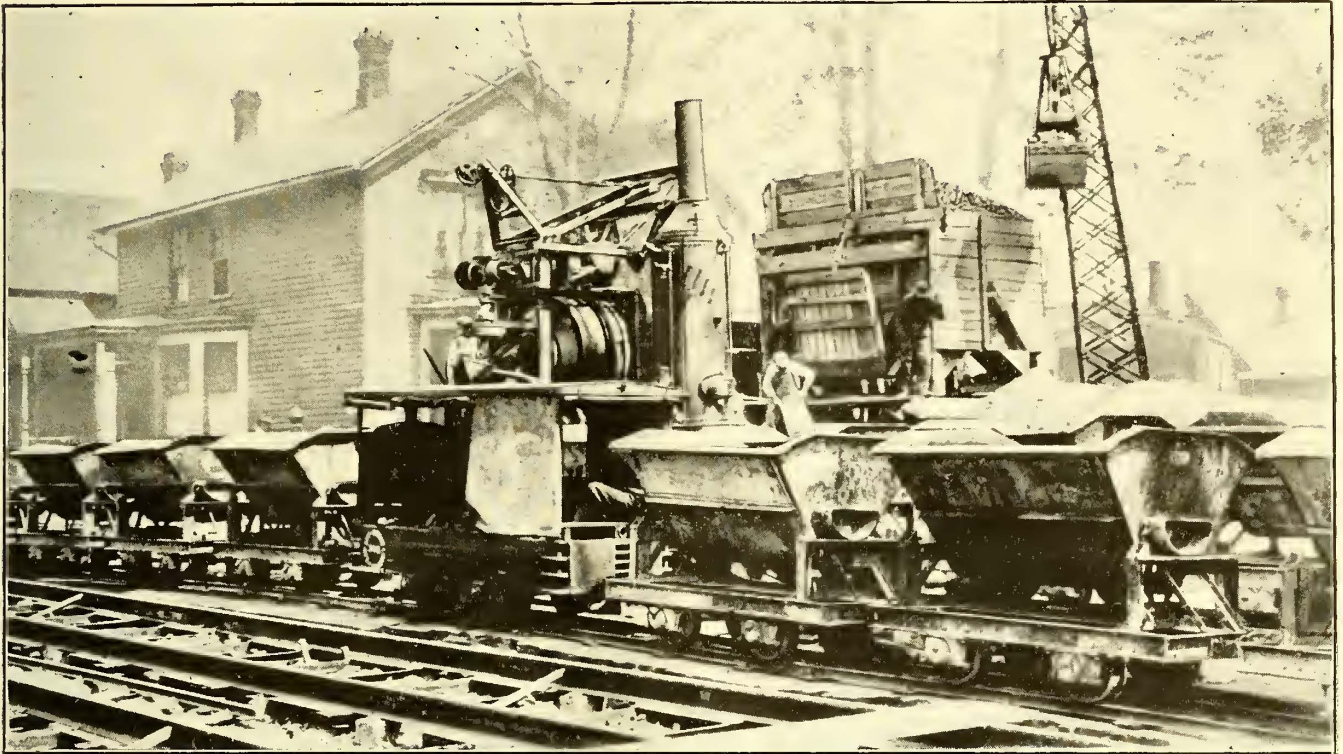
MAY NOT the first aim of all employee training and much organization and personnel work be epitomized in the statement that what is being attempted is to put each employee "In business as a railway man" rather than merely "working for the company"?

The real end desired is that the employee have a knowledge of the business; that he understand something of costs and revenue; that he realize that profits, including his own wages, must be earned and are obtainable only from the difference between revenue and expense; that he is a producer and a salesman—one of a large group all in one kind of business, mutually helpful and organized for greatest efficiency, and that he is "in business as a railway man" as much as the general manager, only in a different capacity.

It seems worth while to suggest this phrase, which really carries its own significance, as a motto or slogan to have in mind in dealing with employees. When every employee feels himself "in business" in his particular job, rather than selling his time, "working for the company," many problems are automatically solved.

A Mile of Paved Track a Day

Eighty-two Miles of Track to Be Built by Detroit Municipal Railway This Summer—Rigid Type Construction, with Heavy Plain Girder Rail, Seam-Welded Joints and Steel Ties, Is Used—Unusual Methods Employed to Expedite Construction Program



CONCRETE MIXING PLANT AND TRAIN USED IN DISTRIBUTING 1,000-FT. EITHER WAY

WHETHER the city of Detroit is in earnest about going into the street railway business, the reader may judge for himself after learning from what follows of the magnitude and nature of the construction work now going on there. Besides those franchiseless Detroit United Railway lines which the city plans to add to its system by purchase this year, it is expected that 82 miles of single-track equivalent line will be completed before the winter sets in, so that by the end of 1921 the city may have a railway system of some importance. The construction is soon to be carried on at the rate of a mile of single track a working day. Already the scale of work has reached a magnitude nearing this schedule. The outstanding features are the extensive use of labor-saving devices, the adherence to American Electric Railway Association standards, the permanence of the construction and the ends to which the officials have gone to secure good drainage and good negative return circuit.

During the working week from May 2 to May 7 27,676 cu.ft. of trackway excavation was made, 11,496 ft. of rail laid and 12,117 ft. of concreting and paving done. On one of these days 360 truckloads of excavation of 6 and 7 cu.yd. each were hauled from various locations to the lower end of Belle Isle and dumped to fill in and enlarge the island. Up to May 7 the work completed this season includes 111,823 cu.ft. of trackway excavation, 59,133 ft. of rail laid and 27,250 ft. of concreting and paving. Forty to fifty carloads of materials of all kinds are being received daily.

The construction equipment purchased includes,

among other things, twelve Erie steam shovels for excavating the trackway and breaking up existing pavement, six Erie cranes for handling aggregate at the mixer plants and in the storage yard, three Rex and three Lakewood 14-cu.ft. concrete mixers, ninety Lakewood three-bucket cars, six 4-ton Burton kerosene locomotives for pulling the concrete trains, 4 miles of industrial track, two tractors for snaking rail, two Winthrop Truck Company tractor earth-boring machines and pole setters, twelve Wilson plastic-arc, two-electrode welding machines, and other labor-saving devices. For hauling excavated earth and transporting the various materials to the job 200 motor trucks are being rented.

The total number of employees is 1,800, of whom the great majority are engaged as construction forces. All work is being done by the railway department itself rather than on contract. The trackwork is being done under the direction of H. P. Hevenor, who is retained as consulting and construction engineer, with W. R. Dunham, Jr., formerly engineer of way the Connecticut Company, as principal assistant. The overhead construction, described in an article to follow, and the track bonding and welding are being done under the direction of H. M. Gould, electrical engineer and formerly electrical and signal engineer of the Connecticut Company.

PRESENT STATUS OF DETROIT SITUATION

These last few paragraphs will give an idea of the extent of the railway construction activities of the city now in progress. A comprehensive understanding

Aggressive Tactics Used in Excavating for and Laying the Track

1. Machine used for breaking up paving for track excavation.

2. Appearance of warm asphalt after breaking up. Note chiseled line marking edge of excavation. In background asphalt has been removed for reclaiming and materials stored along trackway for new construction.

3. A better example of how the breaker leaves the paving.

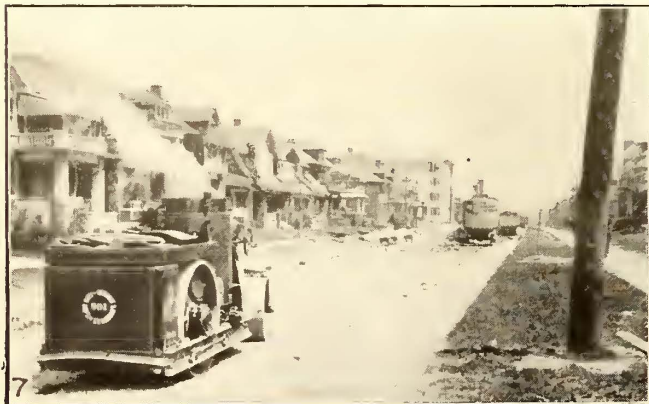
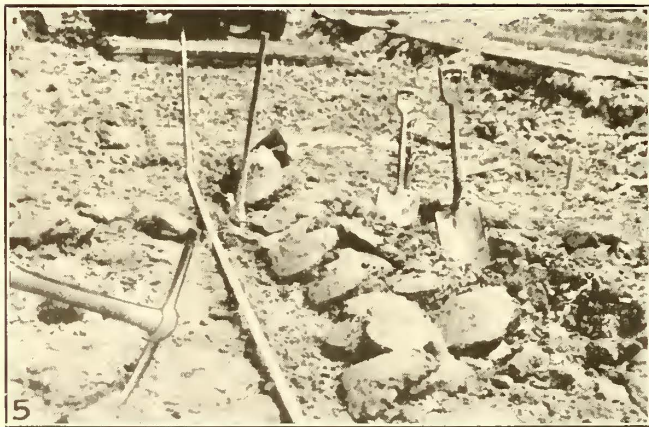
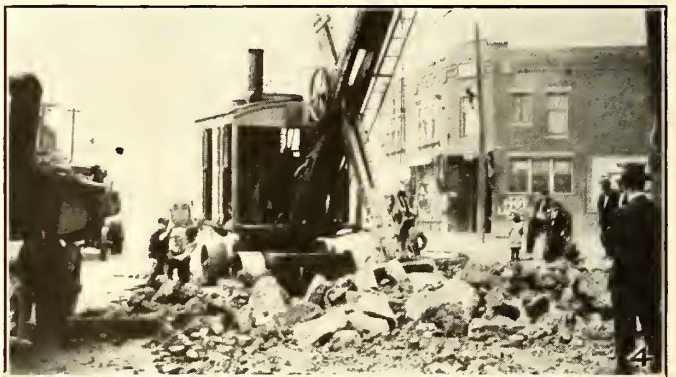
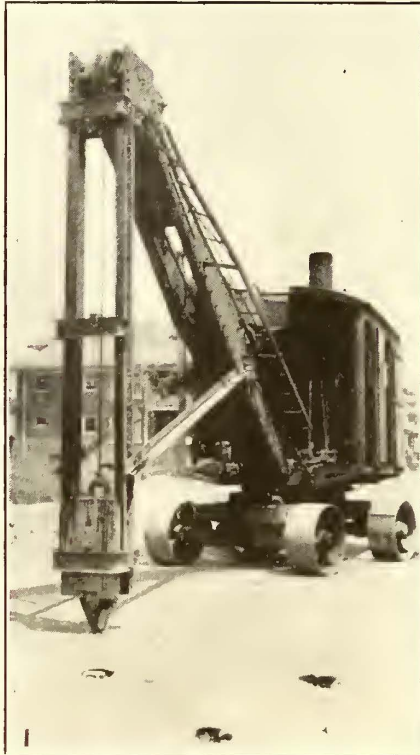
4. Steam shovel digging excavation for track and loading paving and earth into motor trucks.

5. The heavy clay soil encountered necessitates special drainage provision.

6. Ordinary field tile are used for drainage and the trench filled in with broken slag.

7. A layer of slag is spread over the track trench and rolled.

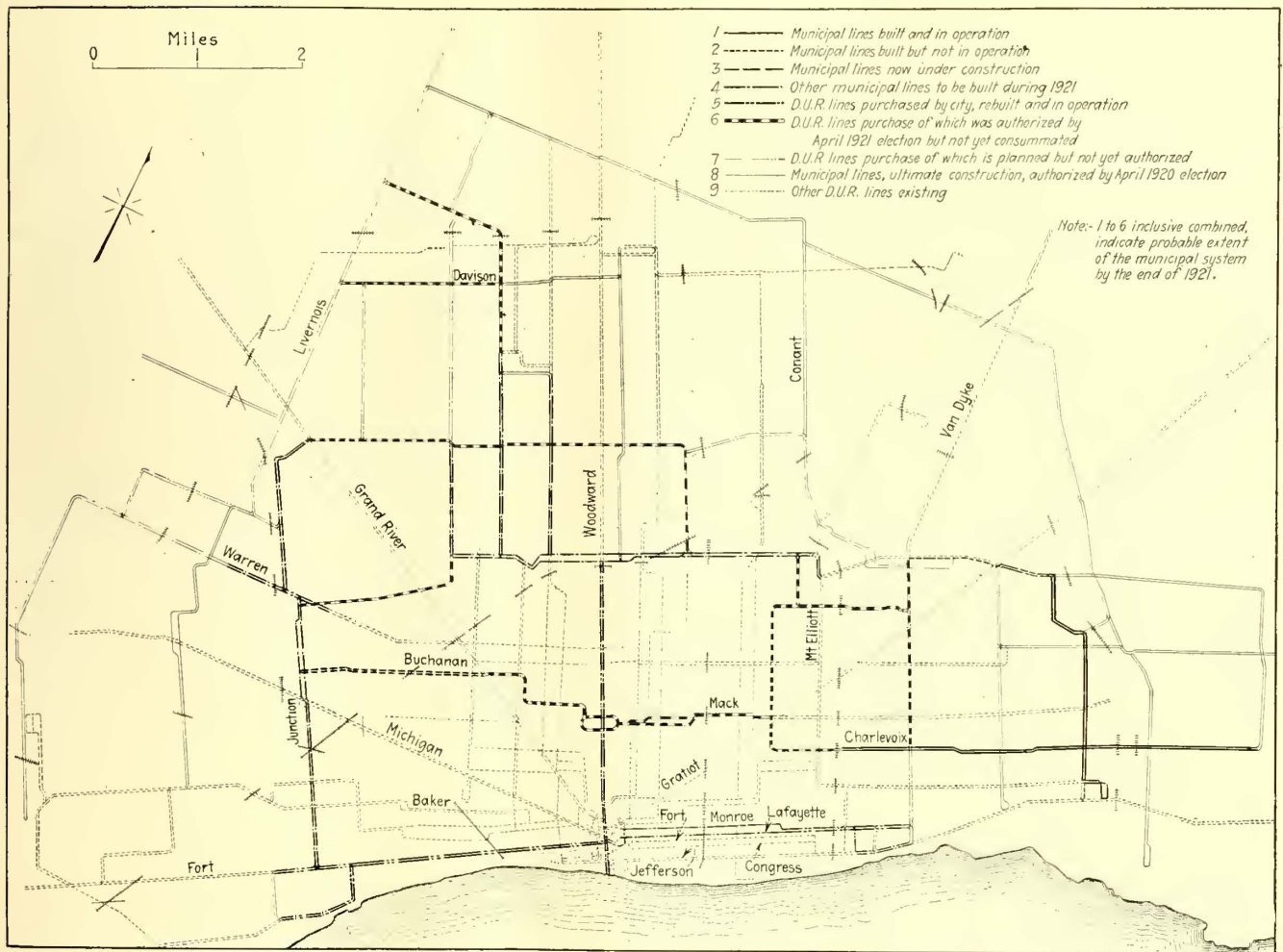
8. Rails and ties are assembled and blocked and wedged to grade and alignment.



of the present status of the whole traction situation in Detroit can best be gained from a study of the maps especially prepared for this purpose and reproduced herewith. The map on page 124 shows the franchise situation of the Detroit United Railway as understood by the city authorities. The lines are divided into three classes: Those on which the franchises have several years to run before expiration; those lines being operated without franchises, and those on which the franchises have expired and operation is continued on a day-to-day agreement. The expiration of a franchise, of course, places the city in a position of advantage in negotiating piecemeal purchases.

The map below shows the municipal lines built and

Last year the city built eighteen of the 67.1 miles of track planned as the first year's work. The uncompleted remainder, added to the lines planned for construction in 1921 (33.65 miles), gives the total of 82.75 miles to be built this year in order to catch up with the original promises made to the voters. By the end of 1921, if the present schedule is accomplished, the city will have constructed 100.75 miles of single track. In addition, it will have acquired by purchase roughly 28 miles, making a total system by the end of 1921 comprising in the neighborhood of 130 miles. At the time of this writing plans had been nearly completed for a new shop capable of handling 500 cars, a new carhouse and open storage for 200 cars and a large office building,



THIS MAP WAS DRAFTED BY THE MUNICIPAL RAILWAY AUTHORITIES TO SHOW THE CONDITION OF THEIR LINES IN ABOUT MAY OF THIS YEAR WITH THE PRIVATE LINES WHICH THE CITY HOPED TO TAKE OVER

in operation; the lines built but not being operated; the lines now under construction; the additional lines to be constructed this year; those D. U. R. lines already purchased; those D. U. R. lines the purchase of which has been authorized; those D. U. R. lines which the city plans later to purchase though the bonds are not yet authorized, and, finally, the existing D. U. R. lines and the ultimate municipal lines, construction of which was authorized at the April, 1920, election. By taking the first six groups together, these lines being indicated on the map by the several heavy-line legends, an idea may be gained of what the municipal system will comprise by the end of 1921 if present intentions are carried out, and the relation of this to the D. U. R. system and to the proposed further city construction.

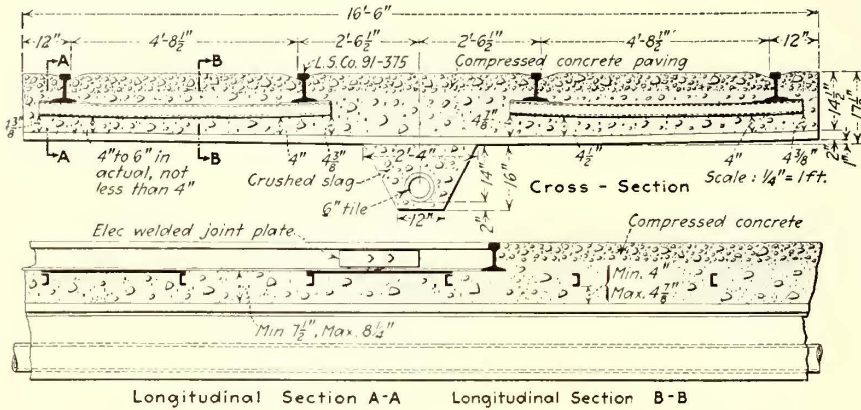
all of which are to be built this summer. Twenty-five cars are in operation and 100 more on order.

Of the first 18 miles of track built in 1920 two intersecting lines on Charlevoix and St. Jean Streets, as seen on the map and comprising about 13 miles of single track, are being operated in a district not otherwise served, in which there are several important factories and scattered residences. During six hours a day twenty-two cars are operated to give rush-hour service and eleven cars all day. J. S. Goodwin, general manager, formerly Bridgeport manager for the Connecticut Company, reports that the earnings of these lines under conditions obviously unfavorable with only a piece of a system, are just about breaking even with expenses now.

During 1920 the track construction was done by contract. The type of construction employed then is somewhat similar to the standard of the D. U. R. This included a trench 22 in. deep in which a separate 8-in. slab of 1:3:5 concrete was poured under each track and permitted to set. Over this a 1-in. layer of 1:4 dry mix of sand and cement was placed and the

The steel ties are spaced 5 ft. 6 in. average centers and have the ends bent upward to give a cant of 1 to 25, thus providing for an inward tilting of the rails by the same amount.

The rail joints are made by using two 20-in. x ½-in. plates which are held in place by two 1-in. bolts and electrically welded along the top and bottom. The head and nut of each of the bolts are welded to the rail and the nut to the bolt. This welding is done by the short arc or metallic electrode process, using Wilson Welder & Metals Company two-arc, gasoline engine-driven welding machines. This welding work will be treated more fully later on.



SECTIONAL DRAWINGS OF TRACK UNDER CONSTRUCTION BY THE DETROIT MUNICIPAL SYSTEM ON JUNE 1

track assembled on top of this and concreted in. This upper pouring of concrete was brought up to the level of the rails and floated and brushed to form the paving. Wood ties, 6 in. x 10 in. x 6 ft. 8 in., and 91-lb. 7-in. standard A.E.R.A. plain girder (or high T) rail were used, the joints being electrically welded. Steel ties were substituted for the wood ties on 22,600 ft. of double track built last year on Buchanan Street.

TYPE OF CONSTRUCTION NOW BEING USED

Beginning this year, the department of street railways decided to do its own construction work and to adopt a monolithic type of rigid track construction, employing International steel twin ties altogether, except under special work. By virtue of this change the depth of trench required was reduced to 17½ in. and, according to Mr. Goodwin, \$30,000 per mile saved on the cost of construction as compared to the cost of the type of construction used last year embodying wood ties.

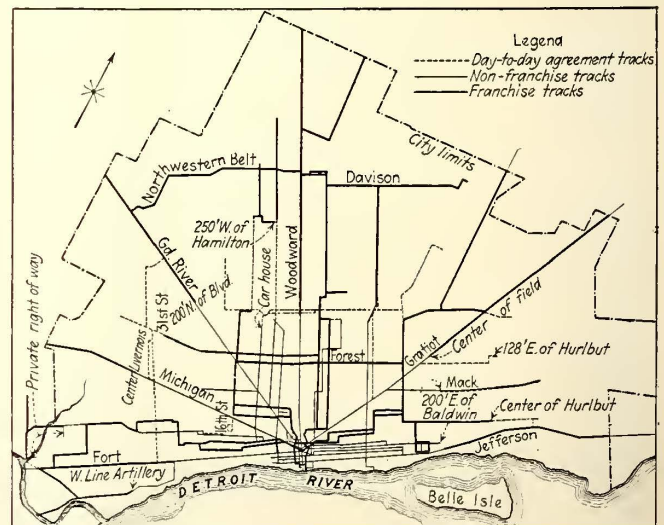
This new type of construction consists first of 2 in. of rolled slag on the bottom of the trench, with a 1:2:4 mix of concrete poured from the slag up over the ties and base of the rails. After this has hardened, the remainder of the trench up to the level of the rails is filled in with 2½ to 3 in. crushed Wisconsin granite. This is rolled and then filled in with 1:2 grout and rolled again, forming what is termed "compressed concrete pavement." The rail used is either A.E.R.A. 7-in. 91 or 93-lb. plain girder or A. R. A. (which is also a standard of A.E.R.A.) 100-lb. 6-in. standard section rail, both sections being supplied by the Lorain Steel Company. The 93-lb. rail is identical with the 91-lb. except that the thickness of the web just beneath the rail head has been increased to ⅜ in., tapering to the standard thickness of rail web, ⅙ in., to a point between the rail head and the top of the bolt hole. The heavier section is used on those streets on which greatest density of traffic is expected, and it not only reduces the amount of concrete required by a depth of 1 in. but the price per ton is also less. The 100-lb. rail comes in 66-ft. lengths, while the 91 and 93-lb. sections come in 60-ft. lengths.

CONSTRUCTION METHODS AND ENGINEERING

Where a new street-car line is to be constructed on a street already paved, the first operation is to cut a line with hand chisel and sledges to mark the side lines of the track excavation. A pavement breaker consisting of an Erie steam shovel equipped with guides and

a 2,000-lb. weight, which is raised and dropped, is then used to break and shatter the asphalt and concrete foundation. If the asphalt surface is good, it is removed and reclaimed by the Department of Public Works. This breaker and the manner in which it shatters the pavement are shown in the accompanying pictures.

The next step is the use of a ¾-yd. Erie steam shovel to dig up the broken concrete and earth and dump it into motor trucks for removal. After this is done, a drainage trench 16 in. deep is dug by hand along the center of the trackway and common 6-in. field tile installed to insure thorough drainage underneath the track structure. The problem of drainage is particularly severe in Detroit on account of the heavy clay



PRESENT FRANCHISE STATUS OF THE D. U. R. CITY LINES AS UNDERSTOOD BY THE DETROIT AUTHORITIES

soil which offers practically no natural drainage. Hence unless provision is made for carrying away any accumulation of water, the clay soil and extremely flat topography result in a working of the entire track structure on a watery bed, under traffic conditions, producing a rapid deterioration. Hence a great effort has been

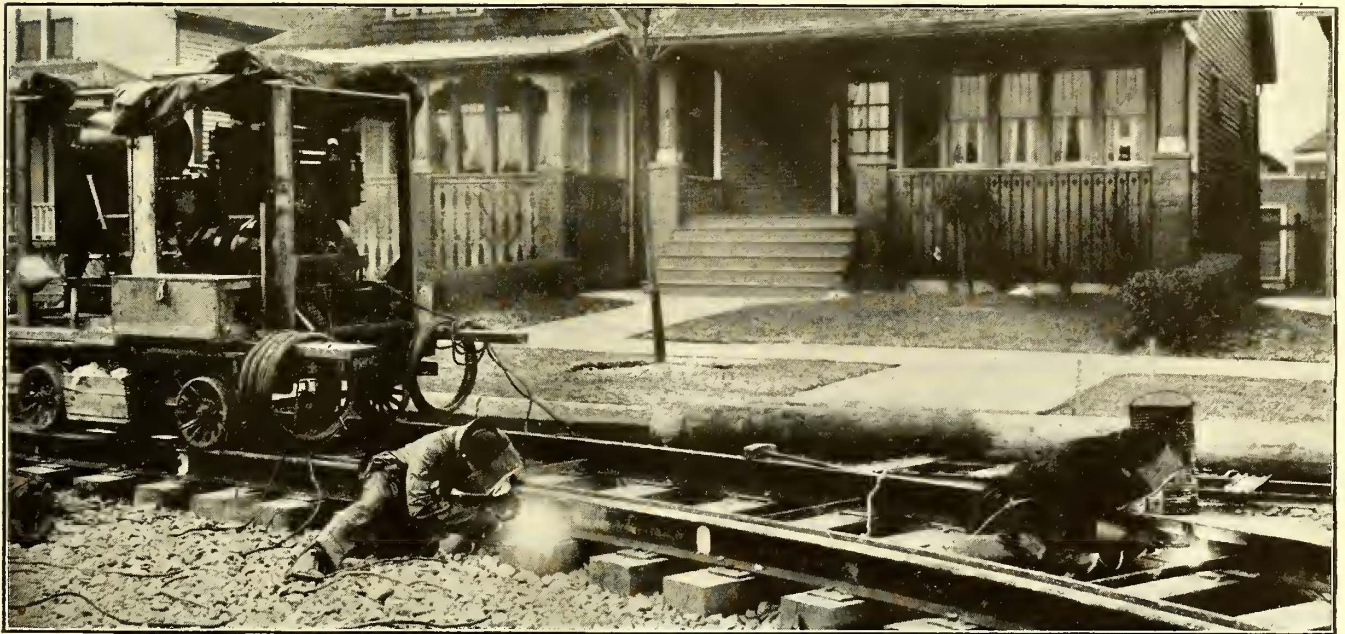
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made to seal the track from above, to provide good surface drainage, and to drain it thoroughly from below. It is considered that if this drainage problem is solved, the most difficult phase of track construction in Detroit is mastered. An accompanying picture shows very clearly the nature of the subsoil on which the track structure must be placed. Another paragraph dealing with surface drainage appears later in this article.

With the drainage tile in place, the trench is filled with $\frac{1}{2}$ -in. to $\frac{3}{4}$ -in. broken slag and then a 2-in. layer of slag (or cinders when slag cannot be secured) spread over the entire track trench and compressed with an 8-ton roller. The steel ties and rails are then assembled and blocked up approximately to grade by means of concrete blocks made for this special purpose during the past winter. An effort is made to bring the rails as near to grade and alignment as possible before welding, but it is necessary to make the final adjustment

tive return. If every joint were broken down there would still be an electrical by-pass around the joints through the intermediate welded ties and opposite rail.

