

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Our Films Must Entertain—Not Preach

THE round-table discussion now going on in our columns on film publicity, scenarios and distribution is, for the most part, an encouraging indorsement of our suggestion that the "movie" be used to reinforce railway publicity work. It is rather a pity that electric railway endeavor in the use of this all-pervasive medium of publicity and propaganda has been so very limited. Safety films were the earliest to get some circulation, and they were most effective. The safety-car picture was the first attempt to use the film in a national way, yet this film was considered by many operators to have too much "love interest" in it. For all that, a film that has some "love interest" is the one sure magnet to draw the public.

In any case, all electric railway films except one or two that we have seen have been obviously "preachy" in character. It is a cruel fact that people don't like to be preached to, and they become restive whenever a downright educational celluloid, such as "Snowshoeing in Siberia" or "Making Codliver Oil at Lofotem," reels beyond a few hundred feet. If they feel that way about the strange and distant, we must give them something well-sugared indeed when the familiar, commonplace electric railway is to be "put over." It must be a film "story" first and contain information incidentally.

The motor-truck people have sponsored such a lot of good pictures that we shouldn't be ashamed to study and emulate, if not imitate, their clever methods. The following account of one film which we paid real money to see on Broadway, and which we enjoyed, too, will explain without any preachments on our part what we have in mind:

Sam Mucilage has evolved a motor truck that can do anything, apparently, except sign contracts for its sale in large quantities. He has a dozen trucks or so on hand with no takers. Finally, he has no use for his beautiful daughter's sweetheart because the latter is more fond of driving racing automobiles than demonstrating motor trucks. It's the night before Christmas when word is flashed to town that the waters of the great dam in the mountains are ready to flood the valley. Our racing hero leads a cavalcade of Mucilage Motor Trucks through a most terrifying ordeal of bad roads, stiff grades and tropic rainstorms. Of course, he arrives with the dynamite, etc., just in time to rescue the dam and his sweetheart, who is at a mountain party. Both trucks and suitor have made good. Father gets that long-sought-for order from the Pink Pickles Company. Everybody is happy, including the audience, which goes away with this psychic complex in its mind: "Rotten roads; useful motor trucks; better highways are absolutely essential to all."

Electric railways also can do this sort of thing. However, they will not only have to co-operate for that purpose because of the expense involved, but must also be willing to listen to what the professional amusement

purveyor has to say in confirmation of Pope's dictum that "men (and women and children, too) must be taught as if you taught them not."

Are Our Cities Too Big?

ARE our cities too big, and in our cities are we attempting too great concentration of business and living in certain preferred districts? These were pertinent questions raised at the recent meeting of the New York section of the American Society of Civil Engineers, at which the transportation plans of New York City were discussed. The connection between these subjects and transportation is obvious, because if it was not for cheap and rapid transportation it would be impossible for large numbers of the workers in the offices and factories of our modern cities to live any considerable distance away from their places of employment. In fact, it is rapid transportation which has made possible such a condition as exists in lower Manhattan or the central business districts of any large city with skyscrapers each housing thousands of workers.

Independent of whether such a development is desirable and marks a step forward in social economies or not, it is well that questions of this kind are raised. Too often there is a tendency in municipal development, as in other things, blindly to follow custom, especially when it may coincide with individual gain, rather than to consider the matter from the broad standpoint of the whole community.

It must be recognized that some cities have already taken steps to prevent congestion of this kind through a limit set on the height of buildings. Primarily this limit may have been placed so that no building will deprive neighboring property of too large a proportion of its light and air and possibly also because of the fire risk. Nevertheless, this limit on building height does have the effect of spreading out a district and reducing the concentration. Again, there is a growing tendency among modern community dwellers to establish their places of business in different parts of the city according to industries, and presumably there is an economic reason for such a practice. If so, would it be a backward step to go back to small communities or community centers where this association of like workers could not prevail?

The problem is one which can well receive the attention of the experts on this subject, the city planners. This much, however, might be said in connection with transportation so far as it relates to this subject. So many good reasons may be urged against concentration in our large cities that any settled policy under which transportation is supplied at less than cost to encourage concentration should be adopted only after careful consideration. In other words, if the passenger pays the full fare which it costs to produce the transportation which he uses, concentration at least is not being subsidized through the transportation system.

Let's Have Fair Dealing and an Era of Co-operation

WE REFERRED last week to the new and constructive attitude taken by labor as evidenced by the remarks of Matthew Woll and others in Washington during the week ended Nov. 20. That there should be a beneficial result from this invitation of labor to the engineers to work for the solution of the industrial, or the labor-capital, problem is to be hoped by all. That labor is taking the initiative is most important.

While one cannot but note that this friendly attitude did not come so long as labor was in a dominant position, it is of particular importance now that employers should not take advantage of their increasingly favorable position. In times past capital has had its day, and, to be candid, it was then little less selfish in its motives than labor has been during the last few years. Now that each has had its turn is it not about time that employers as well as employees should honestly try to be perfectly fair in all their dealings? It is certainly true that the attitude of labor in the past has been partly inspired by the earlier near-oppression of some employers. But now that there is a demand for work and employers have more of an opportunity than for some time past to set a standard of dealing it should be on such a basis as will serve for a time when there will be another tremendous labor shortage. It is evidently with a desire for the establishment of a basis of fair play to all concerned that General Atterbury issued his recent statement this week in regard to the open shop on steam railroads. He warns that in this readjustment of conditions labor, too, should not try to secure more than its fair share in the determination of a program.

But it seems obvious that now is a propitious time to begin the upbuilding of a labor-employer relations structure that shall be so substantial as to endure any storm. The desire to begin a new era which labor manifested at the recent meeting of the American Federation of Labor is probably typical of the thinking of workmen in all lines. The receptive expressions of the American Federation of Labor, the dropping of John J. Fitzpatrick and William Z. Foster from the executive council of the federation, thus ridding it of radical leadership, and the notable speech of Herbert Hoover before American Engineering Council on labor relations are incidents indicative of the present interest of labor in the setting up of groundwork for a firm establishment of mutual confidence. This new attitude holds out promise of greater stability of industry and greater prosperity and it should be fostered and made the most of by employers generally.

In the electric railway field in particular is an era of labor peace desirable; first, because of the importance of avoiding interruption to service, and, second, to avoid the excessive loss that always accompanies a strike whether won or lost. The preservation of this peace may be difficult when the time comes for the inevitable readjustment of wage scales to lower levels, yet we hope not. Trainmen have known all along that the conditions prevailing since the war could not last indefinitely, but like most normal individuals they took all they "could get while the getting was good." This holds true in the street railway field as in other lines of work, and just as in other trades where the wages have been pushed higher there will they have to start

coming down first. Conversely, at those places where wages were last to be increased there they should be last to be decreased.

The basis of the recession movement will probably be the same as that upon which fair wages were established during the war. If that basis was fair for a rising market, it must be fair for a receding market. The irresistible laws of supply and demand will control, and they should be permitted to take a natural course. In other words, the "vicious circle" about which we heard so much during the war is still with us, but it has become a welcome circle, each basic reduction passing on around in influence and accruing to the advantage of railway employees, for wage reductions will lag far behind commodity reductions. The point is that even with reduced wages trainmen will have a bigger sum to put in their savings accounts at the end of the month than they did last year.

The thing to be guarded against by the railway managements is that no "rough work" be permitted in bringing down wage scales. The movement must come, but it must come naturally and gradually, perhaps first by lengthening out the periods of service at the lower wages in the scale for new men coming on or with an entirely new lower scale for new employees, leaving the older men at the higher scale as long as possible, and thus putting a special reward on continued service.

How soon wage reductions may be expected is very problematical, but there is one thing that may be said at this time with definiteness, and that is that any further increases in the wage level in the electric railway field would be untimely and uncalled for. In reference to the larger city properties where the closed shop is firmly implanted it is to be expected that a downward revision will be fought with demands for increases over the present scale upon the expiration of present contracts next spring. Yet from the signs of the times and the wage and even salary reductions now reported in other industries there is good reason to believe that the men will consider themselves lucky if they succeed in retaining the present scale. But when we commence to make the break toward a lower level, toward a return to normalcy, let's keep the relations absolutely fair. Then there can be no basis for trouble.

Improvement in Service Should Be an Immediate Result

PERHAPS more important than the future wage scale agreements which will be worked out between railway managements and employees, and certainly more immediately pressing, is the effect which this newly expressed attitude of labor may have on service conditions in the electric railway field. Present wages and fares have an inter-relation which complicates a modification of either, but if labor means what it says and if management is at all able to capitalize upon this and gain the complete co-operation of labor there are improvements in service conditions which should be immediately possible.

To be concrete, we know of at least one group of properties on which the average speed of cars was raised by constant effort to approximately 11 m.p.h., but with the letting down on the part of labor, coupled with the attitude of the platform men that this increase allowed the company to remove a few of its cars and with them a few men (the accuracy of this last com-

plaint is questionable), this speed has been reduced to something over 9 m.p.h. only. There is no inherent reason why the former speed should not be maintained, and possibly an even higher speed than that. If labor is sincere in its statements, here is one way in which platform men can co-operate without waiting for any investigation by the engineers of the country.

A word to the management at this point may not be amiss in connection with increasing schedule speeds. When an increase in speed has been made such that one of the cars on a given route can be eliminated without reducing the capacity of the line, a careful study should be made to determine whether it is not possible to increase the traffic because of this very increase in speed. People want rapid service, and this desire should be capitalized to the fullest extent everywhere. Here is where the employees can help. The double effect of increased schedule speed and better "merchandising" of rides by the platform employees, through giving better service in other ways, will usually mean that all the cars can be kept on the route.

Another specific means of co-operation on the part of employees, looking toward better service, is in connection with the adoption of one-man cars on a property. The expressed desire to co-operate for more efficient and better service can be made concrete in this connection, surely. Whenever the application of one-man cars on a property is justifiable from the standpoint of service and revenue, it is surely to the advantage of labor itself to co-operate in their use. And we feel sure that, following the newly expressed program of the labor leaders, which indicates a real and straight-thinking co-operation looking toward the most efficient operation or production, this will be one way in which electric railway labor will evidence its faith in this program.

The Motor Bus and Immediate Capital Expenditures

THAT the motor bus has a place in the development of business in outlying and new sections of territory not now served by rail is a fairly well accepted statement. As to how far that usefulness extends and as to what the economic balance between motor bus and rail extension is there is by no means any agreement. But that the bus may have a greatly enlarged field today, irrespective of later developments, was indicated by R. S. Pilcher before the British Municipal Tramways Association in September. An abstract of Mr. Pilcher's remarks is given in this issue.

The point is just this: Most of these areas, in almost every community which is not now reached by rail nor served by a dependable transportation agency, have been built up since the day when it was possible to secure the capital to provide the necessary additions to permanent way. Now, however, that the war is over and the public is demanding that it be given reliable transportation and not have to depend on private automobiles, errant jitneys or pedestrianism, the problem arises as to what to do. If the transportation companies are really to do their full duty, they must provide this service.