To accomplish this extensive welding work twelve Wilson welding machines were purchased. Even with this number of machines it is necessary at times to work two shifts a day in order to keep ahead of the concreters. This is avoided if possible, however, as the noise of the engine and the flashing of the arc annoy the residents at night. Some little difficulty was had in training welders to handle this plastic arc welding. Most of the experienced welders were accustomed to other machines using a longer arc. Whenever an arc over $\frac{1}{2}$ in. long is drawn with this machine the current is automatically cut off. Hence except for those men who had previously had experience in handling the short arc the best results were obtained by breaking in entirely inexperienced men. These Wilson welders



GASOLINE ENGINE-DRIVEN WELDING MACHINE USED

after the welding has been completed, and just prior to pouring the concrete foundation.

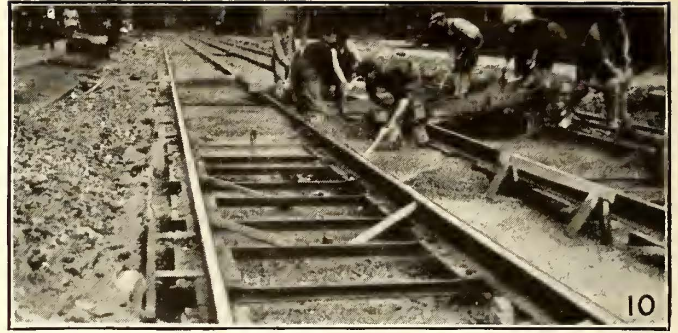
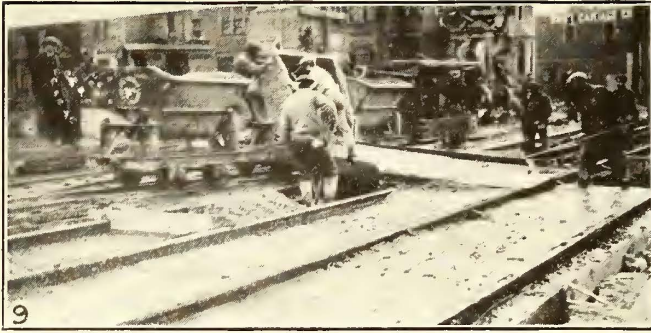
The welding work is usually carried on by placing a Wilson welding machine on each track and assigning an operator to each rail. The use of gasoline engine-driven generators was necessitated because of the absence of power in many locations and because the overhead construction has for the most part been erected after completion of the trackwork. The joint plates are welded to the head and base of the rail along their entire length and the bolt heads and nuts welded as already mentioned. The operator also welds the two rails together at the base where the two ends abut, and then welds the base of the rail to the plate of the steel tie. The rail joints are staggered and both sides of the base of the rail opposite a joint are also welded to the tie plate. This is done on both sides of the rail. Also, beginning at the joint, every other tie is welded to the base of the rail and on one tie per rail length located midway between joints the two tie plates are each spot welded at the four corners to the cross channels (making eight spot welds) as well as to both sides of the bases of the two rails. This insures a perfect cross bond between rails and makes it practically an impossibility for an open circuit to occur in the nega-

have a capacity of 300 amp. at 35 volts using approximately 20 volts at the arc. Under the very heavy service to which they have been subjected they have worked out very well. Two Ohio Brass Company resistance-type welders have also been used at locations where current was available. All joints are finally finished off with a reciprocating grinder after the track is entirely completed.

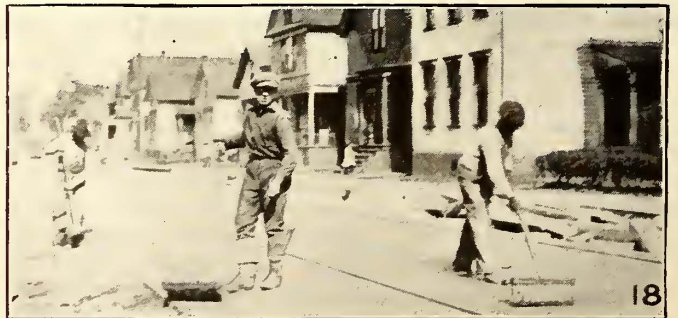
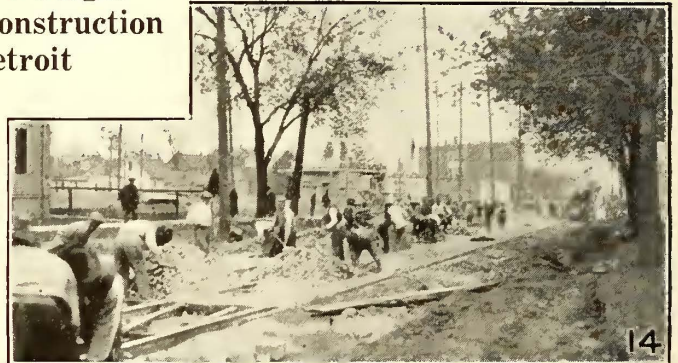
CONCRETING METHODS AND EQUIPMENT

After the track is assembled and welded and wedged and blocked to grade and alignment the concrete for the base is poured as a rather large scale operation. The concrete is prepared at a central mixing plant and distributed 1,000 ft. either way by means of side dump cars which are hauled over a narrow-gauge track by means of kerosene engine locomotives supplied by the Burton Engine & Machine Company, Cincinnati. After a 2,000-ft. stretch of track is concreted the mixing plant is moved to the middle point of the next 2,000-ft. section and again erected.

These mixing plants are usually located in a street intersecting the line under construction. The concrete materials are brought by truck and unloaded in the street adjacent to the plant. From here they are picked

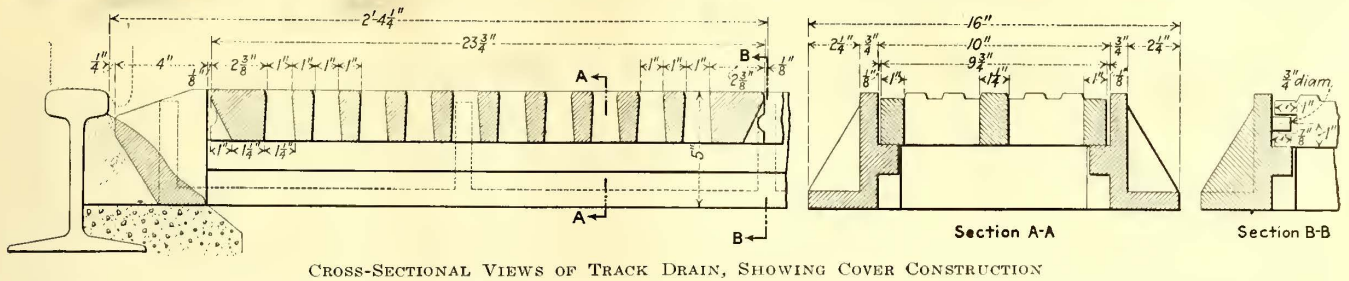


Successive Stages
of Track Construction
in Detroit



9. Dumping concrete from cars into pan and pouring to make track foundation.
10. Another pouring scene showing how care is taken to get complete bearing under ties and rails.
11. "Lift bridge" used for operating concrete trains across existing car tracks.
12. Concrete foundation completed and surface roughed up to secure binding with paving concrete.
13. Crushed granite is dumped by truck loads on the track after the base has hardened.

14. Distributing the granite to a level slightly above the rail ready for rolling.
15. Appearance of track after spreading the layer of granite and before rolling.
16. Grouting machine. The stone is rolled both before and after grouting to form "compressed concrete paving."
17. After final rolling, hand-tampers remove any irregularities and smooth up the flangeway.
18. The final operation is to distribute surplus grout and cross-brush the surface.



CROSS-SECTIONAL VIEWS OF TRACK DRAIN, SHOWING COVER CONSTRUCTION

up by an Erie crane and clamshell bucket and dumped into an elevated bin from which they are discharged by gravity into the charging skip of the mixer. The cement is emptied from bags by hand into this skip. When the charge is made up the chute from the overhead bin is raised so that the skip may be elevated and the materials discharged into the 14-cu.ft. steam-driven mixer. The mixer discharges directly into the narrow-gauge dump cars. The aggregate used is made up of 25 per cent 3/4-in. to 2 1/2-in. slag to neutralize the excessive amount of sand in the local gravel.

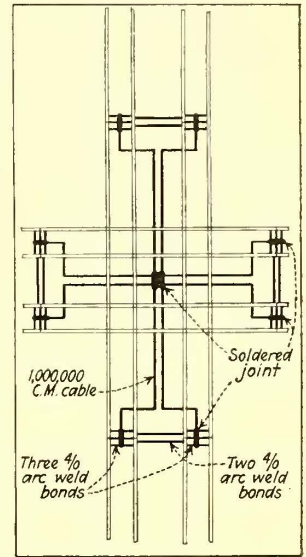
One locomotive and three five-car trains serve each mixer. Three trains are required in order to facilitate the movement of the cars, the plan followed requiring only a single track with a short double-end siding at the mixer plant. Five cars stand idle on this side track while the locomotive is taking five other cars to the pouring point and return and the third five cars are being filled at the mixer. The scheme is this: The locomotive pushes the loaded train to the pouring point and pulls it back after the cars are dumped. When it returns it takes the siding, couples with the five idle cars and uncouples from the five cars which it has just brought back. The five cars just picked up are then pushed through the opposite end of the siding and then pulled back on the track immediately in front of the mixer. The locomotive is then uncoupled from these empty cars and coupled to the five loaded cars and the cycle is repeated. While the engine is gone the five cars on the mixer track are moved up one at a time by hand and filled, moved on beyond the mixer and coupled up ready for handling by the locomotive. It takes a lot of words to tell about this but the operation is very simple and quick, the locomotives coupling and uncoupling practically without stopping except to reverse direction.

At the pouring point the cars are dumped in a large steel pan from which the concrete is shoveled and hoed into the track and shoveled and tamped underneath ties, and underneath rails between ties, so that a complete bearing is secured. As the concrete is carried up 2 in. over the base of the rail, embedding and gripping the ties and base of the rail, the construction is spoken of as being monolithic, though the paving is put on as a separate layer. An effort is made to secure a good union between the paving layer and the base concrete by roughing up the surface of the latter before it sets.

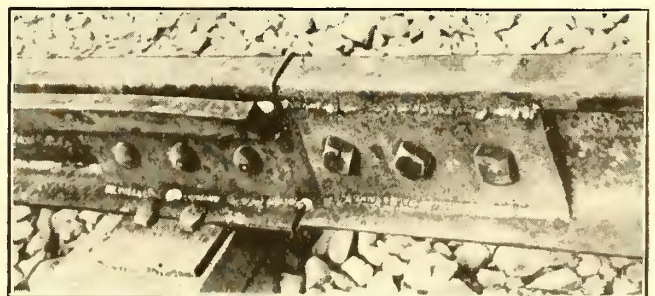
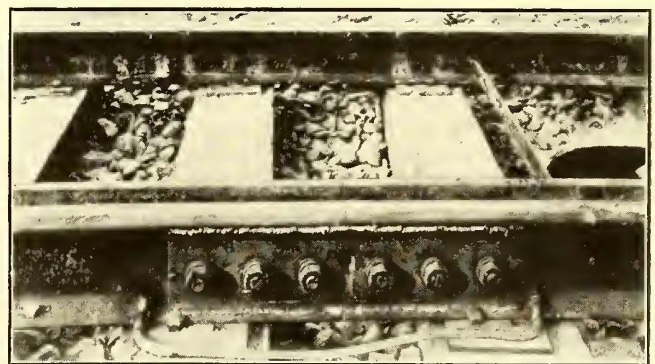
BUILDING THE COMPRESSED CONCRETE PAVING

After the base is poured, the concrete is allowed to set three or four days until trucks can be driven over it. Crushed Wisconsin granite in 2 1/2 to 3-in. sizes is then dumped on the track by truck loads so distributed as to require minimum handling. From these piles the granite is spread with forks and this is the only part of the work where a large number of men are seen to be engaged in one operation. The stone is spread over the trackway, level with the top of the rails or slightly

above, and is then rolled with an 8-ton roller, which just fits in between the rails, until the pieces of stone are thoroughly welded together and a compact mass of stone obtained. A 1:2 grout is then poured into the stone, filling the joints until flush with the top. The roller is again applied, squeezing out all the air and securing a complete penetration. The rolling is continued until there ceases to be a wave of grout ahead of the roller, thus forming a granite-concrete pavement of extreme hardness and presumably having much of the resistance to wear that is characteristic of Wisconsin granite block paving. The grout mixer consists of a sheet-iron tank with straight sides and a curved bottom mounted on heavy steel wheels with the platform about three feet above the ground. A steel shaft to which mixing blades are fastened runs longitudinally through the tank. This shaft is rotated by a small gasoline motor which also operates a loading hopper. The grout



SKETCH OF BONDING AROUND SPECIAL WORK LAYOUT



AT TOP, TYPE OF MECHANICAL AND ELECTRICAL JOINTS USED IN TRACK SPECIAL WORK. AT BOTTOM, BOLTED AND WELDED COMPROMISE JOINTS BETWEEN SPECIAL WORK AND STANDARD SECTION

is delivered from the bottom of the tank through two galvanized iron telescopic swinging spouts, which terminate in cylindrical perforated heads about 12 in. in diameter. These spout heads are moved over the work to distribute the grout equally. One of these units will lay about 900 sq.yd. of grouted cement, 6 in. in depth, per eight-hour day.

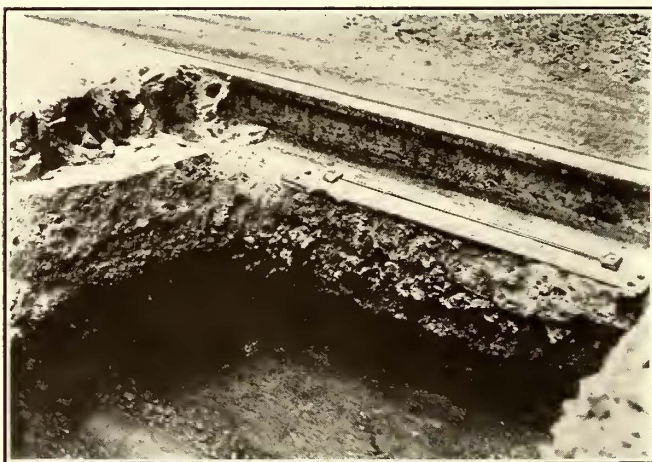
Just before the grout rolling is begun provision is



A CRANE AND CLAMSHELL BUCKET AND OVERHEAD BUNKER GREATLY FACILITATE HANDLING OF MATERIALS AND LOADING TRUCKS AT STORAGE YARD

made for forming the flangeway along each rail by laying down, adjacent to the rail, flange forms consisting of a 4-in. steel strip on top, to which is riveted a 3-in. strip underneath, with a wood filler between the two in such manner as to give a triangular cross-section. As these forms are laid in place the base of the triangle is adjacent to the rail and the hypotenuse down. As the grouted stone is rolled these forms are pressed into the structure, forming a flangeway in the concrete. They are removed after the rolling has been completed.

A group of men follow along after the rolling is completed and tamp down any irregularities in the surface and trim up the flangeway. These men are followed by another group equipped with brooms who dis-



TEXTURE OF DETROIT COMPRESSED CONCRETE PAVING AND FOUNDATION CONCRETE AS REVEALED BY TEST OPENING

tribute any surplus grout and complete the paving surface with a cross-brushed finish. This type of paving is called "compressed concrete paving" in Detroit, but the more common name for it is stone paving. It is being used quite commonly in highway construction and has been used to a limited extent by New England traction companies. The amount of stone used with this compressed process is from 8 to 10 per cent more than

in ordinary concrete. The advantages claimed for this particular type of concrete pavement are as follows: It is more dense and homogeneous than ordinary mixed concrete. It is free from pockets of sand and fine aggregate. As the stone is placed and then grouted, large-sized stone can be used so that all wear is directly on the stone instead of on the cement mortar and the pavement thus has greater resistance to abrasion, the mortar cementing the stone together. A smooth surface comparable with asphalt is obtained. This type of concrete pavement holds up better under traffic and is less likely to crack and chip than ordinary concrete. Excavations through it for underground structures are repaired in the same manner as in ordinary concrete pavement.

SPECIAL WORK CONSTRUCTION AND BONDING

At all special work locations wood ties, tie plates and tie rods and granite block paving are being used, otherwise the construction is the same as on tangent track. The special work is of the manganese insert type using tadpole switches entirely, all special work being of Lorain manufacture. All joints in special work are made with six-bolt fishplates which are also welded along the top and bottom, including the compromise joints between the special work and standard section. The electrical circuit of these joints is further insured

by the use of one No. 0000 arc-welded bond attached to the base of the rail on either side of the 26-in. joint plate. In close work where there is not room to attach this bond



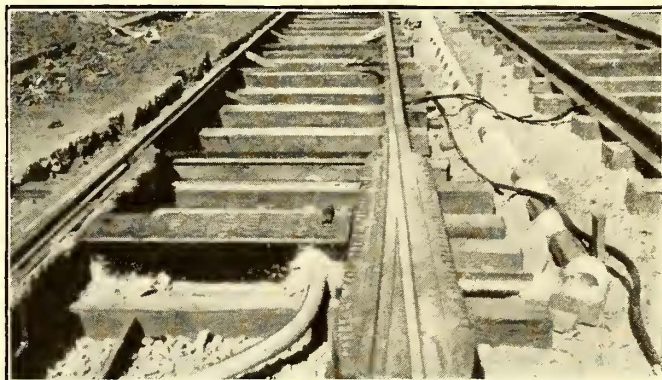
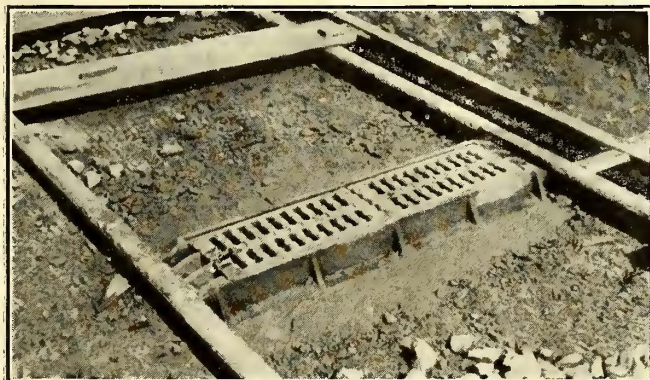
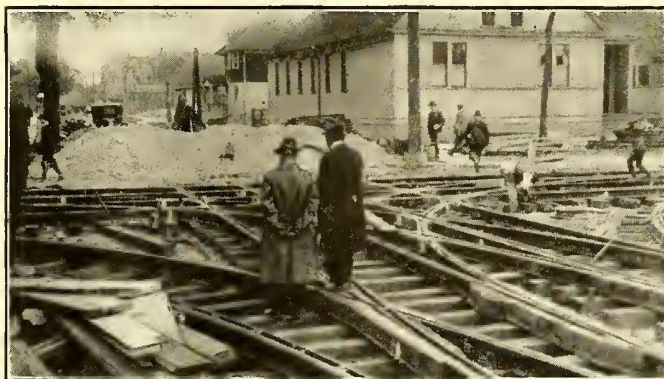
APPEARANCE OF COMPLETED JOINT AFTER WELDING

outside the fish plate a short U-bond is used instead and welded to the base of the rail. This extra bond is used as a safety measure, since the joint in a curve or other special work is more likely to break down than in tangent track, and the expense involved in doing this, when the welding machine is right there, is of small consequence as compared to the value of the extra surety of the negative circuit. Another reason given for the use of this extra bond is that by this means about the same electrical capacity is provided through the special work where wood ties are used as exists where the steel ties are used on tangent track. The nuts of every third tie rod used in special work and wherever wood ties are employed are spot welded to the rail and to the tie rod. On tangent track, a No. 0000 arc-weld cross bond between the two rails of each track is installed every 500 ft., or every 1,000 ft. in outlying sections. At the approach to guard rail curves two such cross bonds are installed and also two between tracks.

The thoroughness with which intersection special work layouts have been bonded is of particular interest. In addition to the complete bonding of the rail joints as noted above, the entire layout is shunted by an unusual amount of copper. For example, at a double-track intersection with a double track the two rails of each of the eight tracks approaching the intersection are bonded together with three No. 0000 standard copper arc-weld bonds. The inner rails of the two tracks at the four approaches are similarly bonded with two No. 0000 arc-welded bonds. The midpoint of the three bonds between the rails of each track is then

connected to the similar cross bonds of the same track at the opposite side of the special work by a 1,000,000 circ.mil stranded bare copper cable, the connection being made with soldered joints which are painted with black insulating paint and wrapped. The entire cables and cross bonds are also painted. There are thus four of these 1,000,000 circ.mil cables, two in each direction, intersecting at the center of the special work layout, and they are all tied together at this point in a soldered joint. These cross cables are laid in the devil strip in a wood trough filled with a mixture of 75 per cent pitch and 25 per cent tar and a small amount of fine gravel. At outlying points the same system of bonding special work layouts is used except that the size of the cross cables is reduced. A sketch of this bonding scheme is reproduced herewith, from which an understanding of the scheme can be more quickly obtained than from the description. It makes it possible to lift out an entire layout without disturbing the return circuit.

Another interesting feature of the special work construction is the installation of a track switch box at every switch point, including the 2-in. galvanized iron pipe or conduit leading up an adjacent pole. These boxes are installed whether or not



AT TOP, A SPECIAL WORK LAYOUT GOING INTO PLACE. AT LEFT, TYPE OF TRACK DRAIN USED TO HANDLE SURFACE WATER. AT RIGHT, DRAINED SWITCHBOXES INSTALLED AT EVERY SWITCH POINT READY FOR FUTURE INSTALLATION OF MAGNETS

there is any expectation of installing an electric switch at this point, the theory being that to carry the investment on the box is a small expense compared to the cost of later tearing up the concrete paving to install a box, in case an electric switch were desired at that point. All these switch boxes are drained by tile connection to the sewer, so that there will not be any spattering of water when the switch is thrown.

SURFACE DRAINAGE

It will be apparent from what has already been said that the track is completely sealed against penetration of water through the structure. In addition to this means of keeping the water out, the surface drainage is made effective by the use of cross-drains extending from rail to rail and by virtue of the pavement grade established by the Department of Public Works to which the car tracks naturally conform. On account of the very flat topography of Detroit, the Public Works Department has established a substantial pitch from

the center of every block toward the corners in either direction, providing for a very quick runoff. This presumably gives good drainage but results in a peculiarly wavy appearance of the car tracks as one looks any distance along a street. The cross drain has been substituted for the round type of drain used in the first track built, because it affords a drain of greater capacity and makes a smooth surface for vehicles to drive over. The particular cross drain used was designed by Mr. Dunham and the features of it are that it provides particularly well for draining the run of water in the flangeway and that it is equipped with a type of cover which cannot flop out of place. This latter feature is accomplished by dividing the cover into two halves, the inside end of each half being cast with a semi-circular groove at each side which fits around and under a round lug on the base casting. This inner end can therefore not fly upward when a truck wheel passes over the outer end or be lifted upward until the outer end has been raised slightly and pulled outwardly. A drawing of this track drain is reproduced herewith.

In addition to the labor-saving devices already mentioned, the facilities for handling materials in the storage yards are also

of interest. For example, the loading of the crushed granite used in the paving is expedited by a crane and $\frac{3}{4}$ -yd. clamshell bucket which picks up the stone from the storage pile or from cars run in on the adjacent track and dumps it into an elevated bin. These facilities are seen in an accompanying picture. This bin has sufficient capacity to load six motor trucks, each holding 6 to 7 cu.yd.

There are two outlets from the bottom of this and the trucks drive in between the supporting timbers and are loaded by gravity, two minutes to the truck. This bin has been built so that it can easily be taken down and transferred to other storage yards located nearer to other construction points. The crane travels along on planks and is, of course, used to unload stone from cars to storage pile as well as to keep the bin filled, and to handle other materials.

A second article on the new municipal system in Detroit and treating the overhead construction will be published in an early issue.

Reduced Fare in Cleveland

On July 10 the Cleveland Railway Began a Thirty-Day Experiment with a 2½-Cent Ticket Fare and 3-Cent Cash Fare for Downtown Riders

CLEVELAND is now in the midst of an experiment with its street railway system that may bring an answer to this question: "How much effect has a low rate of fare on the street car riding habit?" The experiment was begun on Sunday, July 10, when the Cleveland Railway put into operation a 3-cent cash or 2½-cent ticket rate of fare within a limited zone in the downtown section of the city.

The experiment was originated by the Cleveland Railway officials and Fielder Sanders, city street railway commissioner, and was authorized by the City Council for a thirty-day period because of a steady diminution in the number of car riders. Passenger traffic in Cleveland began to decrease almost imme-

an increased convenience to a large number of car riders and that it will lessen the congestion on our sidewalks in the downtown district."

On Monday, July 11, the first business day during which the low fare zone was in actual operation, 8,710 passengers purchased the tickets which are in strips of six for 15 cents, while 8,216 others paid the 3-cent cash fare. The data for the next five days follow:

Date	Number of 2½-Cent Ticket Purchasers	Number of 3-Cent Cash Fare Riders	Total
July 11	8,710	8,216	16,926
July 12	10,145	8,499	18,644
July 13	10,040	8,115	18,155
July 14	11,104	7,645	18,749
July 15	10,374	7,944	18,318

"These figures indicate the experiment is not meeting with the success that had been expected by those who were optimistic that it would stimulate the car riding habit in the downtown district," said Paul E. Wilson, assistant secretary of the Cleveland Railway.

The Union Depot and Pier lines, which operate exclusively in the downtown district, have shown an increased number of riders since the low fare zone was established, but the loss in revenue for the company by reason of the payment of the 2½-cent ticket or 3-cent cash instead of 6-cent fare is more than offset in the increased number of riders. Cleveland is unusually well adapted for the low-fare zone experiment in the downtown section

NOTICE

Commencing Sunday, July 10th, '21, and continuing thereafter until further notice, a low fare zone will be established downtown. The fare for ride within this zone will be three cents cash, six tickets for fifteen cents. No transfers will be issued on this fare.

Passengers desiring transfers must pay regular City Fare and purchase transfers.

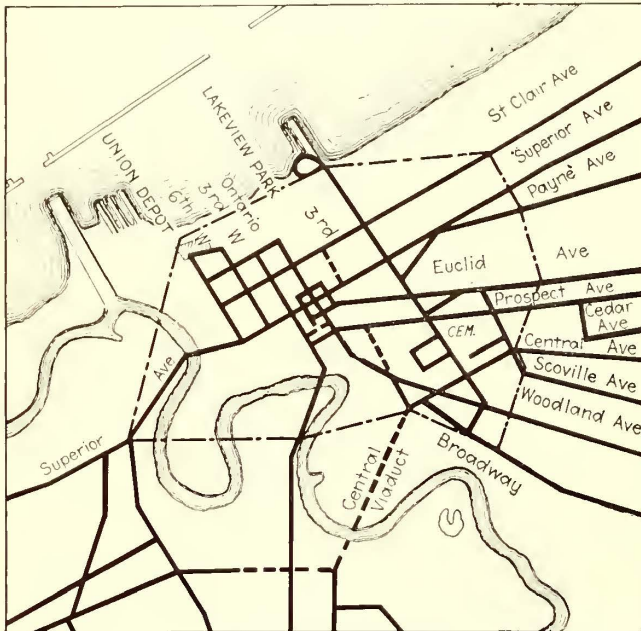
The Boundaries of this zone will be as follows:

St. Clair Ave.	E. 20th St.
Superior Ave.	E. 19th St.
Payne Ave.	E. 19th St.
Euclid Ave.	E. 20th St.
Prospect Ave.	E. 19th St.
Central Ave.	E. 14th & Central
Scovill Ave.	E. 14th & Scovill
Woodland Ave.	E. 14th.
Broadway	E. 15th St.
W. 14th St.	North end of Central Viaduct
Scranton Rd.	Upon Nut Co.
Superior West	West End Superior-Detroit Bridge

Union Depot & Pier Lines Entire Line

THE CLEVELAND RAILWAY CO.

POSTER USED IN CLEVELAND



MAP OF CENTRAL PART OF CLEVELAND SHOWING 2½-CENT FARE ZONE

diately after Nov. 14 last year when the company put into effect the maximum rate of fare provided under the franchise, namely, 6 cents cash or nine tickets for 50 cents, with a 1-cent charge for a transfer and no rebate.

OFFICIALS CANNOT ESTIMATE PERCENTAGE OF INCREASE IN PASSENGER TRAFFIC

The company's officers frankly admitted that they were unable to tell in advance the extent of the business which would be attracted by the reduced fare. "A low rate of fare has always been looked upon as a stimulus to street car traffic," said John J. Stanley, president of the company. "Whether it will prove such in this case remains to be seen, but we are always ready in Cleveland to try out any plan that promises increased service to our patrons when it doesn't mean increased expense, or to attempt anything that will bolster up the revenues of the company." Fielder Sanders, city street railway commissioner, said: "I am very hopeful that placing the cost of a ride in the downtown district as low as 2½ cents will bring back the riding habit, that it will increase to some extent the revenues of the company, that it will offer

because all the cars have been operated on the pay-as-you-enter plan when bound toward the Public Square and on the pay-as-you-leave plan when outbound from the square. This has made it unnecessary to give identification slips or tickets for passengers entitled to the special low rate of fare. The only complication came in the operation of the Peter Witt front-entrance, center-exit type of car. This was cared for by using the entrance door for exit only in the downtown section—that is to say, the cars have been operated as center-entrance, front-exit cars.

The trainmen have been better instructed in arranging for the installation of the experiment than they have been for almost any other change ever effected in Cleveland. This has resulted in there being very little, if any, confusion and has also encouraged the use of the low-fare rate cars in the downtown section. One rule which has helped is that conductors are not obliged to give any change to a 3-cent rider who has no change smaller than a nickel. Such a passenger is obliged to drop the nickel in the fare box.

The following table, showing how the number of car riders has been continually decreasing since the middle of November last year, tells more graphically and

forcibly than any words could one of the potent reasons for the installation of the low-fare zone:

Month	Number of Car Riders	Per Cent Increase or Decrease Over Previous Year
1920		
June.....	37,807,197	13.9
July.....	38,865,614	21.1
August.....	38,623,226	10.3
September.....	37,317,656	9
October.....	38,726,694	6.7
November.....	36,241,205	2.9
December.....	36,824,277	2.2†
1921		
January.....	35,598,783	4.17†
February.....	32,585,727	4.21†
March.....	35,900,733	7.04†
April.....	34,339,336	9.33†
May.....	34,646,310	10.86†
June*	33,500,000	13†

* June, 1921, figures estimated. † Indicates decrease.

A map accompanying this article indicates the territory included in the low-fare zone. A copy of the bulletin posted in the cars is also reproduced.

It seems likely that unless the traffic increases materially within the next two weeks, the experiment will be discontinued at the end of the thirty-day test.

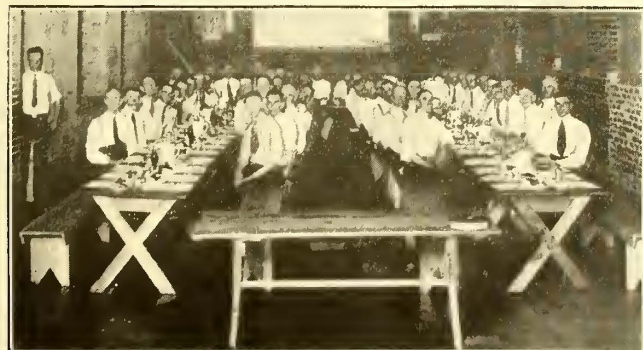
Prizes for Accident Reduction

Louisville Railway Gives Dinner and Entertainment to the Men at the Carhouse Having the Largest Number of Car-Miles Per Accident

THE two illustrations on this page show the result of a competition being conducted on the Louisville Railway in the interests of accident reduction. This competition began with a challenge from one of the carhouses of the company to all of the others to operate a greater number of car-miles per accident. This challenge came out about the time the Louisville Railway Safety Council was organized, and recognizing the value of that kind of competition the company offered as a prize a dinner to the winning carhouse.

The competition was started in April of this year, and Chestnut Street carhouse was the winner, operating an average of 3,960 car-miles per accident. The employees of this carhouse held their dinner on May 17. In May the employees of Highland carhouse won the contest, operating 4,700 miles per accident, and held their dinner on June 22. Chestnut Street carhouse won again during the month of June, operating 3,745 miles per accident, and held its dinner on July 19.

Although the function of the dinner is accident prevention, and that topic is touched upon by the speaker of the evening, the affair is primarily in the nature of a good time for the diners, with an evening of entertainment, all educational features and accident prevention propaganda being subordinated. The speaker is usually some one outside the company organization.



CHESTNUT STREET CARHOUSE WAS THE PRIZE WINNER IN APRIL

Merchandising Transportation

In This Article, the Third in the Series, the Author Discusses Service as Secured Through Department Heads and Records

BY W. H. BOYCE

General Manager Beaver Valley Traction Company

SERVICE is not all dollars and cents. It is human. Cater to your car rider's mind—not alone his pocketbook.

THE extent to which proper service adds to the sale of transportation is a large one, and proper service, as we view the matter, is service from each and every employee. In the carhouse it means proper equipment and careful, conscientious workmen, who must be trained to do their work properly, rather than to give an explanation to their superior officer later on as to why the work was improperly done. This will

Messrs. MARSHALL, Chief Dispatcher
 MEYER, Master Mechanic
 KELBAUGH, Barn Foreman
 McDADE, Assistant Dispatcher
 McDANEL, Assistant Dispatcher
 ALLISON, Safety Engineer
 HUME, Chief of Police
 LOGAN, Night Receiver

I want better service for myself and for our public. Stop! Do some real hard thinking. Are all the men in your department doing their best to render better service, to which our traveling public is justly entitled? I am not unselfish in this, for better service will result in increased car riders. Increased car riders mean increased revenue. Increased revenue means that the possibility of a decrease in wages for all employees will be deferred. It also means additional modern equipment and appliances. Additional modern equipment and appliances should mean further increased and better service and consequently a further increase in revenue. I want you to bear in mind that an increase or decrease in revenue will surely affect your condition here.

W. H. BOYCE, G. M.

SAMPLE OF GENERAL NOTICE TO FOREMEN

result in a decreased number of car failures and better service to the public.

Cars must be well maintained and have their seats comfortable and interior—as well as exterior—pleasing to the eye. It is just as essential that the trucks and electric equipment be in proper operating condition.

More frequent headways, with the same number of cars, may be obtained in numerous instances by eliminating lay-over time and shortening the running time.

A speed as high as is consistent with safe operation is very desirable, because today our patrons do want speed. If they cannot get it on the street cars they will get it from privately owned automobiles or jit-



HIGHLAND CARHOUSE MEN AT THEIR PRIZE DINNER, JUNE 22

High speed artists generally land in the hospital.

INCREASING BUSINESS

INCREASING business on the street cars may sound funny to you but it can be done. Every time you run past an intended passenger you create a feeling that results in his walking.

Every time you are late people walk.

Every time you miss being at the depot stop when the train comes in people walk.

Every fare we lose counts against you as the fares pay your wages—and I get mine from the same source

PASSENGER PAYS YOU

THE greatest service existing in your work is the service the passenger gives you. Funny, isn't it? True though I said he paid your wages. That's mighty important to you—mine are to me anyway. So,

Reduce your speed at all curves.

Courteous conductors may be rare but not extinct.

every service you can give the passenger will not be any more than he is entitled to—remember that

But few of the passengers consider you except in the way you serve them in their transportation needs. Do your duty by every one and when the day comes to a close you can in content spend the evening with the folks at home. Violate the rules and circulate your grouch and things won't be pleasant here nor at home.

SOME WALK—SOME RIDE

THERE is no "have to" about it any more. Those who can, walk when you are not there. Many others buy Fords or automobiles and if luck is with them "get there" without using the street cars at all.

So, you see, that we have Competition.

Good business demands that we meet

Sand, air and a clear head will save you.

When passing cars be ready for quick stop.

that—we know it because passengers have told us. Another reason why your best service efforts should be displayed to the passenger's view.

YOUR LIKES AND DISLIKES

YOU may have your likes and dislikes. Leave your dislikes at home. There is nothing to be gained by bringing them on the job. Every passenger and patron of these lines stand on an equal in the service you are to give. That service is gauged only by the passengers' every need. If lame, aged, or child, it is service to assist them on or off the cars, to a seat and to a safe place on the curb.

THE LADY'S FARE

IF a lady—and she does not need to be well dressed, nor beautiful, nor young, impresses you with the fact

Keep a clear eye and a steady hand always.

A "Rough" motorman has no friends.

that she has left her purse at home, it is none of your business why she left it there. She wants to go some place or she would not have boarded your car. Take her name and address. Ring it up as a fare and turn it in. You can do this in a manner that will make her think you are the best friend she has or you can do it in a way that will make her think you are the most disagreeable person she has ever met.

It should be easy for you to select the service way. It will be disagreeable for you if you select the other way.

BE CLEAN

YOU represent this company on the cars. From the stockholders down to the smallest official this company is clean, frank and has nothing to conceal. Representing the company you will understand that cleanliness in person, appearance, language, and mind is essential. While the company may be

A "Smart" conductor will be found out.

PAGES FROM A HAND BOOK ON SERVICE, ISSUED TO EMPLOYEES OF BEAVER VALLEY TRACTION COMPANY

neys. In many cases the schedules may be slowed down or speeded up to take care of the rush hour or the off-peak traffic. Operating expenses may be decreased and the public better served by a close study of your scheduled speeds. Why use the same running time for off-peak riding that you use during the rush hours, holidays or during stormy weather or when atmospheric conditions make a bad rail? If the running time

is fitted for one condition it is quite likely to be wrong for the other.

You cannot furnish service from the shop regardless of the personnel and equipment without reliable, up-to-the-minute records. If your car failures are increasing you should be able to determine from your records the causes of the increased failures. To depend on your memory and thus form the idea that the trouble is brakes, armatures or hot journals will not do. You must know absolutely the cause. Records, coupled with frequent meetings with department heads—individually and collectively—will bring out the cause.

To lull yourself into a sense of security because you have ordered such and such a thing done regularly will not do. Daily and weekly reports should form a basis for checking up on each department head. If things are not going as they should that does not give you an excuse to interfere in the department, but it does give you the information necessary for you to aid in making the department head make good or form the basis for his removal.

Where one man tries to run the details, or near details, of each department service cannot obtain. Sooner or later the alleged "system" breaks down.

Not only let but make department heads run their respective departments. Accurate, reliable, immediate records will let them, keep them, make them make good. If they make good you will make good by furnishing the proper service to the public.

Employment Data for June, 1921

THE U. S. Department of Labor through the Bureau of Labor Statistics received and tabulated reports concerning the volume of employment in June, 1921, from representative establishments in thirteen selected manufacturing industries and in bituminous coal mining. When the figures of June, 1921, are compared with those of identical establishments for June, 1920, it appears that there were decreases in the number of persons employed in all industries except woolen, which shows an increase of 3.9 per cent. The most important decreases are 41.6 per cent in car building and repairing, 39.6 per cent in iron and steel, and 37.5 per cent in automobiles.

New Brighton, Pa.,.....192.....

Mr. W. H. Boyce, General Manager:

Report of inspection made of.....

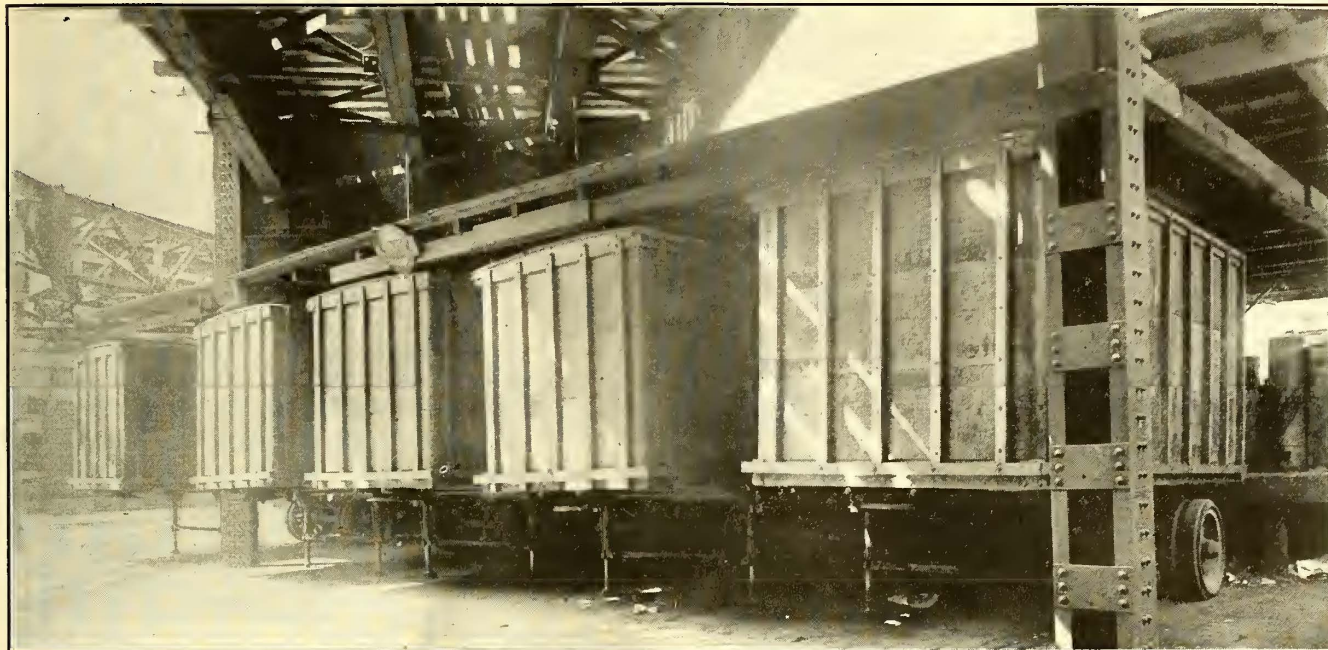
on.....Street, between.....and.....

within the limits of.....

	Inspected Number	Repaired Number	Replaced Cause	Number	Cause
Poles.....
Feed wire.....
Span wires.....
Trolley wire.....
Ears.....
Caps, cones and hangers.....
Frogs.....
Crossings.....
Circuit breakers.....
Switches.....
Methods employed inspecting line work.....
Methods employed inspecting poles.....
Time consumed inspecting.....	Hrs.	Min. ....	.....	.....
Time consumed inspecting.....	Hrs.	Min. ....	.....	.....
Time consumed repairing.....	Hrs.	Min. ....	.....	.....
Remarks:.....
State explicitly if repairs or renewals were caused by an accident, with nature of same, cause, etc.
.....

.....Line Foreman.

TYPICAL INSPECTION REPORT TO GENERAL MANAGER



TRAILERS BEING LOADED AT DOWNTOWN MERCHANDISE DELIVERY AND RECEIVING STATION LOCATED UNDERNEATH "L" STRUCTURE

Motor Truck Haulage in Chicago

North Shore Line Has Receiving Station Close to Chicago Loop and Hauls Merchandise on Trucks to Rail Terminal—Study Shows Service to Be Costly Taken by Itself, but Valuable as Business Producer

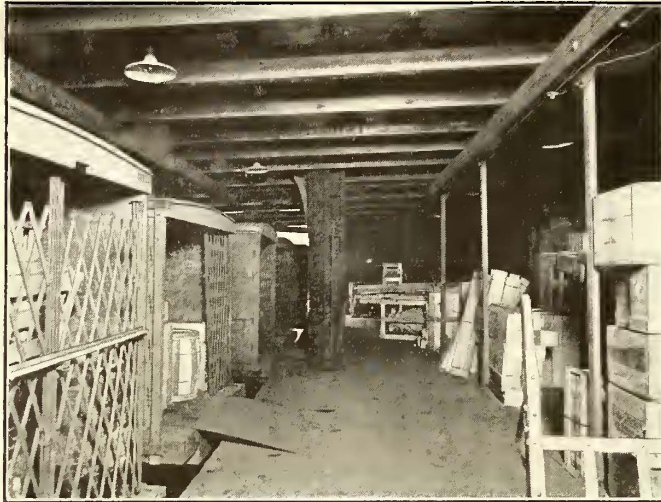
BEGINNING in September, 1920, Britton I. Budd, president Chicago, North Shore & Milwaukee Railroad, inaugurated a downtown receiving and delivery station for the convenience of merchandise dispatch patrons and arranged to haul this merchandise by motor trucks between the terminal of the railroad and this downtown station. The latter was located on a piece of property over which the elevated structure is built at the corner of Franklin Street and Austin Avenue, only a few blocks from the Loop and very convenient to the large shippers in the central district. For hauling the merchandise shipments three large White tractors and ten two-wheel "highway" trailers were purchased. A folding support attached underneath each trailer at the forward end is used to lift the trailer body off the tractor and support it while it is being loaded and unloaded. This support consists essentially of two screw jacks operated simultaneously by a hand crank. The scheme makes it possible to keep the tractors working almost continuously while the merchandise is being placed in or removed from the trailers.

The Chicago merchandise dispatch terminal of the railroad is at Montrose Avenue, which is 6.3 miles north of the downtown or Franklin Street and Austin Avenue station.

Prior to the installation of this downtown station, an effort was made to give the shippers a service which would offset the disadvantage of their having to haul merchandise out to Montrose Avenue, as compared to delivering it to a steam road close at hand, and a contract was made by the railroad with a trucking company to pick up the merchandise at the shippers' premises and deliver it to the Montrose terminal, and also to deliver shipments from the Montrose terminal to the

premises of the consignee. Three different trucking companies with which the railway contracted for this service at a flat rate of 18 cents a hundred pounds went broke. Furthermore, because of their financial troubles, they were unable to give satisfactory service, and there was endless trouble because of the divided responsibility between the trucking company and the railway company. In consequence the latter received numerous complaints for which it was not responsible. Difficulties of this kind led Mr. Budd to determine that the only way that these downtown shippers would be satisfied and their business retained was for the railway company to handle it itself. Accordingly, the facilities already mentioned were provided, and as a result it has been possible for the company to secure and handle satisfactorily an increasing volume of business which undoubtedly would have gone to the steam roads except for the convenience and speed of the service provided.

From Sept. 1, 1920, until March 15, 1921, the company made a charge of 10 cents per 100 lb. for hauling merchandise between Austin and Franklin and Montrose stations. This charge was simply added to the mileage charge between the Montrose terminal and any point on the railroad. With the great increase in competition since the first of the year, due to the material falling off in business available to all carriers, the company on March 15 issued a new tariff which made the Franklin and Austin station a regular railroad shipping point, for which the same rate in effect between rail points applied. On this basis, the gross charge on first-class shipments between the Montrose and the Franklin and Austin stations, as handled by motor trucks and including the extra handling at the downtown terminal, is 1.5 cents per hundredweight.



FRANKLIN AND AUSTIN STATION LOADING PLATFORM AND REAR END OF TRAILERS SHOWING GATES USED

A recent study on the actual cost of this service made for Mr. Budd by H. A. Johnson, organization engineer, developed some very interesting information which confirmed fairly accurately the estimates made prior to the installation as to the cost of securing the business which comes as the result of the downtown terminal. Exclusive of the cost of the operation of the station at Franklin and Austin, and the cost of loading and unloading trucks at this station, the cost of operating the trucks alone is shown in Table I.

The total business handled during the four months period named above, September to December, 1920, was 14,708.75 tons, and the mileage operated was 36,018. The average tonnage of merchandise per trip figures out to be 2.86. On the basis of these figures for four months, it is estimated that the company would handle during the year a ton-mileage of 103,011.48, from which a cost per ton-mile of merchandise handled of 33.2 cents is obtained, or the cost of handling 100 lb. of merchandise between the Franklin and Austin and the Montrose stations is 10.5 cents. Detail figures covering the actual operation of the motor trucks during the four months considered are given in an accompanying table.

The cost of operating the Franklin and Austin station for the seven months ended Jan. 31, 1921, is detailed in an accompanying tabulation. From this table

it is seen that the average station cost for the seven months was \$1.33 per ton of merchandise handled or an average of 6.6 cents per hundredweight. This includes the cost of operating the station and the labor cost of loading or unloading the trailers at this station—the one extra handling involved.

If the station cost is added to the transportation cost between the downtown and Montrose stations by motor trucks (10.5 cents per hundredweight), a total cost of 17.1 cents per hundredweight is found. Against this cost, the company formerly received 10 cents per hundredweight and now 1.5 cents per hundredweight.

Upon first thought this would appear to indicate a loss on the downtown terminal of 7.1 cents per hundredweight on the old basis, or 15.6 cents on the present tariff. The management believes, however, that this terminal must be considered from a broader point of view, as it is true that the cost of operating any terminal, if taken by itself, would show a loss. The broad question involved is whether the revenue derived from the entire service performed for the shipper by the railroad is sufficient to absorb the terminal and trans-

TABLE I—EXPENSES OF TRACTOR OPERATION

Charges independent of the amount of business done	Per Year
Depreciation on three tractors based on 20 per cent of their cost, less tires	\$2,451.03
Depreciation on ten trailers based on 20 per cent of their cost, less tires	3,155.40
Interest on the investment at 6 per cent	1,898.64
Garage rent at \$100 per month	1,200.00
Salary of superintendent of trucks and drivers	2,220.00
Insurance premiums	1,739.28
State and municipal taxes	395.55
State and city licenses	240.00
Cost of painting trucks and trailers once during their life, prorated	260.00
	\$13,559.90

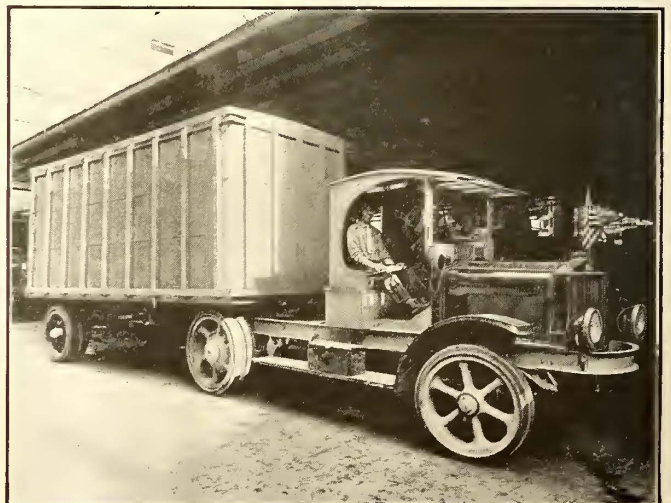
EXPENSES VARYING WITH THE AMOUNT OF BUSINESS

(Based upon the mileage made, the tons of freight handled and the costs of operation during the four months of September to December, 1920.)

	Per Year
Wages for drivers	\$11,310.00
Tire renewals	3,601.80
Cost of gasoline	2,932.23
Cost of repairs (estimated)	1,188.00
Cost of oil	649.08
Cost of grease	62.40
Reserve for losses and damages	882.53
	\$20,626.04

This makes a total cost of operation for one year of \$34,185.94.

portation costs and leave a profit. In the particular case of the North Shore Line, there is also the question of whether the downtown terminal brings to the company enough business that would otherwise not be



TYPES OF TRACTOR AND TRAILERS USED TO HAUL MERCHANDISE BETWEEN RAIL TERMINAL AND DOWNTOWN STATION—
NOTE TRAILER SUPPORTS FOLDED BACK FOR CLEARANCE ON ROAD

TABLE II—COST OF TRANSPORTATION BY MOTOR TRUCK, CHICAGO, MILWAUKEE & NORTH SHORE RAILROAD

	Sept., 1920			Oct., 1920			Nov., 1920			Dec., 1920			Total for 3 tractors for 4 months	Estimated total for 3 tractors for 1 year
	Individual Truck Performances			Individual Truck Performances			Individual Truck Performances			Individual Truck Performances				
Number of trips.....	96	132	132	102	182	166	92	182	188	112	154	176	1,714	5,142
Miles operated.....	812	852	858	861	1,195	1,096	701	1,236	1,280	937	1,016	1,162	12,006	36,018
Oil used—quarts.....	50	52	51	89	90	94	98	99	99	58	181	96	1,057	3,171
Gas used—gallons.....	175	270	250	245	320	335	245	325	358	320	350	390	3,583	10,749
Tons of freight carried.....	188	474	353.25	255	484.5	534.25	194.75	518.50	596.00	219.50	423.50	515.00	4,936.25	14,708.75
Miles per gallon—gas.....	4.32	3.155	3.43	3.51	3.73	3.27	2.86	3.80	3.58	2.93	2.90	2.98	3.351	3.351
Miles per quart—oil.....	16.24	16.38	16.81	9.67	13.16	11.66	6.23	12.50	12.90	16.18	5.61	12.10	11.34	11.34
Tons per trip.....	1.958	3.59	4.04	2.50	2.662	3.218	2.117	2.840	3.170	1.96	2.75	2.925	2.86	2.86
Cost of gas at 27c. gal.....	\$47.25	\$72.90	\$77.50	66.15	86.40	90.45	66.15	87.75	96.66	86.40	94.50	105.30	\$977.41	\$2,932.23
Cost of oil at 81c. per gal.....	\$10.125	\$10.53	\$10.32	18.02	18.25	19.03	19.85	20.05	20.05	11.54	39.15	19.44	\$216.36	\$649.08

secured to justify the expense. While there is no way of telling just how much of the business handled through the Franklin and Austin station would be received anyway without this station and the trucking service, the officials of the company are satisfied that the downtown terminal does bring the company a great deal of business which would otherwise not be received. By virtue of this downtown delivery service in Chicago it is possible, for example, to induce some Milwaukee shippers to use the electric route, and after their patronage for Chicago is obtained other business which does not involve this expensive terminal handling and otherwise would probably have been given to the steam competitor is secured from them.