The bus comes forward as a means of providing it. There is no doubt that capital cannot be secured today to construct the additions to rail systems, even if it were certain that that was the way to do it in each case. But with the initial investment in motor buses equal

to less than one-half the initial investment in a rail system, there seems to be a way out, temporarily at least. The seriousness of permanent additions is double now on account of the high cost of almost everything. True, the buses probably cost more now than they will later, although there have been reductions in most automobile prices, and buses cost more to operate than electric cars, in most instances, but they save extraordinary capital expenditures, they allow service to be given, traffic to be built up and the community developed, and finally, they can later be moved to other territory when permanent extensions are practicable. The arguments and figures presented by Mr. Pilcher will bear close study by many American railway men.

Be Ready to Advise Your Chamber of Commerce

DURING December an unexampled opportunity will be presented in practically every city in the United States for explaining to the leading men in the community the way in which a city should treat its public utilities. This opportunity comes about through the referendum which is to be taken during December by the Chamber of Commerce of the United States on the policies which should govern the relations between communities and their public utilities. Technically this is known as "Referendum 33." Every member of the national chamber is entitled to vote on the eight questions submitted, and this vote must be received at the headquarters of the national organization in Washington on or before Jan. 3, 1921.

Under the rules of the national chamber the ballot submitted to the members has to be accompanied by a statement giving the principal reasons for and against each of the questions submitted. In this particular case the reasons supporting the "yea" side of the eight questions proposed are contained in a report submitted by the chamber's "Special Committee on Public Utilities," which includes among its members several prominent electric railway operators. An abstract of this report was published in last week's issue.

Every chamber of commerce and every board of trade in the country, member of the national chamber, will be called upon to vote on this question and should have as much information from the local utility as is necessary as a guide for its action. The report of the general committee is an excellent one, but it is no reflection on this report to say that it should be supplemented by local data at every meeting where the question is taken up. There are individuals in every community who, while perhaps willing to admit that certain policies generally should prevail, always have reasons why this policy should not be followed in the case of the local corporation.

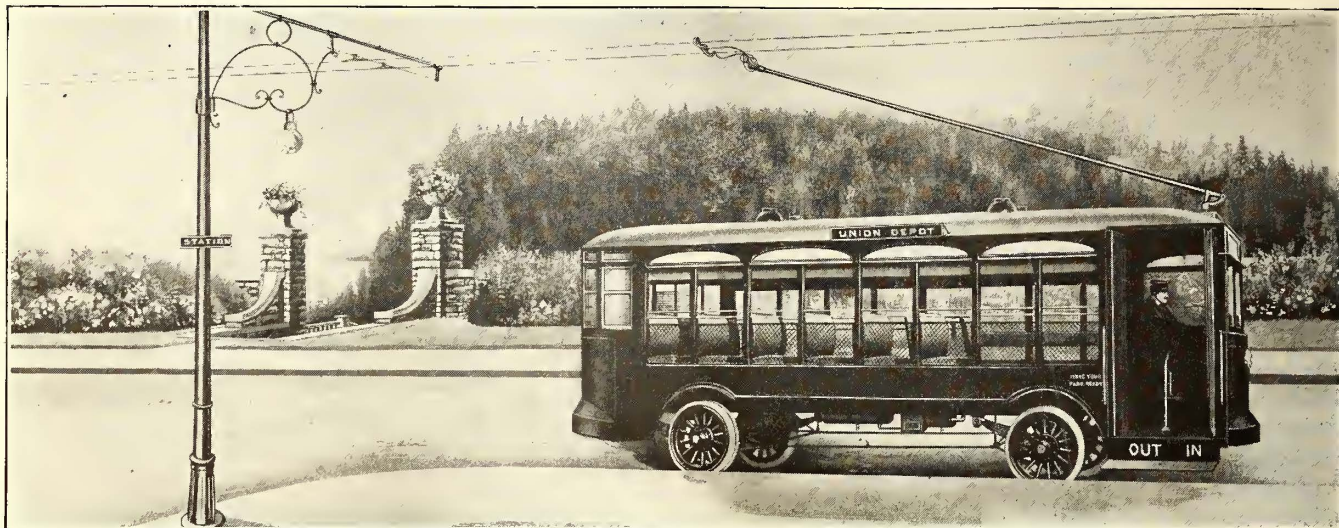
Again, it is unsafe to assume that the needs of an enlightened policy toward the electric railway companies of the country are so self-evident as to require no argument. Obviously these truths are self-evident to railway men, who have a constant association with them, but this does not mean that they are equally clear to every one else. Electric railway managers will make a mistake if they let the vote on these questions in their own city go by default simply because they think that no sensible man could vote in any way except in favor of a liberal treatment toward the utility. The occasion also offers opportunity for publicity by car cards and in other ways.

The Possibilities of the Trackless Trolley

The Author Presents a Digest of the Development of the Trolley Bus and Gives Suggestions as to the Field Which Is Open to It

BY H. L. ANDREWS

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DESIGN FOR A 10,000-LB. TROLLEY BUS FOR THIRTY-FOUR SEATED PASSENGERS

IN EUROPEAN countries trackless trolleys have been successfully operated for many years. In England today there are twenty companies with more than 100 miles of trackless trolley installations operating or authorized, while Italy has eight companies comprising a total of 43½ miles of route, and Germany has eight installations for passenger and freight traffic. France, Sweden and Austria have a number of installations which have given satisfaction.

In view of the present high cost of electric railway construction and of the competition with the motor bus, it is desirable that consideration be given to the trackless trolley in connection with proposed extensions of railway lines and the furnishing of transportation to communities not now served by street railways. The trackless trolley is promising in its small required initial expenditure, as compared with the electric railway, and in the reasonable operating expenses.

In comparing the operation of the trolley bus with the gasoline-operated bus, it would seem that such items as maintenance of way, transportation, traffic, general and miscellaneous accounts would not differ greatly as between the two. However, by substituting an electric motor for the gasoline engine, collecting the current from overhead wires, a great reduction should be made in maintenance, power and depreciation. The first cost of the installation would be very little greater than if gasoline-propelled buses were used.

EUROPE HAS HAD CONSIDERABLE TROLLEY BUS EXPERIENCE

There are in use in Europe three general systems, the Mercedes Stoll, the Filovia and the Max Schiemann. These differ in the method of drive employed and in the plan used for collecting current. A few details of each will be given.

The Mercedes Stoll system is essentially a four-wheel drive, although two-wheel drive installations have been made. The driving motor is built into and is a part of the driving wheel, the armature being keyed to and mounted on the driving axle. The total weight of the motor chassis, which is constructed of pressed steel, is approximately 3,000 lb. The weight of four wheels with motors and tires is approximately 2,450 lb.

The control is arranged to give six speeds and three electric brake positions. When used with two-wheel drive the motors are connected in series for the first three points and in parallel for the last three. The arrangement for the four-wheel drive differs from that for the two-wheel drive only in having the two front wheel or the two back wheel motors connected in series.

The collector used with this system is of the over-running or carriage type. The current collector at the trolley end is composed of a frame having two small grooved wheels with ball bearings on each side, one for running on each wire. A cable with a double wire hangs from the center of this frame or trolley and has a weighted pendulum, which keeps the wheels well pressed down on the wires. This collector allows considerable movement from the trolley wire and extreme movement is taken care of by means of a cable and reel on the car which allows 25 or 30 ft. radius from the center of the trolley. When vehicles operating in opposite directions meet, the drivers exchange collectors and plugs, which are readily detachable and within easy reach.

This system of collection of current has proved successful, but has the disadvantage of requiring special overhead construction. In case the carriage leaves the trolley wire and falls to the street it is considerably damaged.

The arrangement of motor mounting requires the use

of low-speed machines with low efficiency and considerable weight. The maintenance of the motors is more costly than it would be if they were spring supported, because they receive all of the hammer blows from the road.

A number of the Mercedes Stoll installations were made in Austria between 1907 and 1909, using buses weighing about 6,000 lb. without load and having a seating capacity of twenty-five. In some few installations larger cars weighing more than 11,000 lb. complete were used. One installation was equipped to handle motor and trail cars, the motors seating twenty-two and the trail cars twenty.

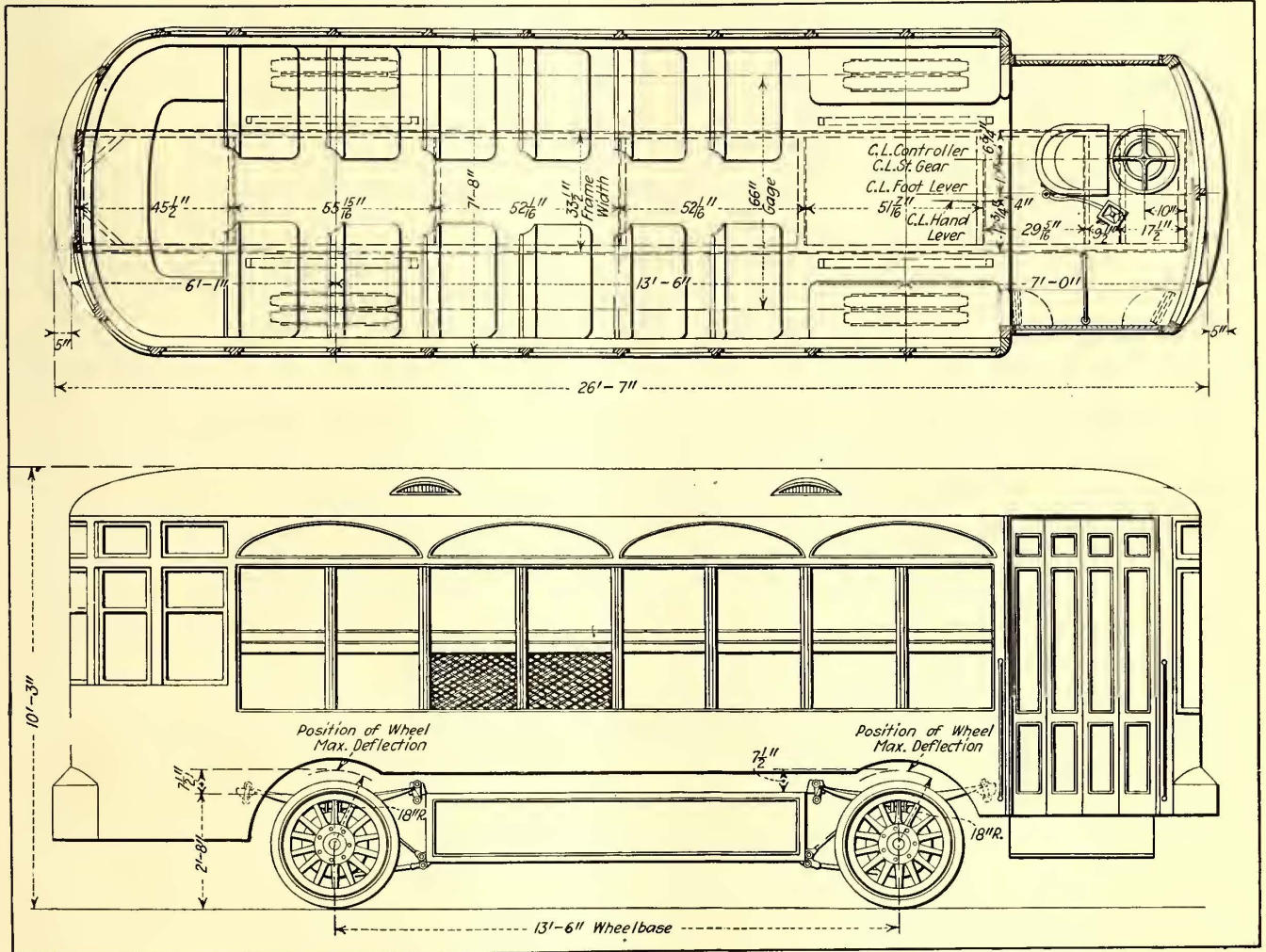
The Filovia system, which is in operation on more than 40 miles of route belonging to eight different com-

being mounted on the truck chassis and geared to a back shaft by means of bevel gears. Power is transmitted to the rear wheels by a chain drive.