There is also the consideration that the present investment has provided facilities capable of handling a much larger volume of business with only slight increase in operating expense. Hence with increasing volume, the cost per hundredweight handled would lessen and the terminal cost be thus more easily absorbed, leaving a better profit on the total business. During 1920, with an investment of a little over half a million dollars devoted exclusively to the merchandise dispatch business, the traffic of this kind netted the C., N. S. & M. R. R. a surplus which amounted to 3.5 per cent on this investment after deducting operating expenses, interest, taxes and depreciation.

Among other things, this study has brought out the fact that if the company was contracting with an outside trucking concern for this service, including the maintenance of a warehouse by the trucking company and transportation between this and the Montrose terminal, it would cost that company at least 17 cents per hundredweight without figuring any profit for itself.

The Franklin and Austin station is also being used similarly as a downtown terminal for the Chicago & Interurban Traction Company, of which Mr. Budd is also president. The rail terminal of this Chicago-Kankakee (Ill.) line is at Eighty-eighth Street and Vincennes Avenue, south a distance of about 12 miles from the downtown station. About 10 per cent additional merchandise, above the tonnage shown in the accompanying tables, II and III, has been handled at Franklin and Austin station and hauled to or from Eighty-eighth Street. The cost of this service, however, was segregated from the figures given in these tables.

Direction of Fibers Affects Strength of Fiber Boxes

Where Fiber Is Used for Equipment Parts Its Strength to Rupture Can Be Increased by Attention to Direction of the Grain in the Material

THE direction in which the fibers run in fiberboard boxes has been found to have a considerable effect upon the serviceability of the boxes. Fiber board does not tear as easily across the grain as with the grain; it may have two or three times as much strength in one direction as in the other, the difference varying with manufacturing conditions. This excess strength may be advantageously used to reinforce the weakest points of the box and so to produce a better balanced construction.

The weakest parts of fiber boxes are the scores or folds forming the edges of the box. It is impossible to have the fibers running perpendicular to every score, but usually they might be made to run perpendicular to the scores which receive the hardest punishment, or which tend to break open first. The location of the scores most liable to failure, of course, varies with the shape of the box and the nature of the contents, and can best be determined by test. The following comments and deductions are for boxes whose depth is less than their width.

In tests at the U. S. Forest Products Laboratory, on fiber boxes, it was found that the first break nearly always occurred in the horizontal end scores. By making up the boxes so that the fibers ran vertically instead of horizontally in the sides and ends, the first break throughout the length of a horizontal end score was retarded about 85 per cent. Through the same change, the horizontal side scores, which received the next hardest punishment, were strengthened so that the first break never occurred in them.

The gain in strength of the horizontal scores was, of course, accompanied by a weakening of the vertical scores. But since the upright scores do not ordinarily receive as great stress as the horizontal scores, and in these particular tests were not as likely to come in contact with sharp edges, they were able to stand a reduction in strength and yet not become the point of first failure.

TABLE III—COST OF OPERATION OF FRANKLIN AND AUSTIN AVENUE MERCHANDISE STATION FOR SEVEN MONTHS ENDED JAN. 31, 1921

Month and Year	Tonnage Handled	Cost of Personnel	Rent per Month	Depreciation on Building	Insurance per Month	Light	Heat	Total Cost	Cost per Ton for Station
July '20	1,503	\$1,832.76	\$15.00	\$24.25	\$1.39	\$12.90	\$0.00	\$1,886.30	\$1.255
Aug. '20	1,090	1,935.29	15.00	24.25	1.39	13.10	0.00	1,989.03	1.816
Sept. '20	1,104	1,703.51	15.00	24.25	1.39	13.60	0.00	1,767.75	1.601
Oct. '20	1,249	1,493.74	15.00	24.25	1.39	15.80	17.35	1,567.53	1.255
Nov. '20	1,286	1,299.38	15.00	24.25	1.39	17.49	22.10	1,379.61	1.073
Dec. '20	1,124	1,283.17	15.00	24.25	1.39	15.18	28.40	1,367.39	1.216
Jan. '21	1,218	.....	15.00	24.25	1.39	16.10	27.20	1,454.76	1.194

Average cost per ton for station, \$1.332. Average cost per cwt. for station, \$0.066.

Electric Railway Publicity

Devoted to How to Tell the Story

Publicity Must Be Temperate

Successful Business Man, Discussing Utility Public Relations, Advises Against Scolding the Public—He Finds Analogy in Parent-Child Relation

BUSINESS men in a certain large city have been puzzling their minds with efforts to analyze the reasons for the obvious public favor extended to one utility and the disfavor in which another finds itself. There are no radical differences in the merits of the two utilities or in their rights to the good feeling of the public. Indeed, the local critics of utilities have said almost exactly the same things against both in the usual course of recrimination. Yet there is a widespread and vociferous antagonism to the one and complacency to the other.

A business man made the following comment on the situation, extending his remarks into philosophical observations on human nature and children:

The solution of the problem can be found in the general managers. "A," manager of the "X" company, has tried hard to win public favor for his company and failed. "B," manager of the "Y" company, seemingly has made no effort to educate the public on the claims of his company to public sentiment. "A" has tried too hard; he has spent a great deal of time arguing with business men, giving out interviews and making statements, to show that the critics of the company were wrong. He has fought back and has kept alive all the antagonism that ever existed. He has not allowed the public to forget that the company was hated in some quarters. He may have convinced most of the citizens that the company was right and that it should have the co-operation of the public to secure the best results in service, but nevertheless the hostility has increased rather than diminished. It seems to me that his remarks are nearly always accepted as "propaganda," being therefore vitiated. The public estimates, far below their value, the remarkable accomplishments of this manager in the maintenance and improvement of service.

Now, "B" seldom addresses a public gathering and has never argued in behalf of his company. On a few occasions he has spoken very plainly regarding the co-operation which a community should extend to its utilities, but he has spoken goodnaturedly, without criticism of anybody or anything, and without intimation that criticisms had ever got under his skin. He has assumed all along that he and his company have no enemies; that the public is growing in appreciation of the service rendered and the larger service possible. Once in a while there is a flare against his company, a violent controversy over some element of service or rates; but nobody seems to be able to get up much enthusiasm for a sustained warfare. The manager allows the incident to wear itself out, without aggressive interposition from himself, and it does wear itself out in a few days and is forgotten.

I have been intensely interested in observing the different methods of these two managers, for the two methods are analogous to the methods of managers in private business and the methods of parents in the management of their families.

A factory or office manager, a superintendent or foreman may possess extraordinary qualities as a planner and director but fail in management because he does not know how to handle men. He may adopt aggressive tactics which keep his plant in a turmoil, arguing, exploding, commanding, criticising, until in course of time nearly every employee has acquired a secret grouch against him. However highly the employees may respect his technical skill, they cannot bring themselves to hearty co-operation with him. Another manager may not be so obviously the dictator in his plant, yet a quiet word from him may produce instant response, of the exact kind that results in the most efficient operations, an intelligent and loyal response.

A father may rule with a firm hand, punishing and scolding and reminding constantly of errors and improper habits, yet his family circle may present a far different picture than that which he had conceived and which his diligent attention might have reasonably been expected to produce. Another father, quite as ambitious and intelligently thoughtful for the development of his children, may seldom scold or punish, and yet may lead his children into harmonious and fairly complete compliance with his designs.

The fact that more than twice as many passengers were carried by the local traction systems of New York City than were transported by all the steam roads of the United States is being given publicity in the July number of the *Elevated Express*, published by the Interborough Rapid Transit Company, to allow a realization of the enormous demands being made upon New York's traction systems. The actual number of passengers carried during 1920 is given as 2,356,000,000.

Live in Live Louisville

Live in Live Louisville

Louisville Railway Company

Incorporated

The Louisville Railway Company was organized in 1889 as a consolidation of the Central Passenger Railway and the Louisville City Railway.

Today it is operating 168 miles of city track-
age. The number of cars operated varies from 311 during rush hours to 125 during non-rush hours. It carries annually 80,000,000 cash fare passengers and 30,000,000 transfer passengers. By construction and purchase of seven suburban trolley lines, with 102 miles of track, the company has brought into intimate contact with Louisville a large and prosperous suburban population.

It gives employment to 1,806 persons (including the Louisville & Interurban) and its annual pay roll is \$2,250,000. It purchases each year supplies and materials to the amount of \$900,000, most of which is spent in Louisville.

Bonds to the amount of \$12,035,000 and notes to the amount of \$684,000 have been issued to provide for replacements, extensions and more modern service. All of these issues have been marketed through Louisville financial institutions. Seventeen hundred and eighteen stockholders, of whom 1,389 are citizens of Louisville, have invested \$11,823,600 in this company.

The company has served this community for more than thirty years, providing new equipment as the need arose, and, up to the present time, has been able to make extensions and improve the service to keep pace with Louisville's growth.

The above information prepared and published by

Citizens Union National Bank

Know Your City

Boost Louisville

Speaking of Noses

Cutting Off Utility Noses Ruins Community Faces—Friendship, Not Feuds, Needed to Secure Progress—Railway Official Talks Out in Meeting

P. S. ARKWRIGHT, president of the Georgia Railway & Power Company, Atlanta, Ga., recently gave an address before the Lion's Club of Atlanta. His remarks were so pertinent to the general utility situation that they are abstracted below. It is understood that this address will soon be available in pamphlet form. It has already been widely quoted in Georgia papers:

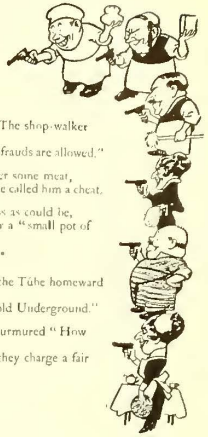
A lot of us are not entirely pleased with our faces. Some of us may even have a spite against them. Cutting off our noses will certainly ruin our faces. However, we won't let anybody persuade us that we can thus avenge ourselves and escape all injury. But, figuratively, many of us do this very thing time after time.

We did it with the steam railroads. We permitted our resentment to be aroused against them. We became violently prejudiced. We created an attitude of general hostility to them. There is no doubt of the fact that we injured them. We certainly succeeded in keeping them from operating profitably. We regulated them most stringently. We soaked them in damages whenever we got on the jury. We elected every public official who ran on the platform of antagonism to the railroads. We destroyed the confidence of the investing public in the safety of their securities. We kept them from getting new capital.

Now we have gone hunting for new game. There were the local public utilities—electric railways, gas, electric light and power and telephones. These services at first were small, but they developed rapidly. There were almost daily improvements in the supply and application of these services. Street railways were being electrified, consolidated into a system covering the areas of towns, spreading out into suburban districts, making possible the growth and expansion of cities. So with gas, electric light and power. All this was done in an atmosphere of friendliness and co-operation, resulting in fair treatment and just consideration of the utilities and of the public they served.

In the process the companies were of necessity becoming larger and larger; the amounts of money involved going up into the millions. The necessary capital, not being able to be obtained in the locality, was being drawn in from the outside. Increasing numbers of the population were becoming each day more and more dependent upon the serv-

THE NEW MOTHER HUBBARD



THE New Mother Hubbard she went to the cupboard
And found that her stores were "uspoor";
So she said to her maid: "I must shop, I'm afraid.
I'll be back at a quarter to two."

She went to the baker's to order some bread,
And the price of the loaf had gone up, so they said.
She went to the grocer's to purchase some cheese,
And was told at the desk: "Simpence more, if you please."

At a small ironmonger's she asked for a mop,
But, on hearing the cost, she walked out of the shop.
She went to the draper's to look at some lace,
But the price that they asked was a perfect disgrace.
She went to the hosier's. They showed her a stocking
Of "substitute silk" at a charge that was shocking.

The dame threw her head up. The shop-walker bowed.
The dame said: "I wonder such frauds are allowed."
She went to the butcher's to order some meat,
But things got so strained that she called him a cheat.

She went to a tea shop, now cross as could be,
And they charged one-and-six for a "small pot of tea."

"Thank goodness!" she said, in the Tube homeward bound,
"They don't 'profiteer' on the old Underground."

As she gave up her ticket, she murmured "How nice!"
That's the only place left where they charge a fair price!"



SOME UNDERGROUND PUBLIC EDUCATION ON HIGH COSTS

ices performed by these companies. They became shining marks. They were foreign owned. They were monopolies—necessary or natural monopolies, it is true, but abhorrent nevertheless. It was so easy to teach people to hate them. They came into more intimate contact with more members of the public than any other enterprise that does business with them. More people ride on the street car systems every day than the entire population of the city it serves. These people are of all kinds and dispositions. Some of them are apt to lose their self-control and to take offense or to give offense. The railway vehicles are operated as public vehicles, and each individual in using them has to give up some of his separate individual convenience in order that they may be kept capable of serving the general convenience. Customers had to submit to rules, and rules always irritate. We all go to business practically at the same time and return home at the same time. Naturally we can't all get a seat. Their properties of necessity occupy the public highways. They impede other travel; they are noisy; they have accidents. These companies furnish only service. We don't like to pay for service, nor can we stand for any delay in service or any slackness in service, no matter what the cause is. We get on the car and get off, and we have got no more than we had when we got on. We switch on the light and when we switch it off it's gone, with

THE PROMENADE CONCERTS
BY UNDERGROUND
TO OXFORD CIRCUS

FOR COUNTRY WALKS

HARROW WEALD
BY THROUGH BAKERLOO TRAINS
TO PINNER AND HATCH END

ST ALBANS
BY MOTOR BUS ROUTE 64
DAILY FROM GOLDERS GREEN

DENHAM BY TRAM FROM
SHEPHERDS BUSH + HAMMERSMITH
OR BY DISTRICT RAILWAY DIRECT

UNDERGROUND

BOOK TO
REGENTS PARK
OR
CAMDEN TOWN
FOR THE ZOO

UNDERGROUND

nothing left. We turn out the gas and it is as if it wasn't there. We have got to have this service immediately when we want it and of the quality that we need. We can't wait for our light, or our power, or our heat, or our transportation. If the service is postponed it is no longer needed.

We are billed for it monthly in terms of quantity that we don't understand; measured by an instrument that we don't know anything about. The service is easily wasted. We are not willing to admit our own faults, so naturally we blame the service, but the fault may lie in our own extravagance or in the extravagance of our household.

Under these circumstances, it would be strange if, through a period of years, there was a single individual who had not at some time had a fault to find with the public utilities. The utility is therefore an ever-present, ready-to-hand, easily and usually successfully employed platform for the advancement of personal, political ambition.

I can understand people following a leader of that kind if they get any benefit from him. If abusing a public utility or taking out a spite on it brought lower fares, or better service, or nicer cars, or firmer tracks, or more extended facilities, probably the methods used could be justified in the ends achieved. It passes understanding, however, why any community should approve such methods when it not only brings no gain or benefit to the community but inevitably results in harm and injury.

You are familiar, and unfortunately all the world is familiar, with the attitude of antagonism to the Atlanta utilities which has been engendered in this community during the past three years or so. What has been the result of this official attitude?

It has injured the company unquestionably; it has created a spirit of enmity among many of the people; it has made it difficult—practically impossible—to raise additional capital for the improvement of the service and the expansion of the utilities. It has increased the cost of such money as has been obtained. It has entirely reduced the efficiency of the employees and even on occasions almost demoralized them. It has greatly enlarged the cost of operation; it has retarded extension; it has impaired the quality of the service, and it has resulted necessarily in increased prices. All of which has injured the company, of course. But at what cost to the community?

It hasn't resulted in lower fares or rates. Notwithstanding the assaults, the fares and rates have increased because of necessity they must have increased under the conditions existing.

The service has not improved as a result of these attacks. This method hasn't been responsible for the repairing of a single new car or the laying of a foot of track or any improvement in quantity or quality of the gas or electric supply.

As a matter of fact, because of this attitude, it has been impossible to carry on the developments and improvement the company had planned, and among other things it forced the suspension of a hydro-electric development on which practically half the cost had already been spent. Can there

be any question of the injury to the community?

The interests of the community and its utilities are interdependent. Our properties are planted here and here they have got to stay. They can't be taken up and moved away. So we have got to make our success right here and it is dependent on the continued growth of this community. So with the community; its growth, prosperity and well being are dependent upon the character and quality of its public utility service, and anything that impairs that service

or impedes an extension of it injuriously affects the community. My judgment is that the public utilities in Atlanta would have been developed 50 per cent more than they have been but for the official attitude of enmity and ill will toward them.

Atlanta has no ocean or great lakes or majestic river or navigable water. It has no iron, coal, copper, oil or other useful mineral deposits. It has no stupendous manufacturing plants or one overshadowing industry. Its natural advantages are location, accessibility and climate. No one locality has any monopoly of these advantages. So to make a city grow here requires effort, teamwork and co-operation. Atlanta could never have reached its present position as a financial, transportation and commercial headquarters of the Southwest with this dissension and discord among her people.

Let's apply this treatment of co-operation to our public utilities. It would be too much to hope that we should never quarrel with them, but let's stop having a feud with them.

This Speaks for Itself

THE Third Avenue Railway system in New York extends from the old Post Office in lower Manhattan to beyond the city of Yonkers on the north and the city of New Rochelle on the northeast. The lines below were drafted for use on the Third Avenue Division, which is the main stem and has headquarters at Sixty-fifth Street and Third Avenue, Manhattan.

THIRD AVENUE RAILWAY SYSTEM

COMMENTS

- "C" is for controllers, now under close watch. To see if they're fed as they should—notch by notch. So cut out your fast feeding and running between Notches, resistance—you know what I mean—
- "O" is for Observance; observe every rule. Don't forget them the moment you leave Harlem School. Keep them in mind and it's a safe guarantee. You'll bring credit to yourself, the Division and me.
- "M" is for Motorman; both the new and the old. This little lecture to you I'll unfold. "Do right all the time and commendations are yours. Do wrong—well, you know we punish wrongdoers."
- "M" is for Motto; let our Motto be, To practice efficiency in the highest degree. Avoid accidents—operating with care. Be courteous to passengers, treat them all fair.
- "E" is for Economy, daily practiced and preached. We'll not relinquish a trifle 'til the highest standard's reached, So let's all club together with vim and with pep. And uphold what is known as "Third Avenue's Rep."
- "N" is for Nickel, representing one fare, We need all the nickels; the public's our payer. Our duty, therefore, is to be courteous and kind. Don't be grouchy or gruff and don't leave them behind.
- "D" is for Danger; when you see it around Have a care, watch your step or else you'll be found On your back on a cot with kind hands on your brow. Or perhaps you'll adorn the noted "Hoose-gow."
- "A" is for Accidents, which mean heavy expense Paid out in our hard-earned dollars and cents. Let's try to avoid them I ask you again. They're the source of much suffering, sorrow and pain.
- "T" is for Troubles; our troubles are rare. We're not hounded or pounded if we work on the square. We're treated like white men, our worries are small, In fact, it's up to ourselves to have any at all.
- "I" is for Ireland and Italy too, A good combination when mixed with the Jew. All well represented on this road, I will say, And strongly backed by the old U. S. A.
- "O" is for Only; there's only one road. And that's in Manhattan and right well we know it. We plug all day long traveling uphill and down Carrying patrons with safety all over the town.
- "N" is for Never: We must never grow stale, Whether running on dry or on slippery rail. We must operate right Commendations to gain. If we don't do what's right the Boss will raise "Cain."

Drawing Dividends of Service

Even though you are not a stockholder in the Louisville Railway Company, you are getting dividends from its operation.

You collect them every day.

You are a partner—a preferred partner.

When you ride to work in the morning—

When you ride back home at night—

When you take the family down town to the movies—

When your children attend the high schools—

When your wife visits the down town shops—

You are drawing dividends of SERVICE.

Have you ever stopped to realize that the size of your dividend depends to a large extent on your attitude toward those who make it for you?

Isn't it a fact that conditions you fix determine to what extent we can serve you?

Doesn't your own self-interest demand that you should work with us for constantly improving service?

We look upon you as a partner in this public enterprise

We welcome your suggestions.

We hope to have your co-operation.

JAMES P. BARNES, President
LOUISVILLE RAILWAY COMPANY
Incorporated

J. P. BARNES BELIEVES IN PUBLICITY

Equipment and Its Maintenance

*Short Descriptions and Details of New Apparatus of Interest
to the Industry. Mechanical and Electrical
Practices of All Departments*

Plow and Circuit-Breaker Testing in Washington

The Overload Current Testing of Plows Used on the Underground Conduit System of the Washington Railway & Electric Company Plays an Important Part in Preventing Trouble in Service

FOR proper calibration of circuit breakers and current test on current-collector plows which are used on the cars of the Washington Railway & Electric Company the switchboard and water rheostat shown in the accompanying illustration were erected close to the place where these pieces of apparatus are repaired.

The switchboard has a slate base and is mounted at a distance from the floor convenient for the operator. The

of the switchboard. The movable terminals of the rheostat are raised or lowered through ropes which operate over sheaves mounted on this shaft. The rheostat is made up of two old oil barrels with the circuits connected to them in parallel so as to reduce the heating of the brine as much as possible. The arrangement of the barrels, operating equipment, shafts, counterweights, etc., is readily seen in the illustration, and a window to the left of the switchboard furnishes a convenient means of watching the operating of the rheostat from the inside of the building, while its location on the outside insures that no obnoxious fumes will interfere with other work.

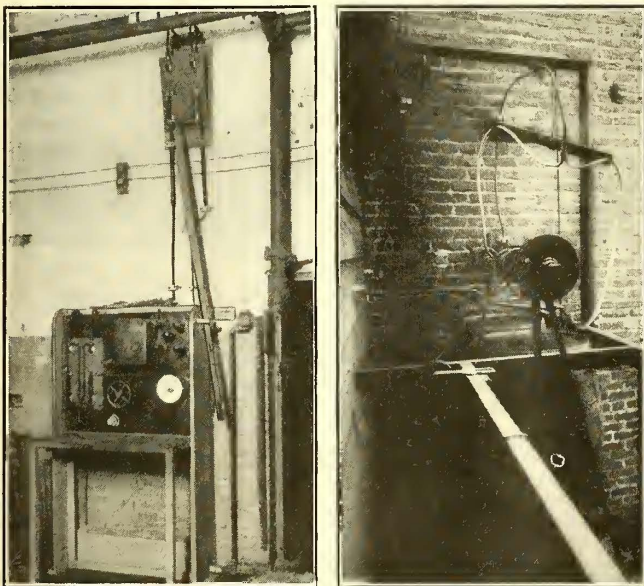
Large Automobile Interests Enter Motor Bus Field

THE Republic Truck Company, one of the John N. Willys subsidiary companies, enters the motor bus field with a specially designed single-deck motor bus equipped with the Knight sleeve-valve motor. The company plans to co-operate with the railway companies in the development of the motor bus field and Col. Frank Smith, first vice-president and general manager of the Republic company, has created a public utilities division under the direction of Ralph M. Sparks, formerly of the Bay State System, Boston, who has been appointed manager of this division.

The Republic company has made a comprehensive study of motor bus operation as it exists in the United States and abroad and believes, with most experienced bus operators, that the ordinary truck chassis is not suitable for passenger transportation. A specially designed unit is now being built. Particular attention has been paid to spring suspension, body overhang, tread of wheels, etc., to insure comfortable riding under varying loads. The type of motor used is the same as that which has been adopted as standard by the Fifth Avenue Coach Company in New York.

The all-steel body is hung so that the floor level above the ground is approximately 24 in. With a folding two-panel door of good dimensions and low steps, passenger interchange can be accomplished with a minimum of delay. A form of cushion wheel and tire is used. To insure further comfort to passengers and at the same time cut down maintenance, an electric gear shift is used. In addition to the electrical attachment there is a regulation hand control, which is used only in emergency. Cross seats are used in the bus, which has a seating capacity of twenty-five passengers, except over the rear wheels, where longitudinal seats are necessary because of the low-floor feature. A fare box is conveniently located in the front.

A completed bus will be presented for inspection of the railway companies some time the early part of August.



AT LEFT, SWITCHBOARD FOR CIRCUIT BREAKER AND PLOW TEST;
AT RIGHT, WATER RHEOSTAT WITH TESTING EQUIPMENT

double-pole switch shown mounted on the wall above the switchboard is an isolating switch which cuts off all current from that point when the switch is out. This is easily operated by a long wooden handle. As a caution to the operator, when this switch is in and the board is "alive" a five-light circuit of red lamps burns on the board. These are shown in the upper right-hand corner. The double-pole, double-throw switch at the left of the board is for the purpose of adjusting polarity changes of the circuit which frequently occur on this road with the metallic return circuit. The circuit breaker in the center of the board is set at 800 amp, and a 0-to-800-amp. ammeter shows the current taken.

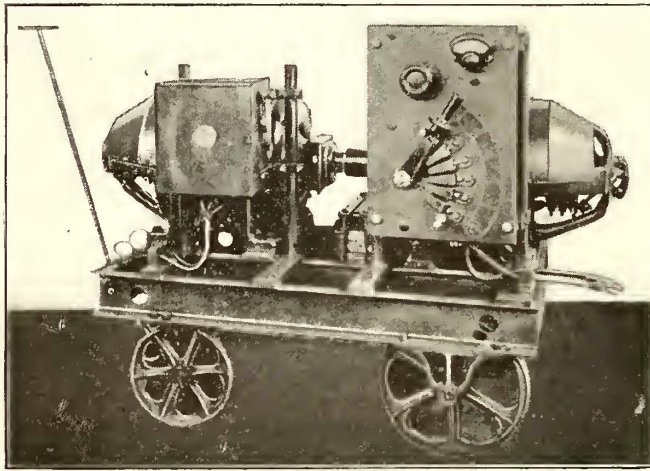
The water rheostat for regulating the value of the testing current is located outside the building and operated through a shaft by the wheel shown in the center

New Variable Voltage Welding Set

THE General Electric Company has recently placed on the market a new type of electric arc-welding equipment for operation from variable-voltage, direct-current trolley circuits.

The equipment consists of a standard type WD-9 4-kw., 60/20-volt, 200-amp., self-excited arc-welding generator direct connected to a type RF-10-A constant-speed, variable-voltage, direct-current motor. The motor is designed to maintain practically constant speed on voltages varying momentarily from 400 to 650 and is provided with compensating pole-faced windings as well as commutating poles.

The generator is designed so that at constant speed



VARIABLE-VOLTAGE, DIRECT-CURRENT WELDER

the energy delivered at the arc is practically constant. Since the voltage and current follow the momentary variations in the arc conditions practically instantaneously, the lag which causes defects in the weld is eliminated. By the adjustment of the dial switch on the panel, the current may be adjusted from 200 to 75 amperes in 25-amp. steps. Intermediate steps are provided for by adjustment of the field rheostat.

The sets are assembled complete with generator panel, motor starting equipment and stabilizing reactor, all mounted on a structural steel base. The equipment may be made portable by the addition of running gear.

Greasing and Cleaning Tracks

THE maintenance department of the Seattle Municipal Street Railway has systematized its track greasing and switch cleaning. The trackage of the system is divided into routes of an average of 12 miles each, with a track greaser assigned to each route and a relief man to take the place of each regular greaser. This relief man also takes the place of the oiler on the cable line four days in each month, and by this arrangement each man has two days a month off. A foreman reporting direct to the maintenance engineer has charge of the men.

The schedule of greasing requires that each route should be covered at least twice daily and in some special cases three times daily. The various parts of the track greaser's outfit are shown in an accompanying illustration and consist of a grease bucket, a switch cleaning iron, a copper oil can, a grease swab and a deck broom.

The galvanized iron grease bucket holds 12 qt. and has straight sides with a rim around the bottom $\frac{3}{4}$ in.

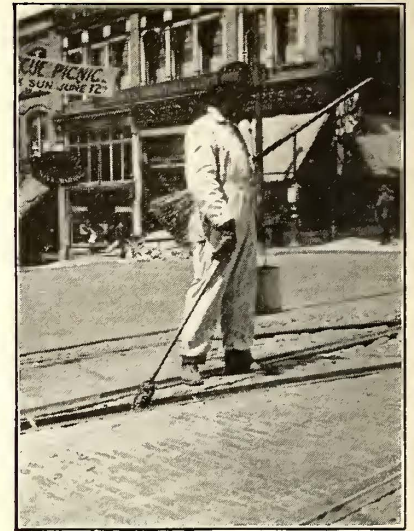
wide, made by turning up the bottom onto the sides and firmly soldering the edges together. This gives a substantial rim for the bucket to rest on and the bottom of the bucket rests on the inside of this rim. The top rim is made of $\frac{3}{8}$ -in. wire.

The greaser uses a swab which has a wire framework composed of four pieces of wire each about 20 in. long, crossed at the bottom, through which are drawn strands of

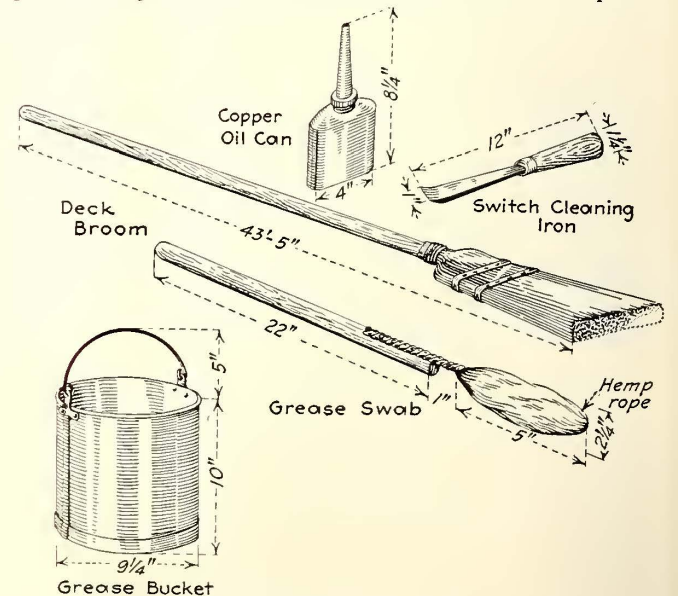
either hemp or manila rope $3\frac{1}{2}$ in. long. After the swab is filled to the required height and dressed down to the required shape with shears the wires are drawn together and twisted tight at the top. This is then attached to a wooden handle to make it of convenient length for the use of the greaser.

A No. 8 deck broom is also carried by the greaser for cleaning out switches and for cleaning between the guard and running rails. In addition he also carries a switch cleaning iron which is made in the company's shops and is about $9\frac{1}{4}$ in. long, set into a round handle $2\frac{1}{2}$ in.

The total length of this cleaning iron is thus approximately 1 ft. and can be carried in the side pocket



TRACK GREASER WITH EQUIPMENT FOR WORK



TRACK GREASER'S OUTFIT OF THE SEATTLE MUNICIPAL STREET RAILWAY

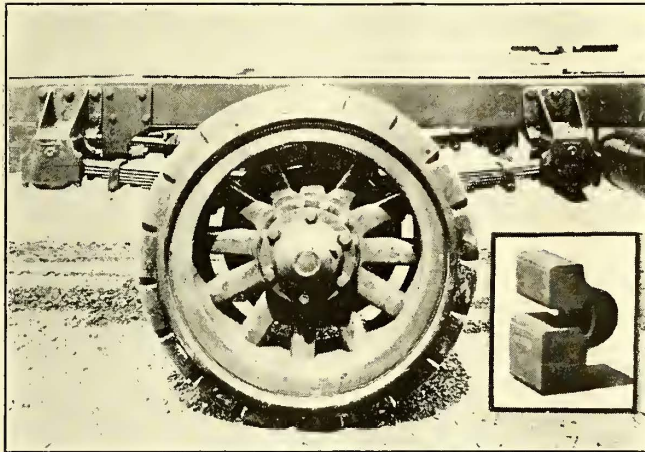
in the man's overalls. A small copper oil can is also carried with switch oil to be used on the switches.

In addition to the regular work of cleaning and oiling, the track greaser also reports all defects that he may find in either tracks or switches. This information is given direct to the office so that emergency men may be sent out immediately to make any necessary repairs.

Rubber Spring Blocks Improve Riding Qualities of Bus

THE International Motor Company has developed and applied to several of its Model A B Mack chassis in motor bus service a novel easy-riding device. A rubber spring block, so called, acts very much like a shock absorber of the cushion type, although in this case the device which takes the blow is in compression whether the load is up or down.

These rubber spring blocks do away with the usual spring shackles. They are held fast in a housing that is bolted or riveted to the chassis frame. In order that



VIEW OF REAR SPRING SUSPENSION SHOWING HOUSING SURROUNDING RUBBER SPRING BLOCK—INSERT, RUBBER SPRING BLOCK ITSELF

the springs may function properly in carrying their share of the load, lipped plates are riveted to the ends of the two top spring leaves, which then fit into the mouth of the spring block inclosing the lips and holding the upper and lower members of the block in compression at 100 lb. per square inch when bolted up.

Road tests that have been run by the motor company indicate the life of the spring block is about 30,000 miles. It will take but a small percentage of time to renew these rubber blocks as compared to replacing bushings, pins, etc., in the ordinary form of spring suspension. The truck manufacturers claim this can be done in an hour.

The illustrations show the details of the method em-

ployed to fasten the spring block housing to the truck frame as well as the shape and design of the rubber blocks.

Freight Locomotive for New York Municipal Railway

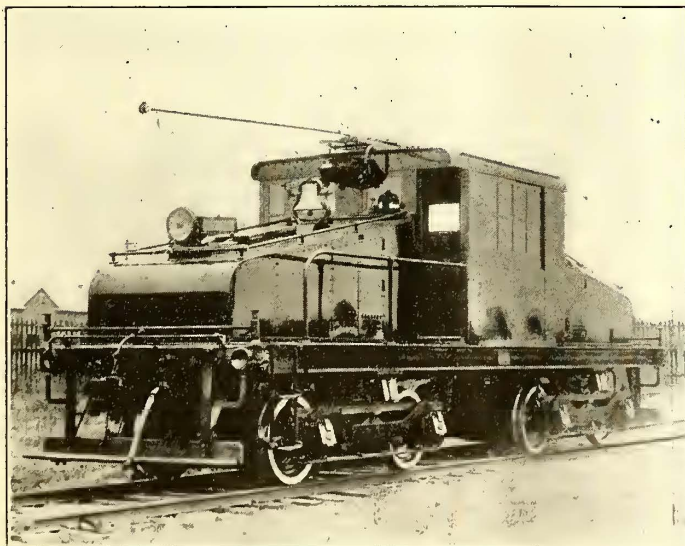
THE New York Municipal Railway has recently placed in operation an additional 50-ton, 600-volt electric locomotive for handling freight service. At the one-hour rating the new locomotive will develop a tractive effort of 16,500 lb. running at a speed of 13.8 m.p.h., and will haul an 800-ton train on a level track at 15 m.p.h.

The locomotive is designated class 404-E-100-4GE248 and carries all of its weight on drivers. The cab is of the sloping end, steeple type of construction and extends practically the whole length of the underframe. The central portion contains the master controllers, air brake operating valves and similar equipment adjacent to the operator's positions. The underframe consists of four heavy steel channels extending the entire length of the platform and tied together by heavy end-frame box girder castings and bolster plates. Each channel is riveted to the webs of the end-frame casting and to the top and bottom bolster plates. The bolsters are built up of 1-in. steel plates, 18 in. in width, riveted to all four longitudinal sills.

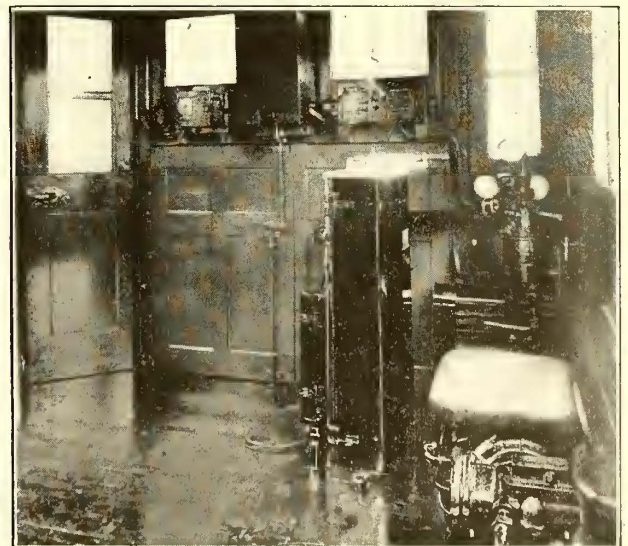
The draw-head castings are bolted to the center sills, which in turn are riveted to the end frames. The draft gear consists of MCB couplers with 5 in. x 7 in. shank and standard twin springs and follower plates. The whole platform is floored and braced by heavy steel plates running the width of the locomotive and riveted to the longitudinal sills. The usual wood floor is used in the cab.

The side frames of the two four-wheel trucks are built of heavy rolled bars for top and bottom members with cast steel pedestals. The bolster or center transom is bolted rigidly to the side frames and the entire weight of the truck is supported by semi-elliptic springs hung by links to the double side equalizer bars, which in turn rest on the journal box. The journals are of standard design with MCB bearings and wedges. The wheels are solid rolled steel, 34½ in. in diameter, with MCB treads and flanges.

The locomotive is driven by four 600-volt box frame



NEW FREIGHT LOCOMOTIVE FOR BROOKLYN



OPERATING EQUIPMENT IN CAB

ventilated railway motors of the same general design as those used on the subway cars of this company. Each motor is geared to the axle through single reduction with a gear ratio of 3.88. The control equipment is type M arranged to give three motor combinations, series, series-parallel and parallel. There are seven steps in the first position, six in the second and five in the third. The motor rheostats and various parts of the control equipment are housed under the sloping end cabs, conveniently arranged for inspection and repairs. Current may be collected either through third rail shoes or overhead pole trolleys. On account of the local conditions there are some limiting clearances which require a very low over-all height. This locomotive is arranged to operate under a minimum clearance of 12 ft. 2 in. over the trolley retracted. A change-over switch is provided to isolate the third rail shoes when the trolley is being used, thus eliminating the danger from exposed live parts. The trolleys are isolated in a like manner, when the switch is thrown to take current from the third rail.

Total weight	100,000 lb.
Length over buffers	37 ft. 4 in.
Width over all	8 ft. 7 in.
Height over trolley retracted	12 ft. 2 in.
Total wheelbase	25 ft. 7 in.
Rigid wheelbase	7 ft. 4 in.
Diameter of wheels	34½ in.
Total hp. one-hour rating	600
Tractive effort at one-hour rating	16,500 lb.
Speed at this rating	13.8 m.p.h.

Thermal Stresses in Steel Car Wheels

THE Bureau of Standards announces in Technical News Bulletin No. 51 that results obtained from tensile tests on material taken from cast-iron and rolled-steel car wheels and thermal expansion data obtained on similar materials has enabled computations to be made of the stresses set up by heating the tread of various steel wheels. It was found that the stresses on the outside of the wheel were in compression near the tread and in tension near the hub, the maximum value being in each case greater than the proportional limit of the material. This distribution is similar to that previously found in the single-plate cast-iron wheel. In order to analyze further the stress distribution in the wheels, some of them are being prepared in such a way that stress measurements can be taken on the back and also in a circumferential as well as a radial direction.

New Combination Stop Sign and Strain Insulator

THE Technical Products Company, Pittsburgh, Pa., is marketing a strain insulator sign designed by C. Fred Sauereisen of Pittsburgh. This sign is made from the same material as high-voltage insulators. It is white with black letters which are burned into the sign making it acidproof. It is mechanically strong and not affected by the weather, and the rain will wash off all dirt. This insulator is intended for use on guy wires and offers a uniform design for signs as danger signals and to designate car stops, line voltage, and other similar variables.

Small Oven Proves Useful

Omaha & Council Bluffs Street Railway Makes Small Portable Coil-Winding Oven for Armature Coils, Which Makes Them Easier to Handle and Less Subject to Damage

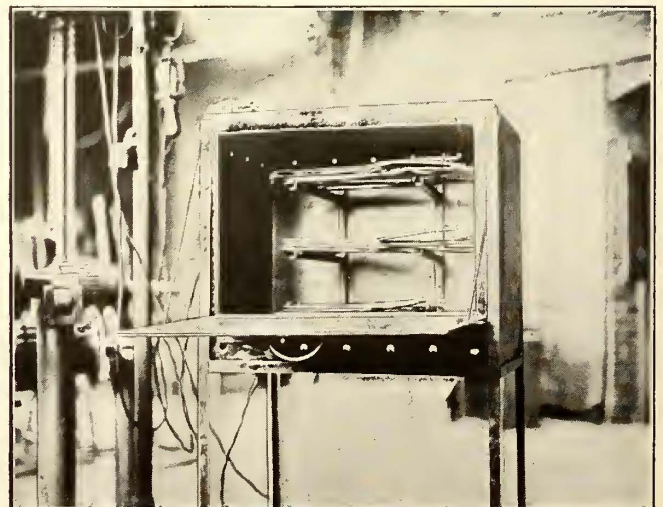
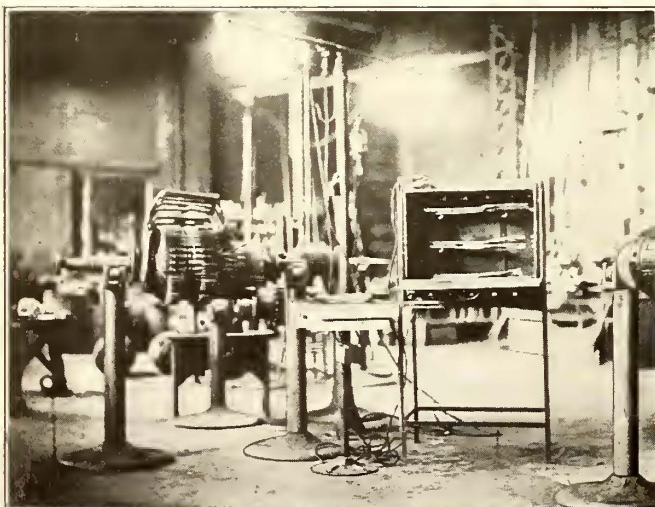
BY O. A. NORENE

Assistant Master Mechanic Omaha & Council Bluffs Street Railway

ACCOMPANYING illustrations show a small portable oven which has been constructed in the shops of the Omaha & Council Bluffs Street Railway for use in connection with armature coils. The oven is made of No. 24 gage sheet steel mounted on legs of 1 in. x 1 in. x ½ in. angle iron, so that the oven itself is at a convenient height for armature winders. The dimensions of the body of the oven are 28 in. wide, 20 in. deep and 24 in. high. The sheet steel door is hung on common spring screen hinges. The heater element is wound of No. 24 gage Nichrome wire with a resistance of 200 ohms and is mounted on standard porcelain heater tubes. Connections for the line are made through Crouse-Hinds R.Q.K. receptacles and plugs to outlets which are available near the different winding stands.

These ovens have been found to be of great value in winding armatures, as the armature coils which lie in storage for any length of time become hard and can be easily damaged when they are being installed on the armatures by the armature winders. By putting the coils into the oven for a few minutes they become pliable and easy to handle and so much less subject to damage by handling.

Another convenience of this oven is that on account of the light materials used in its construction it is easily moved about as needed.



TWO VIEWS OF PORTABLE OVEN BUILT IN OMAHA SHOPS

Berlin's Eight-Ride Punch Ticket

THE purchasing power of the mark has declined so greatly within Germany itself that the electric railways of that country are compelled to charge fares as high as 1 M or ten times the usual pre-war fare (10 pfennig) in unit-fare cities. The Grosse Berliner Strassenbahn at last accounts is charging 70 pfennig, which at the pre-war rate of exchange would mean a 14-cent fare instead of its old 2½-cent fare.

To temper the wind for the regular rider, the management sells an eight-ride ticket for 5 M (500 pfennig), whereas eight individual rides would cost 5.6 M (560 pfennig), the reduction being 12 per cent. The particular ticket reproduced is marked as good for eight rides taken before Dec. 31, 1920, either for one rider at a time or for several who make use of the ticket in common. The conductor makes a perforation in one of the lettered sections in the group marked "First trip," "Second trip," etc. There are twelve letters in each section, and the conductor selects for punching any letter he wishes in each trip.

Among the interesting regulations printed on this ticket are the following: Animal and baggage charges may be paid for by punchings on the ticket; tickets



EIGHT-RIDE TICKET OF BERLIN STREET RAILWAYS SOLD AT 12 PER CENT DISCOUNT OVER CASH

so crumpled, folded or mutilated as to make inspection difficult are void; no refund is made for unused trips except in case of a fare increase, when payment will be made within six weeks thereafter, either at the headquarters or the operating carhouses. The last provision clearly prevents the presentation of old tickets for new and higher fares.

Warnings on Coal

Washington Officials Suggest Its Purchase Now to Avoid Possibility of Its Shortage Later

TWO warnings have come to the joint fuel committee of the national public utility associations that it would be very desirable for the utilities to bunker coal at this time when it can easily be obtained. One of these warnings was sent on June 24 by Edgar E. Clark, chairman Interstate Commerce Commission, to G. W. Elliott, secretary of the national committee on gas and electric service, and reads in part as follows:

As you doubtless know, the production and shipment of bituminous coal has been and is disappointingly low. You, of course, recall the difficulties of last year during the late summer and fall which grew out of the fact that there had been a general disinclination to buy and provide necessary supplies earlier in the season.

In the interest of avoiding a repetition of those circumstances the commission has requested me to write you suggesting the importance, as we see it, of securing as promptly as possible a reasonable reserve against the difficulties that will be presented if later we get into a sustained period of so-called car shortage, and to request that you bring the matter actively to the attention of the members of your association.

We appreciate, of course, that it is impracticable to put into storage an entire winter's supply. What we are suggesting is the accumulation now while transportation is easy and cars are idle of a reasonable reserve supply which will help out greatly if and when the pinch comes.

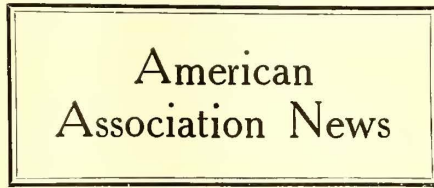
A second letter was sent by Secretary Hoover of the Department of Commerce on July 8 to J. W. Lieb, chairman of the joint fuel committee of the national utility associations. Mr. Hoover says:

I would like to call the attention of your association to the bituminous coal outlook. There is every indication that there has been an undue slackness in the purchase of coal which may accumulate to large demands in the autumn. I am convinced that due to the general depression the price of bituminous coal at the mines is not too high at the present time. This is, I think proved by the fact that numbers of operating coal companies are making no profit whatever. If there should be a recovery of

business activities in the autumn, taken in conjunction with the large increase in percentage of disabled cars (from 5 per cent to 16 per cent during the past six months) and the inability of the railways to finance their maintenance there are possibilities of development of a most serious situation as regards coal movement.

I cannot but feel that the Interstate Commerce Commission in the face of warnings it has sent out would not be disposed to give any priority in such an event. It seems to me, therefore, to be obvious that the public utilities companies, both in their own interests and the protection of the public, should make early provision for stocks of coal sufficient to carry them over a critical period.

Mr. Lieb, in acknowledging these letters, said that he appreciated the timely suggestions and that he would send copies to the three associations.



T. & T. Executive Committee Meets

ON JULY 20 the executive committee of the Transportation & Traffic Association met at headquarters to pass on several committee reports that have been prepared for presentation at the coming Atlantic City convention. Those present were R. P. Stevens, Pennsylvania-Ohio Electric Company; President A. Gaboury, Montreal Tramways; L. H. Palmer, United Railways & Electric Company, Baltimore; R. E. McDougall, New York & Harlem Traction Lines.

Reports of the committees on safety work, traffic regulations, personnel and training of employees and economics of schedules were approved, subject to minor changes and corrections. Other reports are to be approved by letter when received.

A tentative convention program was

mapped out and a list prepared of those who are to be asked to discuss the various reports.

The personnel of the committee on subjects for next year's work was also discussed. This anticipates having the report of the committee available for the first executive committee meeting following the close of the convention.

Resolutions on the Death of William Bloss

"BILL" BLOSS was a much-beloved character in the ranks of the Central Electric Railway Association, and he did much to add life and spirit to its meetings and activities. It was singularly fitting, therefore, that the association should pay tribute to his memory on the recent boat trip, where his absence was felt most keenly.

The association at this meeting adopted an appropriate resolution which recounted the many ways in which Mr. Bloss had been a vital factor in the association's success and had endeared himself in the hearts of the various members. His untimely death was deeply regretted.

Executive Committee Will Meet August 5

THE meeting of the executive committee of the American Association which was tentatively arranged for Aug. 5 has been definitely set for that date. The business before the committee will be consideration of the report of the special reorganization committee, an abstract being printed in last week's issue of this paper.

As was mentioned at that time, the executive committee, through President Gadsden, has requested the membership at large to make suggestions or criticisms which will help the committee in its deliberations.

News of the Electric Railways

FINANCIAL AND CORPORATE :: TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

Suspension Seems Probable

Court Has Under Consideration Ordering Des Moines City Railroad to Withdraw All Service Aug. 1

Unless further objections are offered Judge Martin J. Wade of the federal court will order a complete suspension of service by the Des Moines City Railway in Des Moines on Aug. 1. In an order of court filed July 15 Judge Wade made clear his intention to authorize the shut down unless some solution of the difficulties is found before the date set. Judge Wade has fixed July 21 as the date for filing final objections.

In the order filed Judge Wade indicated that the fifteen days' respite was granted in order to allow the trustee for the bondholders time in which to offer more urgent objections and suggest an alternative. The order specifically directs that the trustees be notified of the court's intention and grants until July 21 for objections to be filed. In so far as the trustees for the bondholders and the owners, who are represented by operating receiver F. C. Chambers, are practically identical there is little question that the plea filed by the receivers will meet objection from the trustees.

In making his order Judge Wade makes clear that in the event suspension is ordered on the final hearing it will be the end and that the entire question will be disposed of by a sale of the property by the receiver without waiting for foreclosure proceedings by the bondholders. The court said:

I do not feel at liberty to make a final order at this time with reference to operation, because I feel that the bondholders and the general creditors should be consulted with reference to the suggestions of the court that the whole matter should be disposed of not through foreclosure, but by direct sale by the receivers. I am advised that such sale may be with the franchise, or if an acceptable purchaser is not thus found, that the property may be sold separate from the franchise.

Judge Wade serves notice on every one concerned and particularly to the citizens of Des Moines:

That he cannot force the backers of the railway to advance another cent to keep the road in operation.

That in his opinion the city by allowing bus competition has violated the car franchise as vitally as the company did by increasing fares.

That further deferring the end will serve no good purpose.

The judge points out that the Harris interests already have sunk \$500,000 in the system, "not one cent of which they were required to furnish under the terms of the franchise, or under any personal obligation of the company."

The order definitely upholds the contention made by Corporation Counsel Miller in his letter to the City Council that the fare section of the franchise was null, and characterizes the franchise as one that is "physically impos-

sible to be complied with even with the highest fare that the traffic will bear."

The fare section of the franchise is handled thus in the order made by Judge Wade:

It has been recently held by the Supreme Court of the United States that a fixed, arbitrary fare in a franchise is contrary to law and public policy, and therefore not binding. This holding, I as well as every private citizen must respect.

In connection with the demand that the court compel the owners to operate under the terms of the franchise, it is well to bear in mind that the city itself violated the spirit and purpose of the franchise admitting to the streets in direct competition with the street railway a system of buses which reduced the income of the railway, operating at full capacity to the extent of \$2,000 a day.

A careful investigation satisfied me that if the bus competition was not brought into Des Moines and things had continued as they were going last January the equipment which was removed could have been retained and the fare at the present time would be reduced to 7 cents, with full and adequate service.

Aside from Judge Wade's order the most important development of the week was the opening of negotiations with the City Council by the street car men's union for a service-at-cost franchise.

No definite statement as regards the service-at-cost plan has been made by representatives of the Des Moines City Railway, but Attorney Gamble for the company stated that the company would be willing to "meet the men half way."

Judge George Wilson, representing owners of the company, directed a letter to Mayor Barton, in reply to one from the city head asking for a further proposal on the part of the company, in which he said that the company had made its "rock bottom" offer.

Memphis Would Cut Wages

The employees of the Memphis (Tenn.) Street Railway have lined up against a proposed cut in wages of 12 cents an hour, notice of which was served on them on July 2. A preliminary conference between representatives of the company and the executive board of the union has been held in an effort to clarify the situation. They are still discussing the problem. The contract between the railway and its employees expires on July 31. The proposal of T. H. Tutwiler and F. S. Elgin, receivers, to cut wages is preliminary to their entering into a new contract with the employees. The men on their side have asked for minor changes in working conditions, but have made no demand for any increase of wages.

The present wage scale is 47 cents an hour for first-year employees, 52 cents for second-year employees and 57 cents an hour for employees of two or more years' service. In the event of failure to reach an agreement under the terms of the contract now in force, the matter goes to arbitration.

Electrification Proposed

Western Railroads Again Have Engineering Expert at Work on Program—Rate Fight Being Waged

It is stated that the bitter fight now being waged on the Pacific Coast between steam railroads and steamship lines growing out of rate reductions may result in the electrification of the steam lines on the Pacific Coast. This rate slashing fight started during the past winter when the steamship lines plying between Eastern seaboard points and Pacific Coast points via the Panama Canal began cutting their rates and obtained a large share of the freight haul on citrus fruits and other products from the West to the East; also, a similar cutting of freight rates by the steamship lines took place in coastwise freight business on the Pacific Coast.