Three methods of collecting current are used with this system, namely, two trolley poles under-running on the trolley wire, one trolley pole with a double head carrying two trolley wheels, and an over-running carriage as already described.

TRACKLESS TROLLEY PRACTICE IN ENGLAND

The application of the trolley bus in Great Britain has followed somewhat different lines from any of the three systems described. In that country two motors are used, each mounted on the truck chassis and connected to a jackshaft through worm gearing. The jack-



SEATING PLAN OF BUS AND ELEVATION OF PROPOSED TROLLEY BUS PICTURED IN FIG. 1.

panies, has proved very successful. This system adheres to a two-motor drive, each motor being mounted on the chassis and geared to a back shaft on which a sprocket wheel is mounted. Transmission of power to the rear wheels is by means of chain drive. Each car is equipped with two 12-hp. motors. The collectors used are similar to those described above, except that they are carried on a rigid pole mounted on the bus.

The Max Schiemann system has been employed extensively in Germany for both passenger and freight service. There are eight or more installations, three of which are for passenger service only, four for freight traffic only, and one handles both passenger and freight traffic. This system uses a two-motor drive, each motor

shaft carries a sprocket wheel and power is transmitted to the driving wheels by means of a chain drive. The controllers are arranged to give nine points with five running positions.

In the more recent installations two motors are mounted directly on the chassis, but the jackshaft and chain gearing are omitted, the motors being directly connected to the driving axle, through worm gearing, each motor driving one of the rear wheels. It is of interest to note that this is also the arrangement used on the trolley buses in Shanghai, China.*

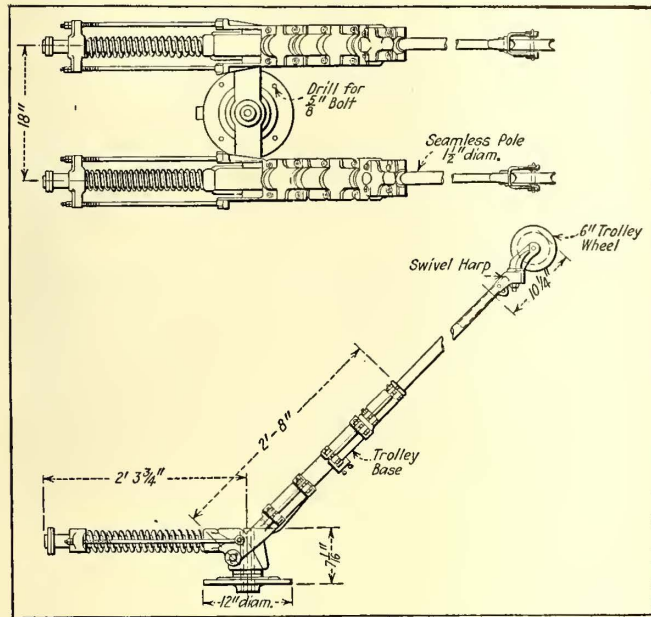
Table III shows some general operating data for tram-

*See issue of ELECTRIC RAILWAY JOURNAL for July 10, 1920, page 76.

and cross-span construction poles to be employed. The cost would be \$7,000 if only one line were used, but in this case it would be necessary for buses to draw to one side and stop while passing each other.

To illustrate the cost of installing and operating the trackless trolley systems with assumed conditions, the following calculations will be of interest:

Consider that an extension of 2 miles is to be made, that ten-minute service is required and that a trolley



TWO-POLE CONTACT DEVICE FOR USE ON TROLLEY BUS

line will be installed for each direction of traffic. A schedule of 8.5 m.p.h. could be made, requiring from twenty-eight to thirty minutes for a round trip. Three buses would be needed for this schedule, but four would be purchased to provide a spare. The buses would then cost \$28,000 and the overhead, 2 miles at \$9,000 per mile, \$18,000, a total of \$46,000.

Further, assume sixteen hours of service per day, 365 days per year, calling for 50,000 miles of annual operation for each bus, or an average for the four buses of 37,500 miles. Assume fixed charges less depreciation at 10 per cent, or \$4,600. This is 1.23 cents per bus-mile.

Under these assumed conditions the operating cost would be 8 cents per mile for maintenance, power and depreciation, and 1.23 cents for fixed charges less depreciation, a total of 9.23 cents per mile.

The type of trackless trolley recommended for operation would have a seating capacity of from twenty-four to twenty-six persons, with transverse seats, front entrance and exit, arranged for one-man operation.

The standard automobile truck chassis could be used, substituting electric motors for the gasoline engine, mounting the motors directly on the truck chassis and connecting to the driving axle through worm gearing and a differential drive. Instead of this a four-wheel or a two-wheel drive could be used, utilizing a direct motor drive similar to the Mercedes Stoll system, except that the motors would be connected to the driving wheel through planetary gearing and internal gearing on the wheel hub. This system has been in general use on storage battery trucks for a number of years and has proved successful. For operation where no severe winter or grade conditions are to be met the two-wheel drive is all that is required. For the northern sections, where

snow conditions and grade conditions are more severe, it may be advisable to use the four-wheel drive.

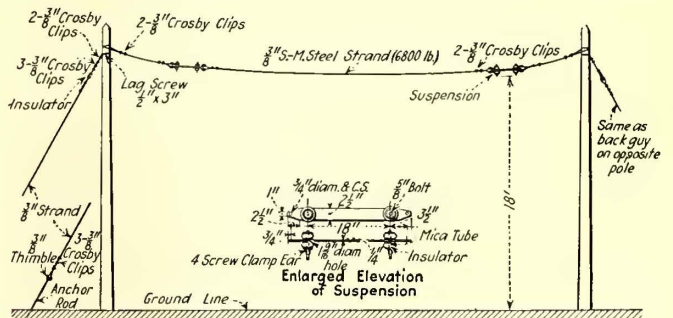
A four-wheel drive bus seating thirty-four passengers is illustrated on page 1136. It has a seating arrangement, floor plan and elevation as shown on page 1137. It weighs approximately 10,000 lb. fully equipped and costs about \$10,000. A similar bus seating twenty-four persons could be handled with a two-motor drive and would weigh not more than 8,000 lb. and cost \$7,000. This type of bus follows railway design and is arranged for one-man operation. If a body similar to that used on most gasoline-propelled buses was submitted for the one shown the weight and first cost would be materially reduced.

TRAMWAY PRACTICE HAS DEVELOPED MOST OF THE REQUIRED DETAIL PARTS

The bus shown on page 1136 is equipped with an under-running current collector controlled from the driver's seat, with sliding shoe contact. With this type of pole it is unnecessary for the driver to leave his seat in removing the pole from the wire for a passing bus. By means of an indicator and a mirror, the operator is able to replace his collector.

Another type of collector similar to that used much in Europe is shown herewith. This consists of two insulated trolley poles mounted on the same base, each carrying a swivel loop and standard trolley wheel. Where two trolley lines are used, one for each direction of traffic, and loops are provided at the end, this type of collector should give excellent results. It has the advantage of allowing standard trolley overhead construction and can be constructed to provide a sufficient lateral movement to permit the vehicles to pass without excessive side pressure on the trolley wires. It also has the advantage of permitting running over the same route as the street railway without the installation of additional wires, by locking down the negative trolley pole, using a trailing shoe to run in the groove on the rail.

On the trackless trolley bus controllers and motors should follow standard railway practice. Overhead construction should be as nearly standard as possible. The use of vehicles equipped with electric motors drawing power from overhead trolley wires is not limited to passenger transportation. There are in this country



SPAN-WIRE CONSTRUCTION FOR USE WITH TROLLEY BUS

many established truck lines handling definite loads between definite points and operating over established routes. Many of these could be economically operated by the same method as that described for passenger buses.

A suitable trolley line could be installed between the city limits of any definite haul and storage batteries could be used to obtain a cruising radius in each city to enable the truck to pick up and deliver its load. This

battery could be carried over the entire haul, and charged direct from the trolley, or storage battery stations could be established at the end of the trolley section and the batteries installed and removed at this point. For short hauls from the main lines of travel a storage battery could be employed or an overhead collector and cable reel.

A number of trucks operating over the same route under different ownerships could use the same overhead structure, the energy used by each truck being metered and arrangements made for paying for the storage battery on a mileage basis. The type of drive on these trucks could be made to suit operating conditions as in the case of the passenger buses. This method of handling freight has been in successful operation in Germany for years.

Rebuilding a Safety Car

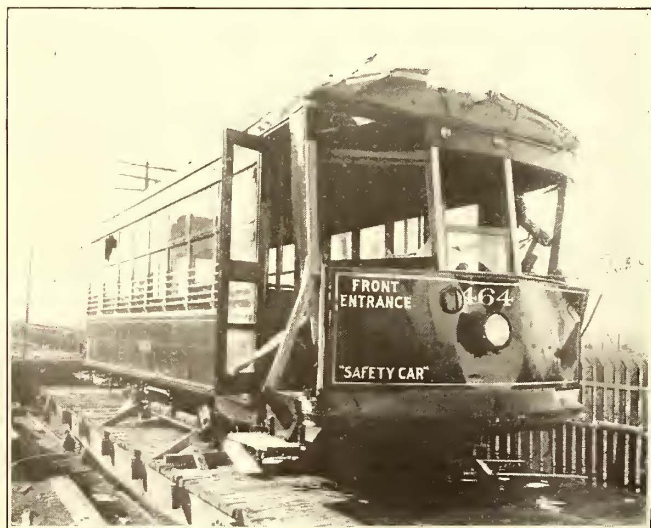
Damaged Car Is Rebuilt by Using Parts Stripped from the Original Car for Fabrication Wherever It Is Possible

BY E. M. WALKER

General Manager Terre Haute, Indianapolis & Eastern Traction Company

MUCH has been said and written about the structure of the safety car and its light weight and arguments have been made, pro and con, as to its durability. An interesting commentary on this question is furnished by the case of the car illustrated in the accompanying photographs. The car was originally built by the American Car Company of St. Louis as car No. 464 and was shipped to Terre Haute, Ind., along with a half dozen other cars, as the first shipment of safety cars to come to Terre Haute during the latter half of November, 1918.

All the cars came through safely with the exception of this one, which, being located in a freight train

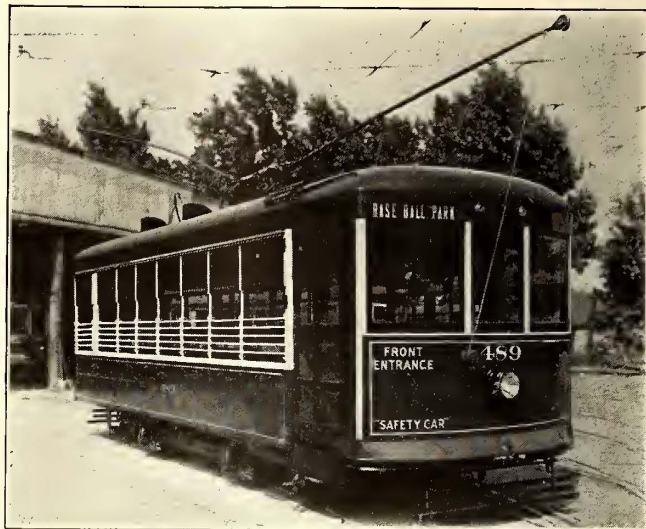


SAFETY CAR AFTER EXPERIENCING A DECIDED SHAKE-UP EN ROUTE TO TERRE HAUTE

between two box cars, was jammed in a collision en route. So badly was the car damaged that the transportation company immediately returned it to the builder and provided for a new car to take its place. In building the new car, which was also numbered 464, everything was stripped from the wrecked car which could possibly be used in the fabrication of a new car,

including truck, motors, safety devices, seats, etc. After the car was so stripped, the body was obtained from the car builder and shipped to Terre Haute, where it was rebuilt in the Terre Haute division shops of the Terre Haute, Indianapolis & Eastern Traction Company. The missing parts to make a complete car were supplied by purchase.

Deliveries of the supplies needed were necessarily



THE SAME CAR AS SHOWN IN THE PRECEDING ILLUSTRATION, BUT REVAMPED AND RENUMBERED

very slow during the spring and summer of 1919, and consequently the car was treated as a sort of odd job, to be worked on when there was plenty of available time, so that it was not completed and ready for service until Nov. 24, 1919, practically a year after the day on which it was wrecked. It came out of the shops as car No. 489, which is illustrated. The complete cost of building car No. 489 was approximately \$4,500, of which \$750 was for labor.

The car was placed in service on Nov. 24, 1919, and continued in regular service until the first of June, 1920, during which time it had operated 21,293 car-miles. At this time it was scheduled to go through the paint shop for a general overhauling, inspection and repainting, which was done about the middle of June, at a shop expense of \$10.47, and paint shop expense, including labor and material, of \$29.02, or a total of \$39.49. The car was replaced in service in June, 1920, at about the middle of the month, and has been in regular, continuous service ever since.

The photograph of car No. 489 was taken on the day the car re-entered regular service. The other photograph, of the exterior of car No. 464, was taken by the builder of the car in St. Louis, about the first of December, 1918.

Of interest in connection with the electrification of the railroad which is under way in France is a bulletin issued by the French commission in New York City regarding the development of water powers in that country. The total available power is estimated at 9,000,000 hp., of which 1,165,000 hp. is in use. About 500,000 hp. additional is being equipped. In about fifteen years 6,000,000 hp. more should be realized. When the fifteen-year program has been carried out it is estimated that France will be third among the nations in water-power development.

Public Officials on Service at Cost

Four Addresses at Session of National Municipal League in Indianapolis Devoted to Service at Cost for Electric Railways—Views of the Operation of These Franchises Are Given from the Standpoint of the Authorities

A SPECIAL session of the annual meeting of the National Municipal League, held in Indianapolis, Nov. 17-19, was devoted to the discussion of the topic "Service at Cost for Street Railways—Panacea or Nostrum." W. F. Hodges, Mayor of Gary, Ind., presided at the session and abstracts follow of the papers presented. The titles given are those under which they were scheduled in the official program.

"Service at Cost in Boston," by James F. Jackson, Chairman Board of Trustees, Boston Elevated Railway

THE first speaker at the meeting in Indianapolis was James F. Jackson, chairman board of trustees, Boston Elevated Railway. He first described how the Boston Elevated Railway came under State control on July 1, 1918, the State agreeing to pay a rental of 5 per cent for the first two years, 5½ per cent for the next two years, and 6 per cent for the remaining six years of the term. According to the speaker, three factors in the transportation situation in Boston had influence in bringing about this decision. The first was that the usefulness of the street railway had come to be fully understood. The public appreciated as never before that the street car is not alone a poor man's carriage but that of the public official, the professional man, the man of business; that it was directly or indirectly the carriage on which every one relies and that no jitney or other kind of omnibus could be substituted. It must be preserved. The second factor was that the railway in Boston represented an honest investment under a public supervision that had prevented excessive issue of stock or bonds and that there was no call for reorganization to eliminate watered stock. The third was that the new capital which was indispensable to sustain this service must be obtained by buying it at market prices as other necessities are bought; in other words, that investment must have its secure return.

To the legislative mind the problem for experience to solve was whether or not a public management could be efficient, that is to say, conducted without waste and without loss of ambition or pride in achievement. It was thought that a trial was worth while. The basic plan for this experiment was that which the speaker believed is the best for any street railway enterprise—a service at cost—meaning, of course, proper or necessary costs.

The speaker then reviewed the financial situation of the company following the increases in fare, a situation which has recently been reviewed in the financial columns of this paper. He spoke of the deficit which occurred in July, August and September of this year, but said that it was expected and that unless some extraordinary event intervenes this deficit will be readily absorbed before next July, leaving at the close of the fiscal year, as at that of last year, no deficit. Mr. Jackson then explained that there have been two principal causes for increased expenses. One is the increase in

labor and the other that of coal. The company also charged off to depreciation last year about \$2,000,000. Proper charges to depreciation, the speaker said, are not made to build up the properties at a full measure of the original investment for the benefit of stockholders, but to maintain it in good operating condition for the benefit of the public. This means that the old-fashioned notion of maintaining a railway by hand-to-mouth methods with large expenditures in prosperous years and small expenditures or none at all in lean years is a thing of the past. Sound policy today takes care that out of every day's receipts something is put aside to meet the wear and tear that is constantly taking place in the property.

Mr. Jackson then touched on the question of flat fare vs. zone system, saying that the former was still used in Boston, but that there are advocates there of zone fares, and the trustees are studying the comparative merits of the two systems in the light of experience in this and other countries. He also spoke of experiments with short route cars on which a 5-cent fare is charged and said that while some of these experiments had proved failures, two of the lines are now in successful operation. He also referred to the large expenditure for subways whose annual rentals now amount to nearly \$2,000,000, or ½ cent upon each ride.

HOW THE BOARD WAS ORGANIZED

When the trustees assumed office in 1918 they worked out a general plan of improvement involving a total outlay during a period of five years of about \$18,000,000, chargeable in about equal proportion to capital and replacement. The board acts in a way very similar to a board of directors with committees of two assigned to administrative departments to report from their several spheres of activity at stated or special meetings of the board. The operating staff has at its head a general manager, Edward Dana, and the confidence reposed in him has been amply justified in what he has accomplished. His ability, energy and untiring devotion to the work and his harmonious relations with the trustees and subordinate officials and employees have proved invaluable. In conclusion the speaker said:

"I have long been acquainted with the men who have had charge of the railways in Massachusetts and in New England. They have been men who are held in the highest esteem in the communities where they live. Through the stress of all these years they have kept at their posts undismayed. The record is one of ability, loyalty to public interests and unblemished honor. Nor are they unlike the men who have managed street railways elsewhere.

"Under the conditions which prevail today we may all of us feel a new zeal, a new confidence in the success of the work at which they have labored so long. My last word, then, is one of optimism. But the struggle is not over. Fares are not yet adjusted. There is the fight against the jitney and the contest with the private automobile; the search for new economies to meet higher cost of operation; the effort to restore credit and inspire

new confidence in capital. So it is an up-grade and a long pull that lies ahead, but the street car is bound to win."

—

**"Service at Cost and Efficient Management," by
Hon. Fielder Saunders, Street Railroad
Commissioner, Cleveland, Ohio**

IN THE opening part of his address Mr. Saunders said that while the Cleveland franchise possibly has not proved a panacea for the ills of railway service, it has certainly not proved a "nostrum." He then sketched the history of the adoption of the Cleveland franchise and quoted its preamble, which included among its objects "that the rate of fare may be reduced" and that "the best street railway transportation might be secured at cost, consistent with the security of the property and the certainty of a fixed return thereon, and no more." In the speaker's opinion the franchise has resulted in a great civic benefit and this is also the conclusion reached after long study conducted during the first half of this year by a board of arbitrators appointed to consider the question of return to the company. This board was made up of the city commissioner of light and heat, the president of one of the largest banks in Cleveland and the federal judge of the district. This board said in part: "The franchise and the amendments thereto have been shown by ten years of trial to be sound in principle, practical in operation, and of great benefit to the Cleveland Railway Company and its stockholders and to the public" and "have resulted in giving to Cleveland the best street railway service at the lowest cost of any city in the United States."

Mr. Saunders said that while it is true that the fare has almost doubled, every other commodity has practically doubled its price in the last ten years, and he pointed out that the wages of the trainmen had increased from 26 cents to 75 cents per hour or in even greater ratio. In the meantime the rolling stock has been increased from a seating capacity of 36,100 in 1910 to one of 74,800 in 1920. The total standing capacity has been increased from 44,000 in 1910 to 80,460 in 1920. The miles of track have increased from 246 to 303, many modern carhouses and substations have been built, and shops have been erected at the cost of \$1,300,000.

Another way, Mr. Saunders said, of determining whether a contract has carried out its purpose is to consider the attitude to it of the contracting parties. The Cleveland franchise has been criticised at various times because of the so-called lack of incentive in it. Nevertheless, the people of Cleveland are satisfied. Thus, when the first period of the grant expired on May 1, 1909, it was necessary before that time for the city government to renew the franchise for a period of twenty-five years or permit the property to continue in the hands of the company without city control of the service, or to exercise its option to buy it and put in force municipal ownership. A series of meetings was held by a committee of the Council having the decision to make and the matter was widely advertised in the newspapers. Nevertheless, all the amendments suggested as being desirable came from the city street railroad commissioner. No public sentiment was manifested for municipal ownership nor for any particular change in the grant, except on the part of a few councilmen and a few public officials who had been in very

close relationship with the railway company and its day-to-day operation. No amendment was offered by any civic society of Cleveland, nor by any newspaper nor by the Chamber of Commerce nor by any of the various clubs interested in public matters. The railway company refused to accept the amendments suggested and said that it was satisfied with the franchise as it stood. It immediately became evident that the public also was satisfied with the franchise, and the City Council renewed the agreement in identical terms for a further period.