RATE-CUTTING WAR

That this cutting of rates by the steamship lines may bring about electrification of the steam roads was indicated in a communication from the Federal power commission. According to O. C. Merrill, executive secretary of the commission, the Western railroads now have experts at work on computations and engineering problems looking into the electrification of the steam lines. Electric power at five-eighths of a cent a kilowatt-hour is so much cheaper than either coal or oil that the use of electricity in itself would bring about a reduction in freight rates, Mr. Merrill asserts. He said further:

Another effect of electrification that would bring about lower rates is that 30 per cent of the traffic on both coal and oil burning roads is used in carrying fuel for their own locomotives. The electrified carrier sends its fuel by wire and uses the rolling stock thus released for "cash customers."

The five-eighths of a cent cost for power is based on the cost to the Chicago, Milwaukee & St. Paul for its electrified lines. According to Mr. Merrill that road over its electrified lines forwards twice as many cars at the double speed, thus effecting a very large saving. Mr. Merrill's report was made to Senator Shortridge of California.

All Night Service in Albany

Officials of the United Traction Company, Albany, N. Y., hinted on July 16, at a resumption of all night service on Albany lines within a few days. Saturday marked the renewal of all night service on the red and blue lines, between Troy and Waterford and Cohoes, and the white line, between Albia and Cohoes. All night service has been discontinued on the Albany lines since Jan. 29, when the strike was called. Company officials declare the situation is now about normal.

Traffic Suspended Three Months in Wage Controversy

Traffic on the entire system of the Scranton, Montrose & Binghamton Railway between Scranton, Montrose and Lake Winola, Pa., was expected on July 9 to be resumed within three or four days as a result of action by the platform and maintenance employees in accepting a reduction in wages. The readjustment in the pay is to virtually the same scale rejected repeatedly by the men since the road was tied up on April 18 last.

The settlement involves a cut of approximately 12½ per cent with minor concessions granted by the company. The reduction for trainmen is from 51-60 cents an hour to 49-53 cents an hour. One of the contentions with the employees was over the right to operate one-man cars. The old working agreement called for a full crew. This point was finally conceded by the employees. The closed shop was also contested. This point was also conceded by the employees. The road is to resume on the open shop basis.

It was announced on July 9 that every effort would be made to resume operation at once. It was impossible at that time, however, to say just when this would be, because the line, machinery and cars have all been idle since April 18 and must be put back into shape.

The former employees of the company will be reinstated with their priority rights wherever possible and none of those who participated in any way in the suspension will be punished. Trackmen will enjoy seniority rights under the new agreement and they will be furnished rubber coats by the company. The trainmen who have completed their runs will receive pay at the rate of time and one-half for all overtime. Every man who reports and is not assigned to a run will be credited with an allowance of 2½ hours' time.

During the suspension the employees asked for arbitration. This was refused by the company. Officials of the road insisted that a reduction in wages was essential if the road were to be able to operate on a paying basis.

Pittsburgh Men Accept 10 per Cent Cut

On July 14 84 per cent of the platform men of the Pittsburgh (Pa.) Railways voted in favor of a 10 per cent cut in wages as recently proposed by the receivers. This announcement was made by P. J. McGrath, international vice-president of Amalgamated Association.

In accordance with the statement made recently by Charles A. Fagan, receiver of company, fares may soon return to the scale existing last May when wages were advanced from the scale prescribed in the agreement under which the employees are now working. Mr. Fagan's statement urged that if fares are to be reduced the cut should not be made until three

months after the decreased wage scale was accepted as the increase in fares did not take effect until three months after the increase in wages.

Under the terms of the new scale the men now receive 54, 58 and 60 cents an hour instead of 64, 68 and 70 cents an hour as formerly. The new wage scale will be in effect for the next ten months or until May 21, 1922.

All other employees have also been reduced in pay.

Strike as Protest Against One-Man Cars

Trainmen of the Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y., struck a few days ago in protest against the operation of one-man cars in city service. The strike lasted three days, the men agreeing to return to work and operate the cars after Aug. 1, claiming that they had not had sufficient time in which properly to break in and become familiar with one-man operation. As the matter stands, they return to work under the same conditions as existed previous to the strike, except that the company has agreed to defer the operation of one-man cars for another two weeks to give the men an opportunity better to prepare themselves for one-man operation. The cars which are being used by the company in one-man operation are of the pay-as-you-enter type.

Commission Has Reached No Finding

Many guesses have been made recently in the daily papers of New York City in regard to the probable recommendations of the new Transit Commission for solving the transit problem. According to Commissioner Harkness the statements so far made are unauthorized. On July 18 he said:

The statements which have been made are entirely unauthorized by the commission, and in the opinion of the commission no good purpose is served by speculation as to what the commission is likely to do. Just as soon as it is possible to do so, the commission will make an official statement.

The published reports complained of were that the commission would seek to relieve the traction companies of all local taxes on the theory that this would make unnecessary any increase in fare.

Wages of Suburban Men Cut

The New Jersey & Pennsylvania Traction Company, Trenton, N. J., has announced a reduction in wages for all employees to become effective on July 21. Failure to meet operating expenses and taxes and the long delay of the Public Service Commission of Pennsylvania in deciding the application for increased rates made necessary the reduction of wages. Under the new scale, motormen and conductors on double-truck cars will be cut 8 cents an hour. They now receive 50 cents. Operators of one-man cars will also be reduced 8 cents, from 55 to 47 cents. Office employees will also have to stand a cut.

Engineers' Wages Fixed

The dispute between the Cincinnati (Ohio) Traction Company and its engineers which resulted in the latter going out on a strike recently and later the naming of an arbitration board to settle the difference has been brought to a close. The board has handed down an award naming the rates of pay for the men. The award made the rate of pay for the Pendleton and Depot Street Stations men 80 cents an hour and for the Chester Park and Hartwell Stations men, 75 cents an hour. The Chester Park and Hartwell men have been receiving 85 cents an hour and the Pendleton and Depot Street Stations men 90 cents an hour. The traction company had requested that the Chester Park and Hartwell men be reduced to 65 cents an hour and the Pendleton and Depot Street Stations men to 70 cents an hour.

Service at Cost Proposed in Houston

Following the notification by the general manager of the Houston (Tex.) Electric Company that his company was ready to open negotiations with the City Council looking to the granting of a new franchise, City Attorney Sewell Myer has prepared a new ordinance recently read before the Council. The company has been operating under a temporary arrangement for some time. The new ordinance is along lines similar to the measure recently negotiated between the city and the Houston Lighting & Power Company.

As an incentive to economical management on the part of the company the ordinance provides that the company shall be permitted to earn ¼ to 1 per cent above the fixed return minimum when it reduces fares ½ cent. The company at the start will be permitted to charge a 7-cent fare for adults and a 3½-cent fare for school children.

A. E. & C. Renews Contract

The employees of the Aurora, Elgin & Chicago Railroad, Wheaton, Ill., voted on July 12, 372 to 93, to accept the terms of a new contract which is practically a continuation of the one in effect during the past year. The only reduction in wages included is a change from 46 cents an hour to 40 cents and 35 cents for track labor. The old wages of 67 cents maximum on the third-rail division, 56 cents on the city lines, and 58 and 60 cents on the trolley inter-urban lines is continued.

The right is reserved to the receiver, however, to reopen the agreement on a thirty day notice at any time after Sept. 1.

The main difference in the new contract from the old one is that the company is relieved from paying time and one-half for that work in the nature of regular routine in keeping the roads running on Sundays and holidays. The small amount of labor required in this connection, will hereafter be paid for on straight time basis.

\$17,000 a Mile Offered by Municipal Line for Private Property

The Detroit Street Railway Commission has named \$388,000 as the sum the city is willing to pay the Detroit United Railway for the parts of Fort Street and Woodward Avenue lines where franchises have expired. The company, on the other hand, has refused the offer as wholly inadequate.

According to the letter addressed to Vice-President Edwards of the Detroit United Railway, the report of the engineers indicated the condition of the tracks and pavement in a great many places was such as to compel the commission to consider the trackage as a liability rather than of value. It is necessary, the commission states, to rebuild the greater part of these lines.

The total trackage involved is approximately 23½ miles, making the price set by the city less than \$17,000 per mile. The Detroit United Railway has contended that the type of construction on these lines cost approximately \$100,000 per mile.

Mayor Couzens has announced that the next step will be to start ouster proceedings to force the Detroit United Railway to remove its tracks from Fort Street and Woodward Avenue unless the company's attitude is changed relative to the offer for these lines. Under the court ruling in the Fort Street case, the city can force the company to remove its tracks where franchises have expired, after having given ninety days' notice.

Service-at-Cost Legislation Approved

Governor J. J. Blaine of Wisconsin has signed the Arnold bill empowering the city of Milwaukee to enter into a service-at-cost contract with the Milwaukee Electric Railway & Light Company for the operation of the company's city railway lines. Under the provisions of the bill, the contract must be negotiated by the Common Council, then approved by the Railroad Commission, and finally submitted to a referendum of the voters before becoming effective.

The bill was introduced at the request of the Milwaukee City Council following recommendations made by the public utilities acquisition committee, a commission appointed about a year ago to investigate the feasibility and desirability of municipal ownership of the electric railway and the electric light and power facilities of Milwaukee.

The bill is intended to empower the city of Milwaukee to carry out the recommendations which the public utilities acquisition committee is expected to make in a report to be submitted in the very near future. The bill provides for the usual service-at-cost agreement plus a feature which will make it possible for the city gradually to become the owner of the utility property. The company, under the proposed service-at-cost agreement,

would be removed from the jurisdiction of the State Railroad Commission except in certain minor matters. Under the plan the city will also extend its credit to the company to finance extensions and improvements at a lower rate of interest than the company now has to pay.

Interurbans Insist Upon 25 per Cent Wage Cut

For the first time in many years it appears that the Rochester & Syracuse Railway and the Empire State Railways, Syracuse, N. Y., are unwilling to follow the lead of the New York State Railways in regard to a wage agreement with their employees.

It was generally conceded that these two companies would agree to accept the decision of the New York State Railways and Amalgamated union arbitrators, that a reduction of 11.7 per cent from the wage scale in force prior to May 1 was the proper scale in view of the reduction in living costs. Officials of the Rochester & Syracuse Railway, however, stuck to their original proposition that the reduction would be 25 per cent retroactive from May 1.

Arbitration was accordingly resorted to and evidence submitted by both factions. The company contends that in view of the fact that many operatives live in communities where living costs have been reduced in greater proportion than in the cities the men can afford to accept a 25 per cent reduction. As the complete evidence for both sides has been submitted to the board, it is expected that a settlement will be made very shortly.

Facing a like situation, the Empire State Railways is making an attempt to settle the difficulty without arbitration.



News Notes

Wages Cut in Erie.—The wages of employees of the Buffalo & Lake Erie Traction Company, Erie, Pa., were recently cut by a board of arbitrators. The cut amounts to 16⅔ per cent.

Wage Cut in Reading.—The Reading Transit & Light Company, Reading, Pa., has reduced the wages of its motormen and conductors 4 cents an hour. The maximum pay is now 50 cents an hour.

Pay of Electrical Workers Cut.—Electrical workers employed by the Toledo Railways & Light Company have approved a new wage contract taking a 20 per cent cut in wages, elimination of two weeks' vacation, and making the new scale retroactive to June 16. Nearly 450 men are affected by the cut. Platform men were cut 10 cents an hour recently.

Boulder Watching Trackless Trolley.—In view of extensive paving work being done in Boulder, Col., the Western Light & Power Company had considered the trackless trolley as a substitute. The substitution was found not to be possible in time to meet the requirements of the company so it is going ahead with its present system, but is watching closely the development of the trackless trolley.

Coinage Legislation Unlikely.—Indications are that the committee on coinage, weights and measures of the House of Representatives is thoroughly convinced that small coins in new size will make for needless expenditures on the part of electric railways and others using fare boxes or coin devices. As a consequence it is anticipated that no legislation along those lines is likely to be recommended at this session of Congress.

Arbitrators Must Decide Wage Scale.—An arbitration board will decide the wage controversy between the Auburn & Syracuse Railroad, Auburn, N. Y., and its union employees. This agreement was made after Lawrence Lippitt, acting manager of the road, and Henry Barrett, president of the union, had failed to reach a settlement. The men are seeking a nine-hour working day and 53 cents an hour for two-man cars and 58 cents for operators of one-man cars. The present wage scale is 45 cents an hour on all city lines and 47 cents on the interurban.

Program of Meeting

New England Street Railway Club

The annual outing of the New England Street Railway Club will be held on Thursday, July 28, at Mt. Tom, Holyoke, Mass. The start from Holyoke for Mt. Tom will be made at 10 a.m., daylight saving time. A stop will be made at 10:30 at Aldrich Lake. Here the annual ball game between the railway and supply members will be staged, and the silver-mounted bat presented to the winning side. Other sports will also be on the program. Luncheon will be served at 12:30. At 1:30 the party will leave Aldrich Lake for Mt. Park via Amherst, Hadley and Northampton. At 3 p.m. there will be a theater party, with high-class vaudeville by Keith's circuit players. At 5 p.m. the party will leave Mt. Park for the top of Mt. Tom via the inclined railway. Dinner will be served at 6 p.m. at the spacious summer house, more than 1,200 ft. above sea level. Those who desire hotel accommodations should make reservations direct to T. J. Behan, manager, Hotel Nonotuck, Holyoke, Mass. Special prices have been made by the hotel to those planning to attend the outing, and it is requested by the club that those who apply for reservations make it known that they are attending the club outing. Suitable arrangements have been made to take care of those who prefer to go to the outing in their own automobiles.

Financial and Corporate

Gross Increase 17 per Cent

339 Roads Earned \$943,996,914 Gross in 1920, an Increase of \$136,831,929 Over 1919

The annual compilation of the gross and net earnings of the electric railways of the United States, made by the *Commercial & Financial Chronicle*, appears in the issue of that paper for July 9. The figures on gross are made up from the reports of 333 roads, making returns for the calendar year 1920 and 1919, and for six roads reporting for the fiscal year ended June 30. The figures on net are for the same roads except for five roads, mostly small properties, whose net was not reported. In these cases the same operating ratio was assumed as for the other properties reporting for the same period. The figures as given by the *Chronicle* for the past seventeen years follow. In commenting on these figures the *Chronicle* says:

The fact that notwithstanding the heavy augmentation in expense (labor and coal were considerably higher for the greater part of the year than in 1919) net earnings registered some improvement over the previous year, moderate though it be, cannot be regarded as otherwise than encouraging.

Attention is also called to the fact that the increase in gross does not necessarily indicate a growth in traffic, but it undoubtedly reflects increases in fares. The *Chronicle* also points out that the tables do not indicate the aggregate of the gross and net earnings of all of the street and electric railway undertakings in the country. They simply make use of all the figures at hand, and there are many companies, including some large properties, whose figures are not available. In some cases also, the figures include the receipts from the sale of electricity for lighting and power, but where it has been possible to separate the figures, the railway figures only have been used.

Municipal Road Claims Profit \$4,359 Net Said to Have Been Earned on a Five-Cent Fare Line on Staten Island

Grover A. Whalen, commissioner of plant and structures of New York City, on July 18 filed a report with the Board of Estimate and Apportionment on the operation by the city of the Staten Island Midland Railway for the period of seven months ended June 30, 1921. According to Mr. Whalen the report shows that the road has been operated successfully and profitably at a 5-cent fare. He explains that the conditions during the period of operation covered have by no means been ideal and that great difficulties have arisen at times. Nevertheless, according to him, operation has been covered by receipts, and a small profit has been made even above interest and depreciation for the period ended June 30, which included all the lean months of the year. It is Mr. Whalen's opinion that the full year of operating ending Nov. 30 will realize a very substantial profit above all costs of operation. He says:

I have the honor to submit herewith a report of the operations, by this department, of the Staten Island Midland Railway under the agreement between the city and the receiver dated Nov. 5, 1920, for the period from Dec. 1, 1920, to June 30, 1921.

The total revenue from operation during this period amounted to \$205,604. Operating expenses, including maintenance, operation and administrative expenses amounted to \$183,314, leaving a net balance after all operating expenses were paid of \$22,289. Deducting the special franchise tax and tax on real estate used in operation of the road of \$9,977 leaves a net operating revenue of \$12,311.

The exact determination of the interest charges on the moneys so far expended by the city for equipment cannot be made at this time. After consideration it was determined that interest at 5 per cent would be nearly correct in view of the interest due on daily balances, not yet determined, which on June 30 amounted to \$24,120 exclusive of the revolving fund of \$50,000, which has not yet been encroached upon in the payment of actual operating expenses. Deducting therefore an interest charge of \$3,452 leaves a credit balance of \$8,859.

It is difficult to determine, at this time, what the exact depreciation will be on equipment now in use and now under purchase. Approximating, however, depreciation on equipment in use during this period, gives an amount of \$4,500; which deducted from the previous balance leaves a final net balance of \$4,359.

Important items of cost entering into operation of this road have not yet been fully determined, but I am firmly of the opinion that when these costs are finally determined, there will be an additional credit balance to be added to the one above quoted for the period ended June 30.

Revenues are increasing at a satisfactory rate, having increased from an average per day of \$794 in December, to an average per day of \$1,558 in July. The revenue from operation for the month of December was \$24,631, while for the first thirteen days of July it amounted to \$20,266.

It should be pointed out that this period ended June 30 included the months of minimum revenue and maximum expense, namely, December, January and February and that it included only one month of real good business, namely, June, and that the five months still remaining in the operating year will include the months of maximum traffic, namely July and August, while September will be as good as June; October and November equivalent or better

than April and May as the road will be better equipped to handle increased traffic during the five months to come.

It is therefore firmly believed that at the conclusion of the operating year a substantial profit will have been earned from the operation of this road and that its division with the receiver under the agreement will make available substantial sums to cover the cost of rental for the use of the company's property.

Substantial sums have also been expended in the improvement of the road in accordance with paragraph of the agreement. It should also be stated at this time that if the city was generating its own power further substantial earning would, it is firmly believed, have been made.

Certain facts are to be borne in mind in connection with this operation, namely:

That the city has given better service on these lines than was ever given under private ownership and operation.

That the resumption of service on these trolley lines has made areas of Richmond Borough accessible, has stimulated development, resulting in the erection of additional buildings and helping to solve the city's housing problem.

Good Year for Municipal Railway

The receipts for the San Francisco Municipal Railway Lines for the year ended June 30, 1921, were \$2,900,636, an increase of 6.3 per cent over the earnings for the previous year. Operating expenses approximate \$2,090,000, an increase of about 3 per cent. The net operating revenue shows an increase of about 18 per cent. The amount set aside for depreciation will aggregate about \$550,000, which is the largest in the history of the road. Bond payments are made out of the depreciation reserves and already \$900,000 bonds have been redeemed since the road commenced operation. The net revenue will more than pay interest on bonds and transfers, leaving a surplus for the year's operations.

GROSS EARNINGS OF ROADS REPORTING TO "CHRONICLE"

Period—	Current Year	Previous Year	Increase	Per Cent
1905 compared with 1904	\$306,067,145	\$281,608,936	\$24,458,209	8.68
1906 compared with 1905	300,567,453	269,595,551	30,971,902	11.49
1907 compared with 1906	306,266,315	280,139,044	26,127,271	9.33
1908 compared with 1907	351,402,164	348,137,240	3,264,924	0.94
1909 compared with 1908	374,305,027	345,006,370	29,298,657	7.49
1910 compared with 1909	435,461,232	405,010,045	30,451,187	7.51
1911 compared with 1910	455,746,306	428,631,259	27,115,047	6.33
1912 compared with 1911	486,225,094	457,146,070	29,079,024	6.36
1913 compared with 1912	529,997,522	500,252,430	29,745,092	5.94
1914 compared with 1913	553,095,464	548,296,520	4,798,944	0.87
1915 compared with 1914	567,901,652	569,471,260	*1,569,608	0.28
1916 compared with 1915	626,840,449	574,382,899	52,457,550	9.13
1917 compared with 1916	670,309,709	618,529,309	51,780,400	8.37
1918 compared with 1917	696,066,585	649,550,990	46,515,595	7.16
1919 compared with 1918	783,514,781	663,572,571	119,942,210	18.08
1920 compared with 1919	943,996,914	807,164,985	136,831,929	16.95

NET EARNINGS OF ROADS REPORTING TO "CHRONICLE"

Period—	Current Year	Previous Year	Increase	Per Cent
1905 compared with 1904	\$130,884,923	\$118,221,741	\$12,663,182	10.71
1906 compared with 1905	126,580,195	114,024,076	12,556,119	11.01
1907 compared with 1906	126,002,304	121,050,703	4,951,601	4.09
1908 compared with 1907	142,262,417	141,144,213	1,118,204	0.79
1909 compared with 1908	160,394,765	140,647,906	19,746,859	14.03
1910 compared with 1909	178,037,379	167,100,351	10,937,028	6.54
1911 compared with 1910	186,001,439	175,527,542	10,473,897	5.96
1912 compared with 1911	194,309,873	179,915,760	14,394,113	8.00
1913 compared with 1912	204,422,429	193,393,045	11,029,384	5.70
1914 compared with 1913	211,020,088	212,146,403	*1,126,315	0.53
1915 compared with 1914	214,319,303	217,440,533	*3,121,230	1.43
1916 compared with 1915	234,402,450	215,917,573	18,484,877	8.56
1917 compared with 1916	221,090,740	228,585,929	*7,495,189	3.28
1918 compared with 1917	178,226,716	212,570,930	*34,344,214	16.16
1919 compared with 1918	185,077,301	168,770,930	16,306,371	9.66
1920 compared with 1919	192,360,849	186,248,269	6,112,580	3.28

* Decrease.

\$550,253 Earned by Boston Elevated

Ten-Cent Fare Gradually Making Headway Against Accumulated Deficit of \$5,415,500—Five-Cent Lines an Experiment

Operating receipts of the Boston (Mass.) Elevated Railway for the year just closed, the third of public control, exceeded the costs of operation by \$550,253. This has made it possible to pay off the deficit of \$435,348 carried over from the first year of operation and to leave a balance of \$114,905. This added to the balance of last year makes a total of \$131,985 as the first payment made in restoration of the reserve fund.

THESE results have been obtained without impairment of the service or interruption in the five-year program originally adopted for reconstruction of track, replacement of obsolete and worn out rolling stock and improvement of power plant. The financial history of operations during the three years is shown in the accompanying table.

In July, 1919, at the end of the first year of public management the operating receipts under a 5-, then a 7- and finally an 8-cent fare had failed to meet the operating costs of the year by \$5,415,500. Of this amount \$3,980,151 was assessed, as provided by law, upon the cities and towns served by the railways. Of the remaining amount \$1,000,000 was met from the reserve fund established under the statute, which was thereby exhausted. The balance of \$435,348, representing an increase in wages applicable to May and June under a retroactive award in the latter part of July, could not be made a part of the deficit assessed upon these communities.

In July, 1920, at the end of the second year of public control operating receipts under a 10-cent fare, which had been put in force at the beginning of the year, had exceeded operating costs for the year by \$17,079.

The trustees say that the attempt to answer the question as to reduction of the 10-cent fare finds as the first barrier the provision of law which requires the restoration to the exhausted reserve fund of \$1,000,000, and the repayment to cities and towns of the \$3,980,151 advanced by them to meet the deficit of 1919 before any reduction can be made in that fare. This means that several years may elapse before the excess of receipts over expenditures can be applied in lessening the cost of transportation to the car rider, unless the relation between the rider and the taxpayer is readjusted by some legislative action. A statement of the situation will appear as a part of the annual report of the trustees to be filed at the State House in January.

In commenting on the introduction of the 5-cent fare for short-haul riders

the trustees say this is still an experiment and may remain such for a considerable time. If a reasonable test proves that either singly or collectively this limited cheap service invades or seriously threatens an invasion of the net revenue of the railway the trustees will be forced by the statute to advance the local fare or abandon the experiment. The trustees say:

The paramount requirement under the Statute for the operation of this railway upon its theory of a service-at-cost is the necessity for securing and preserving a revenue that will maintain it upon a self supporting basis. This is the all important consideration both as a matter of law and of common sense. If in the test of this local cheap and limited service it is found that the net revenue of the system is materially invaded through competition with the 10-cent fare, the experiment fails. Nor can this service be permitted to continue if it interferes with or delays an otherwise possible reduction of the basic flat fare for travel throughout the system.

The outcome is as yet problematical. Even though the experiment does not add enough in the way of new patronage to increase net revenue, if its effect is to restore lost patronage without imposing any substantial burden upon those who use the rest of the system this result might well justify the continuance of the service as one that increases the usefulness of the railway, a most important reason for its existence.

West End Lines at Pittsburgh May Be Foreclosed

Judge Charles P. Orr of the United States Court on July 14 granted all contentions of the Union Trust Company in the two-year-old litigation of the \$4,000,000 debt of the Pittsburgh Railways subsidiary matured by interest default. This judgment was on a mortgage held against the Pittsburgh & West End Passenger Railway and included foreclosure proceedings against lines operating mainly through the West End. It was granted in favor of the Union Trust Company, Pittsburgh. Unless appeal from the decision is taken these lines will probably be sold next September or October to satisfy the mortgage. The receivers of the Pittsburgh Railways state no appeal will be made.

The Union Trust Company is trustee under a mortgage executed by the Southern Traction Company to secure bonds under a mortgage dated Oct. 1, 1900. The name of the mortgagor later was changed to the Pittsburgh Railways. The mortgage was given to secure payment of \$4,000,000 within fifty years from Oct. 1, 1900, with interest at 5 per cent per annum, payable semi-annually.

The mortgage contains a provision that in case of default in the payment of interest for a period of thirty days the whole principal sum of bonds secured by the mortgage forthwith becomes due and payable. The railways defaulted in the payment of interest due on Oct. 1, 1918, after which the Union Trust Company declared the principal due. Suit was instituted two years ago for permission to foreclose on the mortgage at that time. Judge Orr granted the company the right to enter foreclosure proceedings. An answer was filed by the railways and the decree on July 14 is the decision of the court.

ACTUAL RECEIPTS AND COST OF SERVICE OF BOSTON ELEVATED RAILWAY DURING THREE YEARS OF PUBLIC CONTROL

	Year Ended June 30, 1921	Year Ended June 30, 1920	Year Ended June 30, 1919
RECEIPTS			
From fares.....	\$33,122,199	\$31,899,320	\$24,472,430
From operation of special cars, mail pouch service, express and service cars.....	88,519	105,554	115,624
From advertising in cars, on transfers, privileges at stations, etc.....	303,047	297,037	293,079
From other railway companies for their use of tracks and facilities.....	30,024	47,637	48,815
From rent of land and buildings.....	115,809	87,259	73,099
From sale of power, etc.....	121,566	115,188	125,534
Total "receipts" from direct operation of the road.....	\$33,781,164	\$32,551,994	\$25,128,581
Interest on deposits, income from securities, etc.....	419,122	119,521	96,994
Total receipts.....	\$34,200,286	\$32,671,515	\$25,225,575
Profit and loss, delayed items.....	23,863	17,685	*2,080
	\$34,224,149	\$32,689,200	\$25,223,495
COST OF SERVICE			
Operating expenses:			
Maintaining track, line equipment and buildings.....	\$2,516,331	\$3,524,507	\$3,583,057
Maintaining cars, shop equipment, etc.....	2,857,115	2,736,249	2,519,485
Power.....	3,390,704	2,930,268	2,809,632
Depreciation.....	2,004,000	2,004,000	2,004,000
Transportation expenses.....	11,506,157	10,781,788	9,293,160
Salaries of administrative officers.....	79,749	83,761	94,060
Law expenses, injuries and damages, and insurance.....	1,158,094	1,107,005	1,162,547
Other general expenses.....	1,106,881	963,643	896,232
Back pay.....	65,527	200,000	.....
Total operating expenses.....	\$24,684,558	\$24,331,221	\$22,362,171
Taxes—Federal, State and Municipal.....	\$1,306,736	\$1,075,497	\$941,612
Rent for leased roads.....	2,673,166	2,607,566	2,587,130
Proportion of rent of subways and tunnels, paid to the city of Boston.....	1,543,324	1,531,474	1,491,999
Proportion of rent of Cambridge Subway, paid to Commonwealth of Massachusetts.....	404,639	59,850	.....
Interest on Boston Elevated bonds, notes and bills.....	1,483,625	1,593,258	1,423,143
Miscellaneous items.....	54,479	69,285	37,373
Proportion of dividend rental under acts of 1918.....	1,523,367	1,403,970	1,360,220
Total cost of service.....	\$33,673,896	\$32,672,120	\$30,203,647
Net profit or loss.....	550,253	17,079	*4,980,151
Back pay applying to May and June, 1919, which had not been determined at time deficit was assessed.....	.....	.....	*435,349
			*\$5,415,500
Revenue passengers carried.....	337,381,994	324,192,374	331,348,124

* Figures in italics denote deductions or deficits.

Bill Permitting Track Abandonment Vetoed

Governor J. J. Blaine of Wisconsin has vetoed the Morris Bill authorizing the Wisconsin Railroad Commission to permit electric railways, city or interurban, to abandon portions of their line which they could show were being operated at a loss.

In vetoing the bill Governor Blaine is reported to have said in part:

An interurban or suburban street railway under our law is entitled to a fare that is reasonably compensatory. Suburban communities have been established in and about the larger cities, and the city together with those communities constitute an area that should be served by the transportation companies operating within that area. In considering the rates of fare, therefore, the area should and is taken into consideration in fixing a reasonable compensation, or fare.

Theoretically, there can be no loss to the utility under the law, and it is for the Railroad Commission, and then in the courts, to establish a rate that will give the utility a reasonable return. Large communities have been built up around the larger cities, and people have been induced to purchase property and make improvements and establish municipal government, and in fact large investments have been made by individuals and municipalities, inducements for which was in the first instance the presence of transportation company furnishing a convenient service to the city of which such communities are suburbs. Sound public policy can not justify the possibility of the abandonment of a suburban electric line, under the conditions I have described.

City Will Value Ottawa Electric Railway

At the request of the City Council of Ottawa, Ont., the Hydro-Electric Power Commission of Ontario will value the property of the Ottawa Electric Railway. T. U. Fairlie, head of the railway and bridge department of the commission, is to undertake the work. Mayor Plant has announced that Mr. Fairlie will, in all probability, make two separate and distinct valuations of the property.

The first valuation will be based on the original cost of the road less depreciation, and the second one will be a valuation based on the cost of reproduction of the road at the present time, less depreciation.

Another Electric Line Emerges from Receivership

The Denver & Interurban Railroad, operating from Denver, Col., to Boulder and Eldorado Springs, has emerged from the receivership brought about in 1918 by the conditions of government control of the railroads.

The Denver & Interurban Railroad is a subsidiary of the Colorado & Southern, but when the government took over the Colorado & Southern, along with other railroad lines, the electric line was not taken over, but was thrown on its own resources.

Then followed suit for defaulted interest by the holders of the bonds, resulting in the appointment by Federal Judge Robert E. Lewis of W. H. Edmunds, manager, as receiver.

Under the federal receivership the fares were increased to compare with the rates on steam lines to the same

points. This enabled the company to better its earnings. With the return of the railroads to private ownership, the Colorado & Southern was enabled to resume its former guardianship of the electric line, hence the discharge of the receiver and the return of the property to its owners.

Mr. Edmunds, discharged as receiver, will continue to operate the property under his former title of manager.

Eureka Votes to Buy Railway

By practically a unanimous vote of the people on June 20 the city of Eureka, Cal., has been authorized to issue bonds for the purchase of the Humboldt Transit Company, which operates in that city. Railroad Commissioner Loveland recently brought out the fact that the testimony of the chief engineer and the general manager of the property agreed in the opinion that not even operating expenses could be made in the future, and that if the city should decide not to buy the railway, service would have to be discontinued and the property scrapped. The Railroad Commission valued the property at \$100,000, but the attorney for the Humboldt National Bank, which represents the bondholders of the railway, announced later that the bank had been authorized to submit \$75,000 as the valuation of the lines.

Twin City Finances May Be Readjusted

As part of the plan for complete financial readjustment of the Twin City Rapid Transit Company and its subsidiaries, the Minneapolis Street Railway and the St. Paul City Railway, the company will ask permission from the Minnesota Railroad & Warehouse Commission to sell \$3,300,000 of new securities. Of this amount \$1,730,000 will be utilized for reconstruction and paving ordered in St. Paul and \$84,370 for extensions; \$991,750 for reconstruction in Minneapolis and \$528,970 for extensions.

Horace Lowry, president of the company, says the financial rearrangements will be brought before the commission when that body is asked to make a complete valuation of Twin City Rapid Transit properties subsequent to action on the application for a temporary fare increase made to the commission on June 21 and now pending.

Mr. Lowry said:

There is no mystery in the relationship between these two companies. Financially they touch at two points. The Twin City Rapid Transit Company owns all the capital stock of each company, \$5,000,000 in each case. This is one point. The other is a \$10,000,000 bond issue which will mature in 1928 and which constitutes a mortgage on the property of both the Minneapolis Street Railway and the St. Paul City Railway.

He said he was unable to answer a question as to whether the Twin City Rapid Transit Company might be liquidated, or another as to whether the present holding company and its two twin city subsidiaries might be integrated, as a single corporation.

Financial News Notes

Interest Defaulted at Des Moines.—Interest due on July 1 on the \$4,821,000 of general and refunded mortgage 5-per cent bonds of the Des Moines (Ia.) City Railway having been defaulted, the holders have been requested by the committee to deposit their bonds with the Harris Trust & Savings Bank, Chicago.

P. R. T. Earns \$191,561 in June.—For the first six months of 1921 the Philadelphia (Pa.) Rapid Transit Company reports a net income of \$1,016,408 against \$354,970 for the same period a year ago. Out of this amount a 5 per cent return on P. R. T. capital is to be met. The deficit has been reduced from \$1,117,935 as of Dec. 31, 1920, to \$851,526 for the eighteen months' period to June 30, 1921.

Receiver Asked for Municipal Road.—The Taunton Coal Company at Taunton, Mass., has asked for the appointment of a receiver for the municipally-owned Norton, Taunton & Attleboro Street Railway. The coal company alleges that the road owes it \$4,294 in payment for coal purchased. The railway is owned by the cities of Attleboro and Taunton and by the towns of Sandfield and Norton. The board of directors is composed of representatives of the four municipalities. The president of the road is Mayor Leo H. Coughlin of Taunton.

Minneapolis Seeks Valuation Expert.—Although deadlocked through 150 ballots on organization of the new City Council the likelihood is that the conservatives and the radicals in the City Council of Minneapolis, Minn., will unite on the selection of an expert for the valuation of the property of the railway. They have asked the city attorney to write several experts who have proffered their services for the work. A socialist Alderman has moved for a test of the law which puts the rate-making power into the hands of the State Railroad & Warehouse Commission and this motion will be considered in a committee of the whole.

Deficit Being Piled Up in Memphis.—The gross income of the Memphis (Tenn.) Street Railway for June was \$17,508 below the income for June of a year ago. The month's operations added \$15,056 to the deficit, which has been piling up since July 1, 1919, bringing the accumulated deficit to \$179,759. More than 930,000 fewer passengers were carried than during June, 1920. For June the gross income was \$251,724 as compared with \$269,232 for the same month last year. Operating expenses were reduced from \$177,823 last year to \$156,638 for June this year. The total cost of the service for the month was \$266,780. For June, 1920, it was \$287,402.

Traffic and Transportation

Mayor Promises Relief from Jitneys

Mayor Charles W. Jewett has issued a statement pronouncing himself in favor of legislation by the City Council designed to eliminate the jitney bus as a competitor of the Indianapolis Street Railway.

His statement was issued after he had received a copy of a letter sent by Dr. Henry Jameson, chairman of the board of the railway, to Russell Willson, president of the City Council, saying that the company's loss of revenue as a result of the operation of jitney buses has made imperative the need of a city ordinance to regulate the jitneys. Dr. Jameson said railway service on certain streets of the city must be abandoned or the fares increased if an effective jitney bus ordinance is not enacted.

The Mayor said in part:

The regulation of jitneys is purely a legislative matter, and the power to curb jitney bus business rests solely with the Common Council. However, I am of the opinion that jitney bus business is a serious menace to our railway, and if the Council will pass stringent laws prohibiting the activities of the jitney buses in competition with the street car company, I will sign the ordinance. Unless the jitney bus is eliminated, irreparable harm will come to the city through the destruction of our transportation system. I am opposed to an increased fare above 5 cents.

Dr. Jameson said the number of jitneys operating in the city has increased steadily the last few weeks until now the number is more than 600. These, he said, carry an average of 20,000 passengers a day.

Mr. Willson said that he did not believe the city should take steps granting to the company the requested relief from jitneys until it is seen what attitude the company will take toward the city administration in regard to the proposed new franchise ordinance.

Company Wins Fight for Ten-Cent Fare

By a recent ruling of the Public Service Commission the Buffalo & Lackawanna Traction Company, Buffalo, N. Y., which has the franchise for the line operated by the Buffalo & Lake Erie Traction Company, Erie, Pa., through the south side of Buffalo, has been authorized to charge a 10-cent fare without transfers.

Under franchise provisions the railway was limited to a 5-cent fare and was required to issue transfers on the lines of the International Railway and to accept transfers from that line. One result of the decision is that passengers on the Buffalo & Lake Erie line and those who transfer to the International Railway will have to pay 17 cents or 16½ cents ticket rate.

Colonel Pooley, the Buffalo member of the commission, said in his finding that it was absolutely impossible for

the company to make operating expenses on a 5-cent rate. Under a decision of the court of appeals the commission lacked the power to declare these franchise provisions null, but under the reorganization act the commission was able to effect these changes.

Washington Rates Debated

Civic Associations Making Determined Stand in Fare Reduction—Each Company Should Stand Alone

Unusual interest was manifested in the hearings conducted by the Public Utility Commissioners of the District of Columbia in the matter of railway fares. The hearing was characterized by a very determined drive on the part of the citizens' associations looking to a material reduction in rates. One of the contentions of the Washington Railway & Electric Company, which owns the Potomac Electric Power Company, was that the fare on its cars could be reduced to 7 cents if the commission would permit an increase in electric light rates from 8½ to 10 cents a kilowatt-hour.

The contention of the Capital Traction Company was that a 6-cent fare would give that company a return of 6.32 per cent on its investment. That company contended that each company should stand alone, and that the Washington Railway & Electric Company should be allowed such rate of fare as was justified regardless of what might be justifiable for the Capital Traction Company.

The proposal to establish zones outside of which an extra fare would be collected is being combated vigorously by the citizens' associations on the ground that it would discourage suburban development and make for greater congestion in the first zone. It also was contended that suburbs had been developed on the understanding that there would be one fare within the District of Columbia.

No Funds for Rerouting

Plans for extensive rerouting of railway lines in downtown Indianapolis, involving an expenditure of from \$50,000 to \$60,000, were outlined at a conference recently of the City Council committee on rerouting and its subcommittee. The chief feature of the scheme would require some cars to be routed around the eight block loop downtown while others would be turned on a series of smaller loops, touching the main loop at some point.

Officers of the Indianapolis Street Railway have informed city officials that no plan of rerouting which would involve the expenditure of money could be carried out by the company until its financial condition is improved.

Motor Bus Men Offer to Furnish Service

The Des Moines Motor Bus Association made a proposal to the City Council during the week ended July 16 for giving the city transportation service in the event of suspension of service by the Des Moines City Railway. In brief the proposal is as follows:

That the City Council grant to motor bus operators five-year permits to operate, subject to city service and routes.

That the license be granted on a line-company unit plan under which a single organization would be held responsible for service on each passenger route of travel.

That bus companies with preferred lines be forced to provide service on lines that are not so profitable.

That the basic fare be 5 cents. That free transfers be issued, if operating experience shows that they can be given profitably; if not a 1- or 2-cent transfer charge.

That 200 buses be provided within a reasonable time after car service is suspended and 250 if it is discovered that that number is needed to handle the rush-hour service.

That owl service be supplied at a 10-cent fare.

That power be reserved by the Council to suspend permits for failure to perform.

Consolidation of all bus companies would be the ultimate object, but at first the Council is asked to grant permits on a line-company unit. This will exclude individual owners.

In order to give the Council power to provide service on lean lines the bus men propose that in securing permits to operate on heavy lines the operators must guarantee to take over certain lean lines.

The bus men propose to accept a tax considerably higher than the present one, namely, \$25, but that they will oppose a wheel tax. Rather than jeopardize their entire offer, however, they are willing to accept a wheel tax.

No guarantee of service is offered except the right reserved to the City Council to revoke permits in the event of unsatisfactory service.

No action was taken by the Council on the offer other than to receive and file it. The proposition probably will not receive serious consideration until something definite is worked out in connection with the service-at-cost plan submitted by the railway men's union.

Buses Active in Toledo

A dozen applications to operate motor buses under Toledo's new bus regulatory ordinance were taken out after court efforts of the busmen's organization failed to get a review of the case before the Supreme Court.

The city won its fight in the lower courts against the buses. The police were ready to enforce the ordinance on July 13.

According to the plan of regulation bus owners were forced to take out licenses both for their machines and drivers and then post indemnity bonds or insurance. They had to file routes and schedules with the safety director and have his approval.

Several chose to operate parallel to railway lines, but the congestion of traffic on St. Clair Street forced them to leave their favorite loading places. It is thought many will be driven to operate new lines.

Connecticut Jitney Developments

Bridgeport Jitneys Greatly Reduced in Number—Railway Must Make Good—Legal Fight on Company—Connecticut Company Starts Bus Operation

Jitney events in Connecticut have been fast and furious the past ten days. Bridgeport has been denied most of her jitneys, the jitney men have attacked the constitutionality of the new law, the insurance companies have taken a hand, and the Connecticut Company has started bus operation.

In one of the last orders which it issued before the new law became effective on July 15 the Connecticut Public Utilities Commission ruled all but seventy-one jitneys off the streets of Bridgeport. Eight routes, including four suburban, have received permits to continue in operation, utilizing seventeen fewer buses than were recommended by the Common Council to the commission. About a year ago Bridgeport was trolleyless. Under the commission ruling Bridgeport will now become practically jitneyless.

In its report the commission calls at-

tempt directly with the steam railroad as between Bridgeport and Norwalk, also connected by trolley, the commission denied applications.

In analyzing and passing upon the Bridgeport situation, the commission feels that the number of routes should be limited and that it is better at the present time to have too few routes and add to them later if it becomes necessary than to make the mistake of approving unnecessary routes and later find that such routes should be discontinued. An opportunity has been afforded the railway to fulfill its charter obligations and to demonstrate its ability to supply adequate service.

VALIDITY OF JITNEY LAW ATTACKED

An attack on the constitutionality of the jitney law has been launched in Hartford in behalf of Edward P. French of New Britain, whose petition for five

missioner shall not license any jitney car until the latter has secured a certificate from the utilities commission; it also renders futile any appeal to the courts for release.

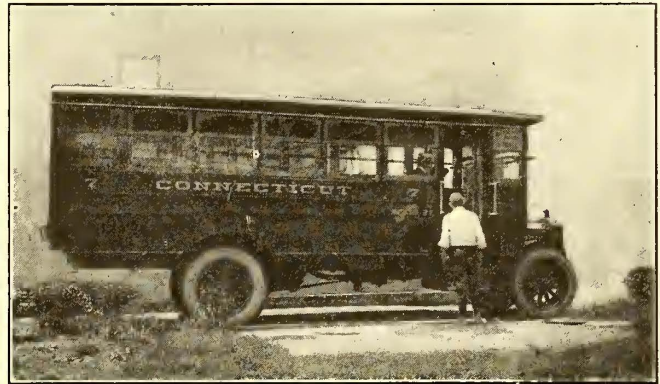
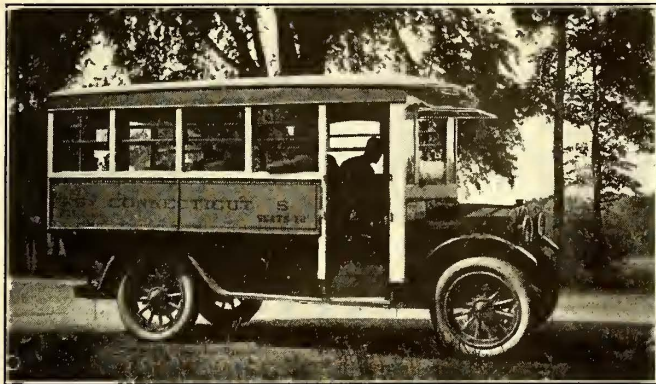
As a further deterrent to jitney operators, it is understood that various insurance companies have notified them that they cannot continue to carry liability insurance on any public service vehicle which does not have the certificate from the utilities commission if it is a jitney, and the correct license and marker under the vehicle law in any case.

Following the restrictions of motor buses which created certain gaps in transportation service the Connecticut Company, under its new authority, placed several buses in operation on Friday, July 15.

The service instituted is as follows:

1. From East Haven to and through Branford. This is a cut-off, as the company has a rail route from New Haven to East Haven to Branford, which follows the shore of Long Island Sound between the last two cities.

2. From New Haven through Milford



REO AND PACKARD BUSES IN THE SERVICE OF THE CONNECTICUT COMPANY

attention to the fact that the jitney problem in Bridgeport was more complicated than in any other section of the State.

The commission points out that the inadequacy of the trolley service occasioned the large development of jitney service. It finds the necessity for trolley service in Bridgeport to be without question, but says that the operation of jitneys in Bridgeport exists to an extent not only to prevent the successful operation of the trolley, but to jeopardize the successful operation of the jitneys themselves by reason of the excessive competition.

In speaking of the operation which have been approved for operation, the commission says that "while in many instances these routes parallel street railway tracks over portions of the way, they supply a necessary service from such territory into the center of the city."

In denying the right to operate over certain roads, the commission finds that the street railway tracks and facilities are sufficient and that the company claims to be willing and able to increase its service and to supply adequate service to care for the traffic.

In some cases where the routes com-

pany routes in that city was denied by the Public Utilities Commission. In New Haven the jitney bus owners banded together and appeared before Judge John E. Keeler in the Superior Court in Bridgeport and asked for a temporary injunction restraining the city of New Haven, the State of Connecticut, the Connecticut Company, and other municipalities from interfering with the operation of jitneys over routes heretofore operated. In both places it is contended that the law runs contrary to the Fourteenth Amendment of the Federal Constitution and that the public convenience and necessity are served by the existing jitney routes, etc. As far as the commission is concerned, Chairman R. T. Higgins said that the decision would stand until the courts decide whether or not the law is constitutional or find errors in individual cases. An error in an individual case would affect only the individual concerned. If the courts decide against the jitney men a test case will probably be carried to the Supreme Court, but whether the law would be in force meanwhile is in doubt. But there is another law—the general motor vehicle law—to be considered. This law states specifically that the motor vehicle com-

pany to Devon. This is also a cut-off on that part of the New-Haven-Bridgeport line that follows the shore from New Haven, through Milford to Devon.

3. A suburban route near Danielson, in northeastern Connecticut, to serve a section formerly unserved.

4. From Atlantic Square, Stamford, to Glenbrook.

On all routes the same fare is charged on the bus as on the car between the same points and transfers are issued to and from the buses. Schedules are arranged for buses and trolleys to meet.

On routes 1 and 3 the buses used are Reo chassis with Paterson twelve-seat bodies; on route 2 Packard chassis and Paterson twenty-seven-seat bodies.

As to how far the Connecticut Company will ultimately develop its bus service it is too early to state.

The company did some excellent work to provide the service at the time the jitney restrictions became effective, purchasing chassis, driving them to Paterson, N. J., having them fitted with bodies, getting them back to Connecticut in some forty-eight hours, painting them, licensing them, insuring, lettering and numbering them and having them in service a few hours later.

Another Survey and Valuation at New Orleans

The Commission Council of New Orleans, La., has yielded to the request of Commissioner Maloney, of the Department of Public Utilities, and has engaged F. W. Ballard, consulting engineer, Cleveland, Ohio, to make another survey and valuation of the property of the New Orleans Railway & Light Company. This is an admission on the part of members of the Council, after the frank avowal of Commissioner Maloney, that they are unequal to the task, due to inexperience, of passing satisfactorily upon the merits and demerits of the vexatious railway problem of the Crescent City.

Mr. Ballard's previous valuation, the lowest of several estimates submitted under the old city administration, was \$32,000,000. His new valuation, it is assumed, will be in excess of his previous estimate. This belief is based upon a communication written quite recently by Mr. Ballard in which he declared in effect that intangible assets of public utilities should be considered where valuation, strictly speaking, was an issue.

While Mr. Ballard made no reference to the New Orleans Traction Company's valuation in his letters, it is known that these intangible assets were not included in his previous estimate of the worth of the property of the New Orleans Railway & Light Company. The decisions of the courts bear out this view in recent litigation affecting the value of public utilities.

Mr. Ballard's duties as a utility expert will be to assist the city authorities in their consideration of the various plans submitted looking to an adjustment of the pending troubles, for the purpose of reaching an amicable settlement without recourse to the courts. He will also act as the city's expert representative in preparing the case instituted by the city and now pending in the Federal District Court against the railways to restrain the collection of an 8-cent fare.

Three Cheers for Fifth Avenue Bus

The splendid co-operation and generosity of the Fifth Avenue Coach Company, New York, N. Y., in the work of making wounded soldiers' lives a little brighter is told by Alfred C. Bennett, a member of the Committee for the Sick and Wounded Soldiers, American Legion Air Service, Post 501, who called upon various organizations to assist in extending free pleasures to the men. On June 7 a bus with three attendants called at the Polyclinic Hospital, 50th Street and Ninth Avenue, took the men to the Polo Grounds, where they witnessed the base-ball game, and waited to transport the men back to the hospital. Mr. Bennett said that he asked the company for free transportation for the men once a month, but that the company informed him a bus would call once a week, suggesting that it

would therefore take less time to go the rounds. The management informed Mr. Bennett further that it was a rare opportunity for the bus company to do something to bring cheer to the wounded men and to co-operate in a worthy work of this kind.

Louisville Decision Expected Soon

The Federal Circuit Court of Appeals is expected to render a decision soon in the case of the City of Louisville against the Louisville Railway. News to this effect has developed the evil of speculation in receipts issued by the company for the extra fare collected under the order of the injunction granted by Federal Judge Evans. This order restrained the city from interfering with the collection of a 7-cent fare which the company obtained last February.

Five tickets to a strip are sold for 35 cents. In the event the city wins its case the receipts attached to the strips will be worth 10 cents. The "market" price of the receipts now stands at 1 cent for five receipts. Few "sales" are reported, however, as citizens holding receipts seem to be confident that the city will win. Those who think the company will win did not bother about saving their receipts.

The decision of the Circuit Court of Appeals, however, is regarded by both sides in the case as a mere formality to be observed in bringing the case before the United States Supreme Court. Both parties have announced their intention to appeal.

Buses Bridge Traction Gap

The 30-mile gap in traction service between Louisville and the Bluegrass section of Kentucky has been bridged by the Capitol Motor Coach Transit Company, which has established a motorbus line between Shelbyville, 30 miles east of Louisville, and Frankfort, which is 60 miles east of Louisville. Three round trips are made daily by the buses of the company. Stops are made at all points between the two cities. The establishment of the bus line connects Louisville and Shelbyville on the west with Frankfort, Lexington, Nicholasville, Georgetown and Paris on the east.

Ambiguities Removed

The Ontario Legislature, in order to remove doubts as to the meaning of a paragraph relating to the "award, conditions, tender and bylaw" in the agreement between the City Council of Toronto and the Toronto Railway, has passed an act declaring that the value of the company's real and personal property to be taken over by the city shall be determined by three arbitrators, as provided in the Municipal Act, secs. 335 and 336. Sir Adam Beck has been appointed by the City Council, and Sir Thomas White by the company, and Hume Cronyn, M.P., of London, Ont., has been chosen by them as the third arbitrator.

City Seeks to Compel Fare Reduction

Suit to compel the Cincinnati (Ohio) Traction Company to publish a reduction in fares from the present rate of 8½ cents to 8 cents on Aug 1 has been filed in the Superior Court by Saul Zielonka, city solicitor. The city will base its plea on the purported agreement made by the company on July 14 to abide by an ordinance passed a month before, amending the service-at-cost franchise.

According to the petition the gross receipts of the company during the months of May and June have been in excess of the amount needed to meet payments and accruals and that under the terms of the amended franchise the city is entitled to a reduction in fares. The company, however, failed to carry out its agreement and grant the reduction, it is charged by the city.

Reasons given by the company for this action, the petition asserts, were that a citizens' committee sent a petition to the city auditor demanding a referendum election on the ordinance amending the franchise. The petition says the traction company contends that the ordinance is not effective until voted favorably by the people. The city holds, according to the suit, that the ordinance being an amendment to the original franchise is not a legislative act, authorized by the General Assembly of Ohio, and therefore does not have to be submitted to the electors at a referendum election. The referendum petition, according to the city solicitor, is of no value because it seeks a referendum on an amendment to an ordinance passed before the initiative and referendum act was adopted by the Ohio Legislature.

New Rate in Effect in Knoxville

Six-cent fares are now in effect in Knoxville, Tenn., without a court fight on the part of the Knoxville Railway & Light Company, as was predicted when the Public Utilities Commission granted the increase from 5 cents.

The city had announced its intention of fighting the increase on the grounds that the company is operating a commercial lighting department from which it derives a good return. The city of Knoxville, through its attorneys, now announces, however, that the order increasing the fare will not be appealed to the Supreme Court.

From revenues derived from the increased fare the Traction company is planning some improvements, including extension of its lines, additional service and a faster schedule.

Ordinance Against One-Man Cars.—The City Council of Steubenville, Ohio, has passed an ordinance making it a punishable offense for any traction company to operate a one-man car within the corporation limits. The action followed the announcement of the intention of the Wheeling Traction Company to place one-man cars in operation in Steubenville.

Seven Cents in Nashville

The Nashville Railway & Light Company, Nashville, Tenn., has been allowed to charge a straight fare of 7 cents. This order was issued recently by the Tennessee Public Utilities Commission.

When the company at Nashville was granted an increased fare about two years ago the commission stipulated that the company could sell tickets at the rate of four for 25 cents, or for 6½ cents each. The company appealed to the commission that it could not get-by and sell tickets at that rate. The order was, thereupon, modified and the fare of 7 cents straight was authorized.