The one serious problem pending at present relates to the return to the stockholders, which is limited in the franchise to 6 per cent. Extensions to the property have always been financed by the sale of new stock, but for more than a year it has been impossible to sell Cleveland Railway 6 per cent stock at par in Cleveland, and the franchise forbids the stock being sold for less than par. Although extensions are needed, the people evidently thought the proposed change to 7 per cent too far-reaching and failed to approve it at a popular vote, so that at present, so far as this is concerned, matters are standing still, but the speaker said he had no doubt the problem would be worked out satisfactorily in a mutual spirit of co-operation, as have so many of the previous difficulties.

The speaker said that most of the criticism of the service-at-cost plan as developed in Cleveland in the last ten years was as to the lack of incentive, but he pointed out that this is really directed at some of the conditions in the franchise and not at the working out of the franchise as shown in operation. The speaker then explained at length why these conditions had not proved objectionable in Cleveland.

THE INCENTIVES IN THE CLEVELAND FRANCHISE

In the first place he pointed out that the Cleveland Railway is not under absentee ownership. The management is largely represented among the stockholders, and some of the present success is undoubtedly due to that fact. The management also has the benefit of daily counsel and criticism of the city commissioner; not monthly or annually as is granted by public service commissions; nor has the criticism been selfish, partisan, or political. It is true that during the past two years it has become the practice to write into service-at-cost franchises a so-called incentive by which the stockholders of the company may get additional and varying returns under certain circumstances, as in the Cincinnati sliding scale, the Montreal budget system, and the new Rochester franchise. The speaker said he had no particular quarrel with such provisions at this time, but personally he had serious doubt whether in practical operation any of these ideas will produce any tangible lasting good, and he wanted to wait the test of experience.

When the present franchise was being considered in March, 1909, by Mayor T. L. Johnson and President Horace E. Andrews with various councilmen, one suggested a sliding scale of interest, so that the return to the company would increase with decreases in the fare, on the ground that it would be an incentive to the stockholders to make the fare as low as possible. Mayor Johnson replied that it would also be quite as much an incentive to skimp the service, and Judge Tayler ruled that a fixed return would be better. On this point Judge Tayler expressed his belief that it was fundamentally wrong to pay a man a bonus for doing that for which

his salary is supposed to compensate him, that a bonus could not be a legitimate part of the cost and that therefore such an arrangement would mean service at more than cost, and that the people were entitled for the salary they paid to the officers of the railway to intelligent and efficient management and that they ought not to be taxed any more.

Mr. Saunders said that he agreed with this statement of Judge Tayler and added that the bonus idea is not only fundamentally wrong but that practically it would not work because it would create an incentive on the part of the railway company to keep down its expenses by skimping the service. Under the present service-at-cost plan, the company has no desire to do this. Within the limits of its power to earn 6 per cent, it makes no difference to the company how much or how little service is run. But any temptation of an added dividend would create a tendency on the part of a company operating under such a franchise to encroach on the city's prerogative as to service and to render a cheaper and more unsatisfactory service even though ostensibly complying with the city's order.

There would also be an incentive for the management not to keep the property up, because the lower the maintenance charges the lower the rate of fare and the higher the returns of the stockholders. There would also be an incentive to keep down the maintenance by increasing the capitalization by charging repairs and replacements to capital.

Again, some financial experts maintain that there is a connection between current interest rate and the price of commodities, that they rise and fall together. If this is the case, Mr. Saunders said, as the cost of labor and materials used in railways go down, the return on the money invested should not go up, but under the present "incentive" service-at-cost franchises the return to the stockholder will go up as the fare goes down, instead of going down as it should if the rule just mentioned is correct. Moreover, such an arrangement is likely to be a bad one from the public standpoint, if we have reached the peak of high prices, because under the sliding scale, as prices go down the returns would go up. But even if all of these conclusions are wrong, any scheme of incentive so far suggested is open to the criticism of lack of effectiveness because of the remoteness from and lack of direct application to the actual executives. From the speaker's knowledge of what had happened in the last five years he believes that, after all, the real incentive to efficient management is to give the man at the wheel, the man who actually operates, sufficient compensation to keep his best interest in his work and then to have an efficient city administration to act as the watchdog, to criticise, advise and sit on his neck day by day as is done in Cleveland to see that he earns his salary.

"Indianapolis and the 5-Cent Fare," by Hon. E. T. Lewis, Chairman Public Service Commission of Indiana

IN THE opening part of his address Mr. Lewis said that the day is past when financial distress of the street railway industry can be looked on as of concern only to the industry. He then sketched the recent history of the local railway in Indianapolis, which, while asking for temporary relief—a transfer charge and readjustment of payments by interurban companies for trackage and terminal facilities to tide the company

over the coal crisis—has indicated no desire for a higher basic fare than 5 cents. This is because the company believes that a higher basic fare than 5 cents, at least in Indianapolis, would cut down the most profitable part of its business, *i.e.*, the short-haul patronage.

In 1918, on a decision of the Supreme Court of Indiana, the Public Service Commission assumed jurisdiction over the property and eliminated fares of less than 5 cents. In December, 1918, the company applied for a 6-cent fare, but this increase was denied, largely as the result of four changes which improved the financial condition of the company. One of these was the introduction of prepayment cars; the second was the simplification of the corporate organization company by which a holding and operating company, the Indianapolis Traction & Terminal Company, was eliminated, reducing the securities approximately 30 per cent; the third was a change in the sinking fund provision, and the fourth was a renewal of the local industrial activity following the war. In 1918 the Indianapolis street cars transported 70,003,795 revenue passengers; in 1919 the traffic jumped to 84,061,850 passengers; in 1920 it will probably pass the 94,000,000 mark.

The speaker pointed out that there are a number of favorable conditions for economical electric railway operation in Indianapolis. These advantages are geographical and social. Thus, the company mines a large amount of its own coal in fields located near Indianapolis, and this means cheaper fuel cost than that faced by most companies. Wages and cost of living all through the war period have been at somewhat lower levels in Indianapolis than those prevailing in the zone of greatest war activities and excesses, which reached back from the Atlantic Seaboard through Buffalo, Pittsburgh, Youngstown, Cleveland and Detroit to Chicago. The speaker also said he wished specifically to disavow any intention of saying that a continuation of the 5-cent fare would have been possible for all companies and cities. Indeed, the Indiana commission had considered it to be its duty to put higher than a 5-cent base fare into six Indiana cities. He did believe, however, that many cities had not thoroughly tried out the possibilities of the 5-cent fare. Nationally, it appears that the peak has been reached in operating costs and that the break is near, although the skies are not clear.

The aftermath of a war also is generally marked by heavy increases in local taxation. Thus, one of the reasons for the inauguration of the 6-cent fare in Cleveland was a \$150,000 increase in local taxation falling upon the company. In Indianapolis, he said, at just the time that favorable operating sheets were expected, the same burden fell. Direct taxation, franchise tax and paving costs in Indianapolis, during the coming year, will call for almost 1 cent of the fare paid by street car riders in that city. In the speaker's opinion the financial obligations of utilities which represent real values must be protected.

ADVERSE VIEW OF SERVICE AT COST

The latter part of the address was devoted to a discussion of service-at-cost franchises. Such a franchise was proposed for Indianapolis in April of this year. It was designed to strengthen the credit of the local company and was proposed by the corporation counsel for the city and had received the approval, with possible minor changes, of the attorney of the company. A sliding scale of return was proposed by which efficiency was to be rewarded by maximum returns and inefficient

operation was to be penalized. It was decided to make a direct study of the operation of service-at-cost franchises in near-by cities, and a committee of three, consisting of the corporation counsel for the city, the attorney for the company and the chairman of the Public Service Commission, undertook to make such an investigation. The conclusions reached as the result of this trip were unfavorable to the plan. The city filed with the commission a motion to withdraw the proposal, the company did not object, and the commission, without a dissenting voice, voted to act in the affirmative on the motion. The city representative, the author of the original proposal, in his motion for withdrawal, said in part:

"We have been unable to find or agree upon any plan of operation on the basis of service at cost which would furnish the incentive of private ownership and operation of service at cost. The results of our investigation generally have been to raise a most serious question and doubt as to the wisdom of the service-at-cost plan. The inevitable tendency seems to be for the operator or company readily to accept increased cost of operation with the view that it can be passed on to the public by higher fares. Such a course results only in adding to the burden of the public."

Mr. Lewis said that the commission does not mean that it dogmatically cast out service at cost from all future considerations, but it is suspicious of the plan in that it seems to run contrary to human nature, which, at least in business, requires opportunities of a struggle for gain. Again, service at cost is closely connected with city halls, which in turn are closely connected with political organizations, and it is very desirable that electric railways should be kept out of politics. Finally, the theory of regulation of public utilities by commissions is service at cost. These regulatory bodies determine rates by making them only sufficient to cover: (1) Operating costs; (2) the replacement of the wear and tear of the plant—depreciation; (3) taxes—but not individual income taxes; (4) a fair and reasonable return upon the fair value of property used and useful in performing the public service. When the rate is based on these foundations, there is service at cost. In closing the speaker pointed out that none of the Indiana street railways is in the hands of receivers, and that only six of the 600 cities having more than a 5-cent fare are in Indiana.

"Service at Cost vs. Municipal Ownership—Seattle's Experiment," by Charles M. Fassett, Formerly Mayor of Spokane, Staff Member of American City Consultants

IN THE opinion of Mr. Fassett, service at cost for electric railways is a transition stage between private ownership and operation and municipal ownership and operation, a temporary expedient, and one which will be in the long run unsatisfactory to both the owners of the railways and the public. To the owners it will be just a tightening of the chain of public regulation which curtails more and more their freedom of operation, but it will be sought by them in order to fix a value which may form a basis for public purchase later. For the public it has certain advantages in giving further control over the utility, it restrains financial skyrocketing, provides for extensions and betterments, recognizes the street railway business as a natural monopoly, gives the public a little authority in the directorate, enforces

adequate accounting and retains to at least a small extent the alleged advantage of leaving the business in private management.

In the speaker's opinion the decision between service at cost and municipal ownership in any city must be influenced by local conditions and particularly by the character of the city government. Up to the last ten or fifteen years the structure of city government in this country was not adapted to public ownership, and where the electorate is heedless, officials change frequently and politics is a game of spoils, public ownership is unthinkable as a business undertaking. But a new light is dawning upon American municipal life, Mr. Fassett said, and in his opinion the voters will ultimately awaken to the necessity of a better form of government in which the officials have more authority and responsibility and a more lively interest in government on their own part. When these things have been accomplished the people will insist upon the ownership of their public utilities, their operation on the basis of the greatest good to the greatest number and the banishment from municipal life of those evil forces which have done so much to corrupt city government in America.

THE SITUATION AT SEATTLE

In commenting on the Seattle incursion into municipal ownership, Mr. Fassett said:

"It is too soon to make a reasonable forecast of the outcome of Seattle's latest experiment in municipal ownership. Inadequate financing was forced upon the city by reason of constitutional debt limitation. It must pay for its purchase in eighteen years and at the same time build up a depreciation reserve of more than \$12,000,000, thus placing an enormous burden upon its street car patrons in this generation in order to turn over to the citizens of twenty years hence a street railway fully paid for and adequately maintained. It is a feat which no private company would undertake. A service-at-cost franchise would have called only for the payment of operation, depreciation and interest, and unless there is careful management the fares may be higher during this twenty-year period than they might have been under service at cost. Seattle has not an ideal form of government for carrying on the business of utility management, yet its publicly owned water works and electric light and power plant have been efficiently managed, and the high-class men who are at their heads as superintendents have been there many years, through many changing political administrations. The civic spirit in Seattle is high and I believe that public ownership has a better opportunity there than in many cities which have more modern forms of government."

**Investment Bankers' Association Bulletin
a "Public Utility" Issue**

THE bulletin of the Investment Bankers' Association of America for Oct. 29 is largely a "public utility" issue. It contains a copy of the report of the association committee on public service securities presented at the recent Boston meeting, the address at that meeting on present utility problems by Carl D. Jackson, chairman Wisconsin Railroad Commission, and a copy of the resolution on public service securities adopted by the board of governors of the Investment Bankers' Association on Oct. 3. This resolution was published on page 935 of the issue of this paper for Oct. 30.

Norfolk's Traction Situation—I

Report of A. Merritt Taylor and Charles B. Cooke, Jr., Used as Basis of Solution of Street Railway Problem in Virginia City—Value Determined Upon a "Judicial" Basis—Recommendations Made for a Modern Franchise—Service Rehabilitation and Rerouting Also Considered

IT WILL be recalled by the readers of the *ELECTRIC RAILWAY JOURNAL* that last spring the city of Norfolk, Va., adopted a broad-gage policy toward public utilities and was upheld in this policy by the Corporation Commission of the State. This was concretely shown in the case of the Norfolk Gas Company, a subsidiary of the Virginia Railway & Power Company, as reported in the *JOURNAL* for March 27, 1920, page 667, and commented upon in the issue of April 3, page 682, and April 10, page 736. The platform upon which the city of Norfolk officially agreed to treat public utilities within her borders was stated as follows:

Capital legitimately invested in public utility properties must be safeguarded and protected by municipalities, both as to principal and as to a just and inviting return thereon after reimbursement to the company for expenses incurred in providing service.

Following the conclusion of the gas company case, the more complicated street railway question was taken up by the experts employed by the city, A. Merritt Taylor and Charles B. Cooke, Jr., of Philadelphia. Their report on the railway situation was rendered several weeks ago, as already noted in these columns, and the city is now working on a definite franchise agreement based upon the recommendations of this report. On account of the manner in which some of the subjects of the question are considered, the *JOURNAL* is giving space to a rather extended analysis of the report of Messrs. Taylor and Cooke.

The report states that, as is often the case, it has been found that the financial troubles which underlie acute service deficiencies have proved to be the logical outcome of a long continued failure, on the part of both city and company, to recognize certain fundamental truths and sound business principles in working out their respective natural rights and obligations in the premises. The present report, however, is an attempt to seek a solution of Norfolk's transportation troubles through practical business methods, unhampered by political considerations, and contains some well-conceived and co-ordinated measures for rehabilitating the property, service and finances of a situation which in several respects is typical of many American cities.

It is rather to be expected that in a comprehensive program of the kind sponsored by Norfolk the settlement of detail parts of that program may not, in all cases, represent the most that either company or city might like to have with respect to that particular detail considered alone and apart from other factors and elements. The report states, however, that the purpose has been to deal out even-handed justice to both city and company.

The report is supplemented with many tabulations showing the detail of the development of income accounts, allocated by routes and zones, and with maps showing the trackage and routing systems as found, and revisions of these necessary to produce required

betterment of service. The diversity of subjects covered is indicated by the following section headings: Service and facilities, present and required; delivery district; jitney competition; additions and betterments to railway property; value for rate-making purposes; analysis of earnings, expenses and fixed charges; sources of profit and loss from operation; fares and fare policies; franchises.

These headings divide into three classes or subjects for analysis: Franchise policy; valuation, and fares, jitneys, rerouting and other service improvements. In this issue the first of these is considered and the two other subjects will be treated in subsequent issues.

The report deals at length with the subject of franchises; first, from the standpoint of the legal and economic interests which the city, State and service company have severally in the franchise agreement, and second, with respect to the practical application of basic principles so developed, to the revision of the Norfolk franchises.

ANALYSIS OF BASIC PRINCIPLES

In an introductory statement the report states in effect that the type and terms of a franchise may either destroy or effectively assist in establishing and fostering credit of the grantee and that economically unsound franchise rights and limitations may thus actually block efforts to provide that character of service which the community naturally seeks in granting the franchise to fulfill its aspirations in this direction.

Service deficiencies may be expected to continue so long as franchise contracts "drawn in a period when any real conception of the economic status of public service properties was notoriously lacking, are such as to jeopardize the interest of present and prospective investments therein." Such appears to be the case in Norfolk, and any program for solution of the transportation problem in that city must, in order to be adequate and productive of results, include a forward-looking revision of franchises with such provisions removed as are now obsolete and in conflict with the primary purpose.

The elimination of obsolete types of franchise obligations is stated to be just as important as the removal of obsolete physical equipment, and further, that correction of underlying obsolescence in the franchise accelerates correction of obsolescence in the physical property.

Term franchises frequently fail of their real purpose, due in part to the absence of provisions for the disposition of the property and reimbursement to investors, in the event that the franchise is not renewed. Utility properties under present-day regulation are no longer speculative money makers; investment in them is no longer regarded as a get-rich-quick scheme for extorting so much from the public during the life of the franchise that it is a matter of little consequence what

happens to the property upon expiration of its term. The fact is emphasized that the public pays through the nose for the burdensome short-term franchise, first, because companies operating thereunder have to pay, at the ultimate cost of the car rider, high interest rates to meet their capital requirements, and second, because, having no assurance of his equities at the expiration of the franchise, the utility owner under the short-term franchise has naturally not been solicitous for the maintenance of physical property in good service condition.

On the other hand, improper franchise obligations imposed by municipalities in long-term and perpetual franchises, in their earlier efforts to protect the public interest, have been perhaps not less destructive, though as a class the perpetual franchise has furnished a stable basis for financing.

The growth of state regulatory systems which has paralleled development of public service businesses and the extent of results sought and thus far realized through exercise of the regulatory power, in the face of its natural economic limitations and of the obstacles to effective regulation presented by obsolete franchise provisions, is portrayed. The status of the street railway as a vital and fundamental thing in the life of the people is regarded as the basic proposition upon which all constructive thought and effort must build. As to this, the following has application:

It is also axiomatic that so long as public service is provided with private capital, the character of that service will depend upon the financial results which it produces. If the service be adequate and there is a continuing loss, it will shortly become inadequate through an attempt to reduce the loss. This attempt may be temporarily or partially successful, but ultimately, due to continuing inadequacy, those losses apparently buried in the makeshift expedient of deferred maintenance and deficient service emerge inflated by concealed accumulations, to further depress capacity for that service basically required by public necessity. That public necessity in a given community will, in the end, rule and govern the nature of the agency, public or private, through which it must be satisfied.

As to public ownership, the report says:

Public ownership and operation of its service facilities will not come as a result of political nostrum nor of academic theory. It may develop, if at all, as an economic necessity through the slow and tedious processes of a century, and would necessarily be preceded by much laborious work and actual accomplishment in the elevation of political standards and in the preparation of adequate foundations for stable and efficient state and municipal machinery, free of improper political influences, required to insure permanent success of the undertaking.

USE OF PUBLIC HIGHWAYS

Highways are defined simply as places dedicated to the use and convenience of the population at large in permitting the transportation of all things generally required in sustaining its social and economic life. The use of highways to carry gas or water underground, street cars on its surface or electricity through overhead wires means that the highway is fulfilling its destiny as the most ancient of all public utilities. The common sense of the proposition as developed is that the getting of an adequate service should be the sole consideration for the rights given as a legal step precedent to its production.

While no inherent value attaches to the base franchise, it may either be made valuable or turn out to be a very costly liability. This risk must be shouldered by the grantee. It is, however, pointed out that:

If "value," in the sense of developed earning power of the property, arises out of earnings produced by enabling

franchise, that value must necessarily exist as a condition precedent to the public receiving its consideration, which is "service," out of the franchise-contract. If there is no value arising through the franchise, from the standpoint of present and prospective earning power of the property, then obviously the public cannot possibly receive the thing for which it made a bargain.

After emphasizing the public interest in seeing the rights given by it in exchange for service acquire and develop value in the sense of earning power, the report goes on to say:

It is likewise in the public interest that steps be taken to insure the public getting its part of "value" so developed in the form of service betterments and extensions. In these lie the real opportunity for the public to realize a proper share of the company's profits, if profits there be. To attempt to get that share through direct and indirect special levies on the company's income, other than just and non-discriminatory taxes, is to sell a public birthright for a mess of pottage. Such special levies can be made large enough to defeat the very object which is sought from the public viewpoint, *i.e.*, adequate and efficient service. They could not possibly be made large enough to fill any important financial requirement of the city. Thus they are destructive in one direction without accomplishing any important purpose in another.

An analysis of all franchises and ordinances bearing upon the Norfolk property disclosed that practically all of these imposed one or more of the following requirements, which it is stated "react harmfully upon financial resources needed for the building of service":

1. A requirement that railway company shall pay the cost of labor in all original paving and repaving work done between rails and two feet outside thereof.

2. A requirement that railway company shall bear cost of all repairs on track paving including the usual two-foot strip outside of rails, irrespective of what caused the paving fault.

3. A requirement that where tracks are laid in paved streets within the old limits of the city, railway company shall pay the cost of labor in repaving the entire street from curb to curb.

4. A requirement that railway company shall place and maintain culverts under its tracks from building line to building line.

5. A requirement that company shall adhere to certain service schedules on different lines during given seasons and over various hourly periods.

6. A requirement fixing fares and fare zones.

7. A requirement fixing free transfer points.

8. A requirement that all revenue derived by company from sale of transfers as authorized by ordinance be paid to the city, or 10 per cent of the gross earnings in excess of the gross earnings for the corresponding period of the year ending June 30, 1919, whichever shall yield most revenue to the city, but in no case to be less than \$3,000 per month, so long as the said rates (6c. fare) are charged.

9. Limitation of the term of the franchise, without provision for purchase of the property by the city, in event the franchise is not renewed upon expiration.

It is then stated that requirements of the order above indicated have been one of the major causes undermining street railway service in Norfolk, and that if allowed to remain in full force and effect, the city cannot hope to escape a continuance of that character of service which has become familiar to its citizens, "damaging alike to a progressive development of their city, and to the company which should take a leading part in that development, as their duly authorized agent for that purpose."

CHARACTERISTICS OF PROPOSED NEW FRANCHISES

Only the principal characteristics of the required new franchises are outlined in the following:

Franchise Period

The State constitution of Virginia provides that no franchise can be granted for a period longer than thirty years, but it further stipulates that a city may become

the owner of a public service property either without compensation or upon payment of a fair valuation. In view of the prohibition by state law of long-term or perpetual franchises, the report recommends that franchises be granted for a thirty-year period with the proviso that unless the same be renewed for a like term, the city will purchase the property.