Seven Cents in Toledo

Notices have been posted in the cars operated by the Community Traction Company, Toledo, of a fare increase from 6 to 7 cents with tickets at a rate of eight for 50 cents. The change will become effective on Aug. 1.

Transportation News Notes

Agrees to Lower Fares.—By agreement between the city of Pottsville, Pa., and the Eastern Pennsylvania Railways operating in that city fares will be lowered from 10 cents to 8½ cents. Twelve tokens will be sold for \$1. This arrangement will be in effect for three months at the end of which time if not satisfactory a valuation of the property will be made.

Wants Fare Case Reconsidered.—The Indianapolis & Cincinnati Traction Company, Indianapolis, Ind., has filed a petition with the Indiana Public Service Commission asking that its request for a 10-cent fare within the city of Indianapolis be taken up again. The present fare is 5 cents. The case was considered by the commission last December, but no action was taken.

City to Fight for Five-Cent Fare.—Mayor Rosson, of Frankfort, Ky., has announced that the city will institute legal steps to have the fare reduced from 6 cents to 5 cents. The 1-cent increase was granted by a city ordinance which provided that the 5-cent fare should be restored when peace had been declared with Germany. This has been done, the Mayor states, but the company is still collecting 6 cents.

Relieving Congestion in Tampa.—Safety zones for passengers getting on and off street cars at the corner of Lafayette and Franklin Streets and the corner of Lafayette and Tampa Streets, Tampa, Fla., have been suggested by T. J. Hanlon, Jr., manager of the Tampa Electric Company, as a means for relieving the congestion of traffic at these two busy corners. The zones are to be marked on the pavement.

Ten-Cent Rate in Effect.—The North Carolina Public Service Company, Salisbury, N. C., put into effect a 10-cent cash fare in Concord on July 11. No tickets are used. The State Corporation Commission authorized the increase on June 25. This fare supercedes the 8-cent fare which has been in effect since October 1, and which was allowed by the Local Board of Aldermen without the necessity of going before the commission.

Interurban Rates Advanced.—The South Carolina State Railroad Commission recently granted permission to the South Carolina Light, Power & Railways Company, Spartanburg, S. C., to increase its railway fares in the interurban territory. The old rate was 7 cents and it is now 10 cents in each of three zones, making an increase from 21 cents to 30 cents for approximately ten miles. The new order became effective July 3.

Eight-Cent Rate Continued.—The Indiana Public Service Commission recently approved the petition of the Hammond, Whiting & East Chicago Railway, operating between Hammond and East Chicago, for an extension of its 8-cent fare. When the company appeared before the commission it was brought out that in the first five months of the year 343,843 fewer passengers were carried on the Hammond-East Chicago line than in the corresponding period of 1920.

Wants to Run Buses.—C. H. Bosler, president of the Tulsa (Okla.) Street Railway, recently applied for a franchise to establish motor bus lines when a new ordinance was proposed by the city attorney regulating the present jitney lines and permitting jitneys to operate on streets where there are now railway lines. Mr. Bosler added further that his receipts were \$200 a month less than they were a few months ago and that a wage cut would have to be put into effect within a short time. The matter was taken under advisement.

Authorizes Increased Rate.—The South Carolina Railroad Commission recently granted permission to the Charleston Consolidated Railway & Lighting Company to increase its fare on the interurban line from Charleston to the navy yard. The company petitioned for a 7-cent fare with a ticket rate of four for 25 cents from the incorporated limits to the Navy Yard and from the Navy Yard to North Charleston 5 cents with three tickets for 10 cents. The old fare to the yard was 5 cents.

Will Punish Violators of Motor Laws.—Local authorities in Louisville, Ky., have started a strong crusade against violators of the motor laws, and are especially strong in prosecution of motorists who pass standing street cars. There have been so many accidents of late that an effort was made to give motorists jail sentences when fines failed to do much good. One man was given a five-day jail sentence, but brought habeas corpus proceedings

and his attorney showed that the present state laws do not contain a jail sentence. The courts retaliated by making the minimum fine \$100 for each speeder, and arrest on the spot, instead of notifying them to appear in court.

Intrastate Rates Equalized on North Shore Road.—A recent order of the Interstate Commerce Commission fixed the rate of fare for intrastate travel within Illinois, on the Chicago, North Shore & Milwaukee Railroad at 3 cents a mile. Heretofore, while this has been the rate for interstate travel, a rate of 2 cents a mile prevailed for local travel in Illinois, and 2.7 cents a mile for local travel in Wisconsin. An order of the commission on June 14 increased the Wisconsin fare to equal the interstate rate and a subsequent order on July 2 raised the rate in Illinois to the same basis. The cash fare on trains is now 3.6 cents a mile with a minimum of 10 cents. The ticket fare is 3 cents a mile with a 7-cent minimum, and the twenty-five ride ticket is sold at 2.5 cents a mile, except to Chicago.

Compromise Effected in Springfield.—Friction between jitney operators and the Springfield Street Railway, Springfield, Mass., culminated recently in a ruling effective on Aug. 1 barring jitneys from Main Street. The transportation committee of the City Council voted to accept the seven new routes submitted by Attorney Cowett, representing the jitney men's association with the modification that jitneys shall be barred from Main Street between the station arch and State Street. The settlement allowing four jitney operators on the State Street route and three on each of the others amounts to a compromise between the railway management and the jitney men. President Clark, of the Springfield Street Railway, asked that jitneys be taken off all streets on which trolleys operate, as the receipts in Springfield had been greatly decreased in comparison with last year.

Collection of Ten-Cent Fare Deferred.—Invoking authority of a 1921 law permitting more than one suspension of a proposed increase in trolley rates, the Board of Public Utility Commissioners on July 12 served notice on the New Jersey & Pennsylvania Traction Company, Trenton, N. J., that the inauguration of a 10-cent fare by the company on its Princeton branch is withheld until Oct. 12. The 10-cent fare was to become effective on April 12 last, but the board suspended the increase until July 12. Unable to determine whether the increase sought is just and reasonable, the board decided to order another three months' suspension. During that time an opinion in the case must be written. The board specified that the second suspension would last until the case was decided. In its petition the company asked permission to charge a fare of 10 cents in each of its four zones between Trenton and Princeton, authority to issue commutation strip tickets containing eleven tickets for \$1 and also school children's strips containing forty trips for \$2.

Personal Mention

W. S. Finlay, Jr., Heads Metropolitan Section of A. S. M. E.

W. S. Finlay, Jr., a vice-president of the American Water Works & Electric Company, New York, has been elected chairman of the Metropolitan Section, the largest of the local sections of the American Society of Mechanical Engineers. This section embraces a membership of more than 3,000 in the metropolitan district. G. I. Rhodes of Ford, Bacon & Davis, secretary, and Robert B. Wolf of R. B. Wolf & Company, treasurer, with A. E. Allen, Westinghouse Electric & Manufacturing Company, constitute the executive committee. The Metropolitan Section, organized in 1910, under which are held public forums on engineering topics, has sub-committees on power engineering, industrial relations, educational, manufacturing, production engineering and legislation.

Mr. Finlay, before his present connection with the American Water Works & Electric Company, was the superintendent of motive power of the Interborough Rapid Transit Company, New York, having been the successor to the late H. G. Stott, who was recognized as the most able power plant designer and operator in this country. Mr. Finlay entered the employ of the Interborough Rapid Transit soon after his graduation from Cornell in 1904. He was born in Hoboken, N. J., in 1882 and received his preliminary training in the public schools of Brooklyn, N. Y.

Promotions as Well as Reassignments on the Eastern Massachusetts

Among the numerous changes that took place recently on the Eastern Massachusetts Street Railway in the way of reassigning the managers to the various divisions, as was announced in the *ELECTRIC RAILWAY JOURNAL* for June 25, there were several to whom the changes came as promotions. This was true in the case of Charles E. Whalen, who has been made superintendent of the Lowell district, and Francis J. O'Donoghue, who has assumed the position of manager of the Haverhill district. The appointments became effective on July 6.

Mr. Whalen has been in the employ of the Eastern Massachusetts Company for the past seven years. He was formerly a motorman at Milton and later was brought into the office of the transportation department to assist in the work of equalizing the cars among the different districts. These duties involved the allocating to the carhouses in the various divisions of a sufficient number of cars to furnish the service as determined by their schedules. On a system composed of twelve divisions on

which schedule revisions and reroutings are continually being made, proper car distribution forms an important link in efficient operation.

Mr. O'Donoghue, up to the time of his appointment as manager in Haverhill, was superintendent of the Brockton Division. Prior to that he also was employed in the transportation department engaged in the same sort of work. G. F. Chase, formerly local manager in Haverhill, has gone to Lawrence as the superintendent of that division.

Changes on Tri-City Railways

J. G. Huntoon, who has been vice-president and general manager of the group of properties operated by the Tri-City Railway & Light Company, Davenport, Iowa, has resigned as general manager, but will retain the office of vice-president. T. C. Roderick has been appointed general manager of the Tri-City Railway of Illinois. R. J. Smith has been made general manager of the Tri-City Railway of Iowa. Clark G. Anderson was appointed general manager of the interurban lines of the Clinton, Davenport & Muscatine Railway. E. L. Fischer was appointed general manager of the Muscatine city lines of the Clinton, Davenport & Muscatine Railway.

Mr. Roderick has been assistant general manager of the Tri-City Railway of Illinois and of Iowa and was formerly chief engineer of the Grand Rapids (Mich.) Railway. Mr. Smith has been engineer of way and structures of the United Light & Railways Company and will continue to act in this capacity. Mr. Anderson has been assistant general manager of the Clinton, Davenport & Muscatine Railway and prior to coming with this company in 1914, was Commissioner of Public Works for the city of Moline. E. L. Fischer is also general manager of the Muscatine Lighting Company and under the new arrangement is merely taking over the additional duties of looking after the local street car lines.

London Transportation Men Visit American Properties

H. E. Blain, C. B. E.; C. S. Louch and J. L. B. Lindsay, of the London Underground Railways and Omnibus Group, who have been in this country for about six weeks, returned to England on July 16. During their stay they visited a number of cities in this country and Canada and extended their trip as far west as Colorado Springs. They found many matters to interest them and expressed themselves before leaving as highly pleased with the results of the trip and appreciative of the courtesies extended to them by the officials of the

railway properties in the cities visited. On July 14 they gave a dinner at the Lotos Club to some of the railway men in New York. Among those present were: Frank Hedley, H. H. Vreeland and E. F. J. Gaynor, Interborough Rapid Transit Company; J. A. Ritchie and G. A. Green, Fifth Avenue Coach Company; E. C. Faber, Barron G. Collier Company; J. H. Pardee, J. G. White Company; C. B. Buchanan, Virginia Railway & Power Company; B. A. Hegeman, Jr., H. A. Hegeman, C. C. Castle and H. L. Howell, National Railway Appliance Company.

A. J. Purinton Succeeds the Late Charles Evans on Atlantic City Road

Election of officers and directors of the three Atlantic City trolley companies took place recently. A. J. Purinton, of the Atlantic City and Shore Railroad Company, was elected a director and vice-president, succeeding the late Charles Evans. Other officers elected were I. H. Silverman, president; A. W. From, treasurer; J. M. Campbell, secretary. The executive committee is made up of H. Silverman, Harry E. Kohn and A. J. Purinton, while the board of directors is composed of I. H. Kohn, Clarence L. Smith, H. R. Coulomb, Penrose Fleisher and Rolia L. Smith.

The officers and directors of the Atlantic and Suburban Railway are L. R. Isenthal, president; Irving B. Woods, vice-president; J. M. Campbell, secretary, and A. W. From, treasurer. The directors are L. R. Isenthal, R. A. Cale, Harry E. Kohn, J. M. Campbell and Irving B. Wood.

The Central Passenger Railway officers are A. J. Purinton, president; J. M. Campbell, secretary, and A. W. From, treasurer. Those appointed to the committee are I. H. Silverman, A. J. Purinton, L. R. Isenthal. Directors, J. M. Campbell, A. W. From and H. R. Coulomb.

A. Born is the successor of E. F. Gould as vice-president of the Western Ohio Railway, Lima, Ohio.

H. J. Meyer is no longer in the employ of the Pittsburgh & Beaver Street Railway, Pittsburgh, Pa., as master mechanic.

D. W. Hanson is now the auditor of the Northwestern Pennsylvania Railway, Erie, Pa., having succeeded A. Shiel in this capacity.

J. H. Reed has been elected vice-president of the Pittsburgh & Beaver Street Railway, Pittsburgh, Pa., to succeed J. D. Callery, Jr.

R. L. Swittenberg is the successor of R. T. Long as superintendent of plants and line department of the Southern Public Utilities Company, Anderson, S. C.

W. M. Krise, assistant superintendent of the Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa., has severed his connection with the company.

George E. Carson has been named engineer of overhead construction on the Ephrata & Lebanon Traction Company, Lebanon, Pa. S. H. Suter had previously held this position.

D. L. Reisinger, master mechanic of the Gallipolis & Northern Traction Company, Gallipolis, Ohio, has severed his connection with the company and his place is now filled by Homer Walters.

Reuel O. Launey, resigned on July 15 as auditor of the Birmingham Railway, Light & Power Company, Birmingham, Ala. He has gone to Brooklyn, N. Y., where he has assumed duties as auditor of the Brooklyn Edison Company. Entering the service of the Birmingham Railway, Light & Power Company in April, 1904, as earnings clerk in the railway department, he held with credit practically every position in the auditing department and was appointed auditor January 1, 1913. On April 1, 1917, he was appointed auditor of the southern properties of the United Gas & Electric Engineering Corporation in addition to his other duties, which position he held until May 5, 1919, when that corporation withdrew from the control of the southern properties. Since January, 1917, Mr. Launey has been editor of the *Buzzer*, a paper published weekly in the interest of the employees of the company. His ideas are responsible for its reaching and maintaining its high standard and for the place it holds among the employees.

Obituary

E. E. Hudson, president of the Waterbury Battery Company, Waterbury, Conn., died on June 27.

Edward J. Ronan, representative of the Gold Car Heating & Lighting Company, Brooklyn, N. Y., died on July 3. Mr. Ronan had been connected with the company for a period of twenty-one years.

Jacob Scott, who had served as president of the Susquehanna Traction Company for twenty-five years, died on June 11 in Lock Haven, Pa., where he was the most extensive property owner and president of the Lock Haven Safe and Trust Deposit Company. He was eighty-one years old.

Frank L. Doolittle, one of the projectors of Huntington's original traction line, and for many years one of the most prominent figures in the business life of Huntington, died recently at Falls Church, Va. He and others organized the original street car company which secured a franchise for the operation of horse-drawn cars in Huntington. This company was the predecessor of the Consolidated Light & Railway Company, which operated one of the first electric railway systems in this country.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE
MANUFACTURER, SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Tubular Steel Pole Prices Are Reduced

Recent Steel Cut Passed on to Finished Product—Demand Is Light as Buyers Still Hold Off

Prices on tubular steel line poles have been reduced in line with lower costs on steel. The recent general cut of the United States Steel Corporation included a drop of \$4 per ton on skelp, from which line poles are made. Therefore prices may be said to have receded in about the same amount on the date this decrease was made, namely, July 7. One of the large pole manufacturers has only recently passed on this price drop, however, as effective the first of this week a reduction of slightly less than 5 per cent has been announced. This is the second decrease that has been made since the first of the year. In the above instance the previous drop, made last February, amounted to \$15 per ton.

The general attitude of buyers in this field seems to be to await further price reductions. Demand has consistently remained quiet the greater part of this year and, judging from the inquiries received, it is reported that interest among electric railways is not increasing materially. Producers have only fair stocks on hand as production is down to a minimum. With many tube mills of the steel producers closed down entirely it is sometimes difficult for pole manufacturers to replenish their material and, because of this, shipments occasionally range as long as thirty to sixty days.

New City Railway in Sydney, Australia

Plans are under way for the construction of a new city railway in Sydney, Australia, partly underground, to cost about £8,000,000. In addition to this the suburban railways will be equipped for electrical operation and extended so that a loop will be formed around the city. From the extension lines will lead to the eastern and western suburbs.

Price Reduction of 10 per Cent Applied to Motors

A general reduction in prices of motors of 10 per cent was made by manufacturers during the week end of July 9 to 12, and some further changes have just been announced as of July 19. The change affected direct-current motors and polyphase alternating-current motors and motor starting and control apparatus, but did not touch fractional horsepower motors. Single-phase mo-

tors of certain manufacturers were also included in the list, but this change was not general. Synchronous motors have been excepted from the cut. This is the second motor price cut this year, the previous one of 10 per cent having taken place early in February.

In addition one prominent manufacturer reports a 10 per cent reduction on transformers of 500-kva. capacity and above. Another prominent manufacturer has taken 10 per cent off all direct-current generators and motor-generators.

Signaling Apparatus for Australian Railways

Tenders will be received by the Victorian Government Railways Commissioners, Melbourne, Australia, until Aug. 10 for 250 impedance bonds for power signaling (Contract 34,130) and 56 miles of insulated copper wire (Contract 34,131). Tenders will also be received until Aug. 17 for renewals for 3,000 sets of caustic-soda primary cells (Contract 34,145). Specifications may be seen at the Department of Overseas Trade, 35 Old Queen Street, London, S. W. 1, England.

Two Sizable Girder Rail Orders Placed Recently

Although two sizable orders for girder rails have recently been placed with the leading producing interests, these orders apparently are not indicative of a general improvement in this market, for on the whole conditions are quiet.

The Chicago Surface Lines placed an order a few days ago for 4,000 tons of 129-lb., No. 403, 9-in. girder rail with the Lorain Steel Company. This is the first order for rails placed by the Surface Lines since before the war. Replacement requirements in the meantime have been supplied from a stock of 20,000 tons purchased in 1915, when the price was less than one-half what it is now, although the present level of girder rail prices has receded considerably from its peak. The second recent order is one from the Toronto (Canada) Transportation Commission for 4,000 tons of girder rails and 500 tons of T-rails. It goes to the Bethlehem Steel Company.

Ten per Cent Reduction on Trolley Poles

Lower prices on trolley poles apparently have had little or no effect in the way of stimulating demand. The second price drop since the first of the year has been made, yet sales are still light. With lower prices on pipe as announced recently, manufacturers of

both seamless and lap-welded trolley poles have lowered quotations. The general drop has been about 10 per cent and was made on different dates during the early part of July.

A previous drop of approximately 20 per cent was put into effect on seamless-steel trolley poles during the latter part of last February. A fair number of poles are carried in stock at the present time and on standard poles, style A, virtually stock shipments can be made. Style B poles, which are heavier, require a slightly longer time, and deliveries range up to thirty days on some sizes, especially the long lengths.

Insulator Prices Decline

Second Cut This Year Comes at Time When Orders Show Falling Off

Effective July 15 and 18 in different instances several manufacturers of high-tension porcelain insulators have announced lower prices. On suspension types the cut amounts to 5 per cent, while on all others it is 10 per cent. Included in this drop are some of the insulator hardware items. Standard wiring porcelain was also reduced, in a representative instance the discount being increased 8½ points, except on short tubes, where it was 3½ points.

This is the second price decrease to be made on high-tension insulators. The first, amounting to 10 per cent, occurred during the last half of February, but it did not cover single-part pin-type insulators. Demand shows considerable falling off since the first of the year, it is stated. At the present time, though there are a fair number of orders being received from central stations, they are small in size, and both the foreign and domestic markets shape up as quiet. Electric railways up to the present time have taken little or no interest in the market.

Pole Line Hardware Prices Again Reduced

Prices on pole-line hardware are again down. This time the cut ranges from about 2½ to 7½ per cent in a number of instances, and was made on varying dates from the first to the fifteenth of July. Lower costs on steel are said to be responsible for this latest drop. At least three other general price reductions have been reported in the galvanized line hardware field since the first of the year, and in some instances four decreases. The first cut of 5 to 15 per cent was made in late December and early January, the second of 5 to 7½ per cent occurred on Feb. 15, and the third reduction, amounting to 7½ to 10 per cent, was effective on April 11. Early in June at least one manufacturer and a manufacturer's distributor made a fourth decrease of 5 per cent, so that with this latest drop prices are well down. Demand has just recently started to show a slight improvement, it is reported, though factory stocks are still quite large.

A representative distributor's prices

on various items per 100, f.o.b. Chicago, are as follows: carriage bolts, ⅜ in. x 4½ in., \$1.93; crossarm braces, 1½ in. x ¼ in. x 28 in., \$13.19; lag screws, ½ in. x 4 in., \$3.33, and machine bolts, ⅝ in. x 12 in., \$8.95.

Rolling Stock

El Paso (Texas) Electric Company, through Stone & Webster, Inc., has placed an order for ten safety cars with the St. Louis Car Company.

The Denver (Col.) Tramway is considering a plan to purchase twenty-seven new Peter-Witt motor cars and to rebuild forty of its present double-truck cars along the lines of the Peter-Witt design.

Columbus (Ga.) Railroad Company has ordered four safety cars. These were placed through Stone & Webster, Inc., with the St. Louis Car Company.

Fonda, Johnstown & Gloversville Railroad Company, Gloversville, N. Y., advises that it is changing over its pay-as-you-enter type cars to permit of one-man operation. They will be put into service on August 1.

Tampa Electric Company, Tampa, Fla., which recently ordered twelve Birney safety cars, as noted in last week's issue, placed this order with the St. Louis Car Company.

The City of New York, N. Y., has awarded a contract for eight trackless trolleys to the Atlas Truck Company, York, Pa. The contract went to the latter company, it is stated, because it uses structural steel throughout in the construction of the body frame. The cars are intended for use in connection with the municipal line operated on Staten Island. Since the experimental vehicle was put into operation at Richmond, Va., a number of weeks ago, the Atlas company has received many inquiries.

Detroit (Mich.) Municipal Railway was mentioned in the June 18 and July 16 issues as ordering fifty Peter Witt and 100 safety cars. With this latest order the number of cars bought by the city since last fall totals 250, placed as follows: Nov. 16, 1920, twenty-five safety, Osgood-Bradley; April 15, 1921, twenty-five safety, Osgood-Bradley; on May 4, 1921 safety, J. G. Brill; July 12, fifty Peter-Witt, Kuhlman; July 12, 100 safety, divided among McGuire-Cummings twenty-five; St. Louis Car Company, fifty, and Osgood-Bradley, twenty-five. Besides these orders the city will probably ask for bids on fifty trackless trolleys, as stated in the July 2nd issue. Specifications on the 100 safety cars will be printed in an early issue.

Track and Roadway

Intercity Terminal Railway, Argenta, Ark., will provide double tracks on the bridge connecting Little Rock and North Little Rock as soon as the free new bridge is completed. Cars of North Little Rock will then connect with Little Rock cars according to P. C. Warren, of the Intercity Terminal Company.

Wilmington & Philadelphia Traction Company, Wilmington, Del., is doing a great deal of work necessary for the new street paving operations. The company has finished its new track work on East Ninth Street and has finished the Shellpot loop. New tracks have been laid on Lancaster Avenue from Union Street to Woodlawn Avenue and new rails have been installed in Washington Street. On Eighth Street new rails are being installed and these are being laid from Van Buren to Broome Streets. Other work is in prospect.

Public Service Railway, Camden, N. J., has started its reconstruction work on Westfield Avenue between Dudley Tower and Forty-second Street. The tracks will be shifted from the side to the middle of the street. Work will also start shortly on Haddon Avenue, Collingswood.

Pittsburgh (Pa.) Railways have been authorized to construct a loop in the East Liberty district. The loop will run from Penn Avenue along Euclid Avenue to Mignonette and St. Clair Streets. The receivers received permission to spend not more than \$40,000 in this construction which was necessary in view of the heavy traffic in this district.

Dallas (Texas) Railway, will at once connect its tracks on Masten Street with the tracks on St. Paul, according to Richard Meriwether, vice president and general manager. This connection is made possible by the removal of the tracks of the Texas & Pacific Railway on Pacific Avenue. The traction company several weeks ago completed its Masten Street line to the edge of Pacific Avenue, but work was then stopped until the tracks of the steam railway had been removed. Building of a double track line of St. Paul Street from Elm to Commerce to make possible the desired routing of cross-town lines, is being urged by the Dallas Safety Council. Such a line would greatly relieve the congestion in the business district, it is pointed out.

Trade Notes

The Arrow Pump Company, with general sales offices in the Buhl Building, Detroit, announces that it is now prepared to manufacture centrifugal and other rotating types of pumps in which there will be incorporated a unique design of packing gland with ring oiling principle.

Tool Steel Gear & Pinion Company, Cincinnati, Ohio, announces that Richard H. Worcester, 408 Boston Building, Honolulu, T. H., now represents the company there. Two new salesmen have been added to the company's sales force, and the factory space has been enlarged approximately 8,617 sq. ft.

Automatic Register Company, 4117 Washington Boulevard, St. Louis, Mo., manufacturer of automatic fare registers, announces that at its recent annual meeting A. D. Branham was re-elected president, William P. Launtz, vice-president, and George S. Darrow secretary and treasurer. C. H. Wilson was also made vice-president, succeeding M. J. Hopkins.

Track Specialties Company, 29 Broadway, New York City, announces that it has recently appointed the following representatives: The Busch Corporation, 1130 Collins Street, St. Louis; P. W. Wood, 811 Canal Bank Building, New Orleans; R. J. Glendinning & Company, 1102 Newhouse Building, Salt Lake City, and C. H. Small, Monadnock Building, San Francisco.

The M. J. Dougherty Company has completed and moved into its new quarters which occupy the block from Twenty-fourth to Twenty-fifth Street at Washington Avenue in Philadelphia. These increased facilities for the fabrication of piping of every design, the company says, enable it to offer prices and deliveries which had never before been possible with its smaller factory.

Union Switch & Signal Company, Swissvale, Pa., has received an order from the Boston Elevated Railway for the necessary materials for the installation of an alternating-current electro-pneumatic interlocking at Forest Hills. The principal features of this installation will consist of a model 14 interlocking machine made up of thirteen levers for forty-one signals and sixteen stops, fourteen levers for fourteen single switches and three double slips, and five traffic levers, making a total of thirty-two working levers in a thirty-five-lever frame.

New Advertising Literature

Conveyors.—Conveyors Corporation of America, Chicago, has issued a booklet entitled, "The Proof of the Pudding," which reproduces seventy letters received from users of the company's ash-handling equipment.

Fuse Cutout.—Schweitzer & Conrad, Inc., Chicago, have put on the market a new 2,200/6,600-volt primary fuse cutout under the trade name Type E ejector cutout. It is described in their Bulletin 103-A.

Excavator Crane.—Bulletin 6-X describes the Pawling & Harnischfeger Company, Milwaukee, newly developed No. 206 excavator-crane which can be used in coal and ash handling and with a lifting magnet.

Welding.—Rail Welding & Bonding Company, Cleveland, Ohio, has just issued its "Welding Instruction Manual," which deals particularly with the Lincoln carbon arc process of welding rail joints. Another portion is devoted to metal electrode welding of especial interest to the engineer in building up car wheels and other shop welding work.