Purchase Clauses

One of the main features of the proposed franchise consists of carefully qualified and protecting clauses, providing for purchase of the property by the city in event of non-renewal of franchises upon expiration. It is specifically stated that the purchase price is to be determined upon the basis of what the company would be entitled to receive in event of condemnation of its property as a going concern by state authority, the amount to be fixed by a board of arbitration whose findings shall be subject to review by the State Corporation Commission. Other principal provisions are quoted as follows:

Service and Property.—No attempt should be made to specify the frequency and capacity or service to be provided on the various lines, the character of equipment to be used thereon, nor the route over which the lines should be operated. In lieu of such futile conditions the new franchise should contain a definite and unmistakable provision "to require proper and adequate extensions of plant and services and the maintenance of the plant and fixtures at the highest practical standard of efficiency" as required by Section 105 of the city charter.

Additions and Betterments to Property and Service.—Franchises should specifically provide for the carrying out of a definite reconstruction, construction and extension program which will be required by the city as a result of this report.

Fares.—No conditions should be imposed establishing fixed rates of fare applicable throughout the term of the franchises, for the power to establish reasonable rates is reserved to City Council under the city charter and is subject to judicial review. Rates of fare, when they come to a test, will be fixed by variable controlling conditions other than franchise clauses, as has already happened in Norfolk.

Paving Repairs and New Paving Operation.—The company should be required to pay the cost to the city of repairing and making good all faults or breaks in street paving for which the presence or maintenance of its track is responsible. Where track exists in present paved or unpaved streets and the city desires either to repave or to construct an original pavement, it (the city) should assume the total cost thereof, holding the company responsible only for faults due to the company's tracks, as above provided. The city should reserve the right to do all paving work in

the company's tracks, as and when it may consider this necessary, charging the company for its share of the expense in accordance with the foregoing.

Taxes.—It should be clearly understood by the public that these recommended franchise provisions would not relieve the companies of their obligation to pay the usual city and state taxes, as provided by law.

Uniform Franchise Terms.—It is manifestly to the advantage of the city that all franchises granted by it under which the street railway system is to be operated shall be for equal terms of years rather than to have the franchises for different sections of the system, which are and must necessarily remain integral parts of the transportation machine, expiring in various years.

Terminal at San Pedro Completed

New Station Contains Not Only Ample Waiting Room and Freight Facilities, but Also a Rest Room for Employees

BY CLIFFORD A. ELLIOTT

Cost Engineer Pacific Electric Railway

THE Pacific Electric Railway has just completed and placed in service at Fifth and Front Streets, San Pedro, Cal., a combination freight and passenger station to serve its patrons in this rapidly growing community. It is designed adequately to serve the company's needs in the harbor district of the city of Los Angeles, San Pedro being the company's terminal point for serving this section. A tremendous growth has taken place in the harbor district during the past five years. To permit keeping pace with this expansion and to render the top-notch service demanded by the public in this locality the immediate erection of a permanent structure for station terminal purposes became imperative. Plans for this building were completed in 1917, but wartime conditions and delays incident thereto have somewhat hampered its earlier completion.

This structure, 28 ft. wide by 190 ft. long, is built with exterior of walls plastered. The main part of the building is two stories high, with a single-story wing at each end. One of these wings serves as an open waiting room, a type of construction extensively used by this company in its station buildings, because of the mild climate of southern California. The other wing furnishes space for an open freight room.

The building is semi-Spanish in its architectural fea-



PACIFIC ELECTRIC RAILWAY'S NEW FREIGHT AND PASSENGER STATION AT SAN PEDRO

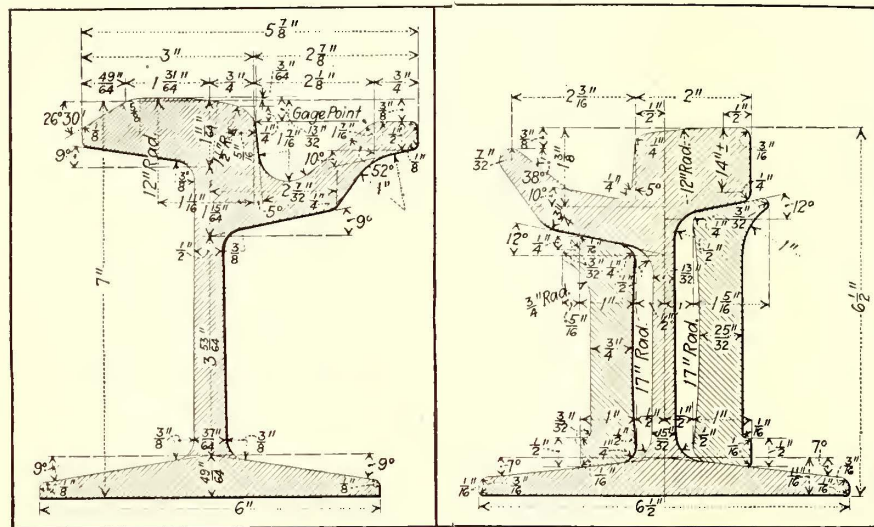
tures. In the design neat appearance as well as utility and convenience were kept in mind. Spacious waiting and rest-room facilities have been provided, which are efficiently lighted with the latest type of fixtures. In the agents' quarters are three ticket windows. The freight business is concentrated at one end so that all business transactions with the public are made at the freight counter located at the side door.

The second story of the new station serves as trainmen's quarters. In the recreation room will be installed a pool table, card tables and other furnishings for the comfort and welfare of the trainmen. At the end of this room is the terminal foreman's office, where the "mark-up" boards, the cashier's office for handling trainmen's receipts, etc., are located. Adjoining these rooms are the toilet facilities and locker room.

The station as a terminal is conveniently served by two newly constructed passenger loading and unloading tracks, while a new house track has been laid for serving the freight end of the station.

Rail Standards

IN AN article published on page 1106 of last week's issue, descriptive of the standard rail sections in this and other countries, the titles under the drawings showing the Australian rail section and the American rail section became transposed. The new French sec-



A. E. R. A. STANDARD 7-IN. GIRDER GROOVED RAIL

NEWLY ADOPTED AUSTRALIAN RAIL SECTION

tion, also illustrated in that article, was properly indicated by its title.

To make the matter perfectly clear, sections of the newly adopted Australian rail and of the standard 7-in. girder grooved rail of the American Electric Railway Association are reprinted here.

After a careful survey of the Highland district of Scotland, plans for nine different water-power schemes have been reported. Because of this cheap and dependable source of power, serious consideration is being given by the directors of the Highland Railroad to electrification. One of the schemes could give 38,000 hp. with a capital cost of about £1,742,000, and another 42,000 hp. at an outlay of about £1,580,000. It is estimated that the full development of the nine schemes would be equal to twice the capacity of the existing power, traction, and lighting companies in Scotland. Cheap industrial power will also result.

"Vae Jitnis" at Terre Haute

THE old Roman cry of "Vae Victis" or "Woe to the Vanquished" has its modern counterpart at Terre Haute, where the cry might be transmuted into "Vae Jitnis" or "Woe to the jitney"! It will be recalled that the ELECTRIC RAILWAY JOURNAL for Aug. 28, 1920, presented, under the title "The Survival of the Fitter," the success of the safety car in securing ever-increasing business. The great growth of the private automobile has continued—perhaps to the actual advantage of the trolley by getting people eager to ride whenever they see anything that moves—except jitneys. This conclusion seems inevitable from a study of the accompanying progress table prepared by E. M. Walker, general manager Terre Haute, Indianapolis & Eastern Traction Company. This table brings the facts down to Oct. 30, 1920.

Among the interesting facts disclosed are that the traffic for the ten months of 1920 is greater than the high-water mark established by all of 1919, so that even the abatement of pre-election excitement will not prevent 1920 from showing at least 12,500,000 passengers, or some 30 per cent better than the pre-jitney year 1913, when the population was 80 per cent of the present figure. Put differently, the traffic will increase at least 30 per cent compared with the 25 per cent increase in population (60,000 to 75,000) despite the 511 per cent increase in private automobiles (900 to 5,500) within Terre Haute or the 550 per cent increase (300 to 1,950) outside Terre Haute.

As to the jitneys, a count on Wednesday, Nov. 10, showed only twenty-three in use. Of these only seven were in direct competition with the cars. The jitneys charge 10 cents; the cars 5 cents with free transfer.

The drop from 200 jitneys in 1918 to twenty-three of all persuasions in November, 1920, is notable.

Other interesting figures in this report are those showing the continued increase in earnings per car-mile and the decrease in energy consumption per car-mile as the safety cars approach the 100 per cent mark, except for the 300 miles a day of interurban operation over city track.

	1913	1918	1919	1920 (10 mos.)
Population	60,000	68,000	72,000	75,000
Number of autos owned in city	900	4,300	5,100	5,500
Number of autos owned in Vigo County outside of city	30	1,500	1,700	1,950
Miles of city track	30	30	30	30
Revenue passengers carried	9,507,018	8,160,492	10,351,042	10,837,544*
Employees carried	309,515	259,139	302,662	306,771*
Complimentary	66,896	39,694	7,299	315*
Transfers	2,095,372	2,200,114	2,603,427	2,447,050*
Total passengers	11,978,801	10,659,439	13,264,430	13,591,680*
Gross revenue, city lines	\$452,736	\$394,824	\$518,627	\$542,710
Jitney buses in operation	0	200	125	23
Car-miles, safety cars	0	77,572	1,428,380	2,204,310*
Car-miles, two-man cars	1,968,400	1,717,597	1,036,802	298,406*
Total car-miles	1,968,400	1,795,169	2,465,182	2,502,716*
Kilowatt-hours	3.87	5.52	2.67	2.21
Earnings per car-mile, all city cars	\$0.2300	\$0.2109	\$0.2103	\$0.2168
Earnings per car-mile, safety cars		\$0.2100	\$0.2110	\$0.2222
Safety cars operated	29	(Dec.) 18	28	50
Two-man cars operated	0	15	15	3
Total cars operated	29	33	43	53
Rate of fare, cents	5	5	5	5
Tickets	25/\$1.00 6/25c.	25/\$1.00 6/25c.	None	None

* Ten months only.

British Municipal Tramway Men Meet

Papers Presented at the Annual Conference of the Municipal Tramways Association Discuss Fare Increases, Extra Operating Costs, Repairs, Depreciation and Future Capital Expenditures

AT THE annual conference of the Municipal Tramways Association a good idea of the current expert opinion on economic and financial questions was obtained of the street railway industry in England. Fundamentally the problems and conditions with which the industry is confronted are quite similar to those in this country, although, perhaps, they are of more recent origin. It is realized that to relieve the density and overcrowding of small districts ample transportation facilities must be provided to enable the great industrial population to spread themselves out over wider areas. Whatever form these facilities take, whether the motor bus for light traffic or the tramway, which holds the field where the density is high, the fact remains that the passenger must pay for his passage.

Two papers on tramway fares were presented by Councilor Higham, chairman of the Blackburn Corporation Tramways Committee, and P. Priestly, general manager Liverpool Corporation Tramways. Unfortunately, with the increased cost of producing rides, Councilor Higham stated that the tramway systems have not been able to pass on this increased burden to customers with the same facility as other industries. If places of heavy traffic density cannot be made profitable without increased fare, it can never be hoped to make up the deficit from the riders who travel longer distances. There still clings the old system under which workmen are carried at a reduced fare due to their former low wages. With their greatly increased compensation, it is maintained this condition should no longer be allowed to exist. The opinion also was expressed that wherever a special service was rendered a special fare should be charged, under such circumstances as strangers to a town attending race meetings, football games, etc. Special fares are warranted because of extra accommodations furnished for their convenience.

Some of the blame for the slow increase has been due to the reluctance of the municipal corporations. To prevent too strong reaction on the public, the process of raising fares should be made slow and gradual. Even then traffic will decrease, but this temporary condition is of short duration. However, when the riding public gains the realization that it now costs a transportation system twice what it formerly did to furnish rides the outlook for more flourishing undertakings of this nature and also for more return on capital becomes encouraging.

Many suggestions were offered by A. L. C. Fell, general manager London County Council Tramways, in his paper on operating costs and power expenses to effect a reduction in the cost of power. For the past six years fuel, which represents about 75 per cent of the energy cost, has been expensive and of extremely poor grade. Because of the fuel shortage everything available had to be taken in spite of the fact that most of it, after being shipped long distances, was hardly more than mine refuse, containing as high as 30 per

cent ash. Should the whole system regarding the grading of coal be co-ordinated by the shippers so that the poorest grades would be utilized nearest the mines and the better quality shipped the farthest distances a great economy would result. Great benefit can be derived from the economy recently obtained in the generation of power with oil fuel. There is not only the added boiler efficiency but also the economy resulting from more advantageous handling and transportation facilities than are available for coal.

Messrs. James Dalrymple, general manager of the Glasgow Corporation Tramways, and R. L. Horsfield, general manager of the Cardiff Corporation Tramways, both presented papers under the title "Repairs and Depreciations in Relation to Capital and Revenue." Mr. Dalrymple argues that people nowadays seem to have a great aversion for the word "capital" and that many municipal authorities seem quite prepared to pay high wages to employees, but at the same time entirely overlook the fact that in a short time their capital, as represented by the track and equipment, will go out of existence. Mr. Dalrymple contends for a program of keeping the physical property in a complete state of repair, and in addition setting aside a fund representing the depreciation which has taken place during the previous twelve months.

Reporting an examination which he had made into the physical and financial condition of many tramway undertakings, he finds that where there is too little spent in repairs there is also nothing available to meet depreciation and renewal. On the other hand, tramways which maintain a good state of repair also maintain considerable renewal funds. In other cases, renewals are being added to capital, and in still others renewal and depreciation funds are being robbed in order to maintain low rates. In other places plant and equipment are being starved to obviate the necessity for increased rates. In general, the tramway capital is being tampered with in order to meet current administrative expenses of the municipalities. Mr. Dalrymple points out that the renewal of track is a grave matter because track cannot now be installed for less than three times its original cost, and it is therefore extremely important that the track which is now existing should be kept in a high state of repair.

Mr. Horsfield calls attention to the error in announcing a profit without any provision for renewal and without any provision for establishing or building up the "property restoration fund" which is required under the law. The general theme of his paper is to support the building up of renewal funds in order to maintain a properly serviceable equipment.

In the discussion which followed several members argued that the present generation should not have to shoulder the whole cost of maintaining an undertaking, but that if renewals are high today money should be borrowed to maintain the property for the present and future generations.

An interesting paper on the future of capital expendi-

ture was presented by R. S. Pilcher, manager Edinburgh Corporation Tramways. Mr. Pilcher starts by pointing out the oft-repeated comparisons between pre-war cost of permanent way construction and present cost, between pre-war rolling stock cost and present day cost, and some other figures. He states that the question of new capital expenditure would solve itself if the revenue to be derived could be made to increase in the same ratio as working expenses. He points out that the process of increasing the cost of travel must necessarily be slow and gradual if the tramways are to reap the benefit, otherwise they will lose the traffic. If fares are raised gradually, it will not be felt so much by the public. He then discusses the public psychology in its willingness to pay the increased cost of most commodities but not of tramway fares. He expresses hopefulness for the future in this respect and an ultimate satisfactory financial position for the tramways.

He discusses the present situation in its relation to the high cost of new construction and points out that the development of transport as such is not going to be retarded, but says that if tramways, on account of the high cost of permanent way, are to be temporarily restricted, more attention will be given to forms of traction which require the least capital expenditure, namely, such forms as the motor bus and the trackless trolley.

He says that one cannot but see the effect that high capital costs are bound to have upon the development of the bus. There is undoubtedly a great field for this vehicle which can deal with extensions and new routes without any relatively great capital expenditure. He asks how many tramway systems there are in England where certain routes do not pay their way and which have never paid sufficient to justify the laying down of the permanent way. He points out that it is probably cheaper to work these routes than to scrap them, seeing that the capital has already been sunk, but makes the point that in the future when the question of the renewal of the permanent way of some of these has to be considered many such routes will be worked by motor buses or other railless vehicles.

He quotes some interesting comparative figures which he has recently worked out for the new construction of tramways compared with motor buses in the city of Edinburgh, which he gives as follows:

System	Capital Cost	Interest and Sinking Fund Charges per Annum	Interest and Sinking Fund Charges per Mile
Cost of new electric undertaking...	£1,677,600	£109,127	4.547d.
Cost of converting cable system...	£695,700	£56,014	2.334d.
Cost of providing a similar number of buses...	£456,640	£64,131	2.672d.
Cost of providing buses to give the same seating capacity.....	£729,900	£103,155	2.886d.

Mr. Pilcher then goes on to discuss the figures given in this table and says:

It will be seen that the bus has a considerable advantage in capital expenditure over the figures for a complete new electric system, even providing for the same total seating capacity. On the other hand, of course, it is generally admitted that the working expenses of the bus are higher than the electric car.

Although the total cost of operating motor buses per mile may be higher than it is with electric traction for a city such as Edinburgh, it must be kept in mind that the capital cost per bus-mile remains a constant figure in relation to the number of buses in operation, whereas with electric traction the capital costs per car-mile increase in direct ratio to the decrease in the volume of traffic to be carried, or, the smaller the mileage run the higher the capital cost

per mile, and inversely, the greater the car-mileage the less the capital cost per mile. When the suburban routes have been fitted, or routes which have not a heavy traffic, the cost of capital expenditure for electric cars becomes prohibitive. It is in these circumstances that the motor bus will become the cheaper vehicle to operate. The total cost of capital expenditure depends upon the frequency of the bus service. The bus may be made to pay when the service is increasing, the only condition being that the vehicle will require to be fairly well filled with passengers. Future extensions and new routes will probably take the form of motor buses, or other vehicles not dependent on a costly permanent way. New transport will be provided and faster vehicles will be used and development will be cut. I have seen in some districts motor buses running along tramway routes practically in competition with the tramways and worked by the same operating authority. I do not think this is going to help either the tramway or the motor bus. The bus should be used where the tramway cannot be used and the one vehicle made supplementary to the other. I do not think they need be competitive.

It may be of interest to the conference to know that in Edinburgh the intention is to run all the extensions with buses, and at the present time we are closing down four cableways which have not a great volume of traffic, being under £270 per week per mile of route. The tramway rails are worn out and it would not pay to renew the permanent way at present prices. Instead of spending new capital on a tramway where the traffic is not sufficiently heavy to pay the high capital charges motor buses are to be run. Only the future can tell at what point it will pay to lay tramway rails.

In the discussion which followed the presentation of this paper there was much difference of opinion expressed. Specific question was raised with reference to the use of the railless electric vehicle rather than the motor bus, when the question of track removal was the principal one.

Other points in the discussion were that consideration should be given to open track construction for some extensions, which gives advantage not only of lower costs but also of higher speed and reduced maintenance cost.

San Francisco Municipal Accident Record

THE Municipal Railway of San Francisco, Cal., has made public its accident record for the fiscal year ended June 30, 1920. This is reproduced herewith and the corresponding figures for the year ended June 30, 1919, are given for comparison in a parallel column.

ACCIDENT RECORD SAN FRANCISCO MUNICIPAL RAILWAY
(For fiscal year ended June 30)

	1919	1920		Ratio
Total passengers carried during the year.....	59,341,253	66,169,246		
Car-miles operated 1.....	7,212,762.50	7,419,272.33		
Number of passengers to mile.....	8	9		
Number of accident reports filed 2.....	1,972	2,019		
Number of accidents—fatal.....	10	7		
Number of accidents—personal injuries.....	693	657		
Number of claims presented.....	472	344		
Number of claims adjusted.....	109	104		
Number of suits instituted.....	18	24		
Number of suits pending.....	24	42		
Number of passengers carried per accident report.....	30,092	32,773		
Number of passengers carried per personal injury report.....	85,629	100,714		
Number of passengers carried per fatal accident.....	5,934,125	9,452,750		
Classification:			Ratio	Ratio
Car collisions.....	164	112	0.0832	0.0555
Auto and wagon collisions.....	1,100	1,231	0.5577	0.6097
Boarding moving car.....	171	157	0.0868	0.0777
Leaving moving car.....	108	126	0.0548	0.0624
Miscellaneous.....	429	393	0.2175	0.1947
Total.....	1,972	2,019		
Accidents in per cent of passengers carried.....	00.0033	00.003		
Total receipts.....	\$2,425,761	\$2,749,651		
Total amount paid accident claims, office and miscellaneous expense.....	27,070	32,830		
Ratio to operating revenue.....	0.0111	0.0119		

1 For 1919 this involves 6,899,677 car-miles and 313,095 bus-miles; for 1920, 7,182,475 car-miles and 236,797 bus-miles.
2 This includes all reports of accidents happening near the cars in which this railway was not involved.

Application of Electric Traction on Trunk Lines

In Address Delivered Recently in Belgium, Sir Philip Dawson Outlined the World Situation in General and the Belgian Problem in Particular

IN A PRESIDENTIAL address recently delivered by Sir Philip Dawson before the Association of Electrical Engineering Graduates of the Montefiore Technical Institute, Liège, the subject of heavy electric traction was covered in a general way, with special reference to conditions in Belgium. This address is significant because Sir Philip has been serving as a member of the electrification commission of Belgium and he is also a member of the advisory committee on electrification appointed by the Minister of Transport of Great Britain.

Sir Philip said that electric traction is justified only where it will conduce to financial success. This he considered an axiom which must never be lost sight of except under particular and exceptional conditions. It follows that the plan to be adopted in any individual case must be that estimated to produce the largest possible return on the necessary capital, with due regard to all constituent factors directly or indirectly influenced by electrification.

In studying an electrification project three points must be considered, as follows: (1) The total investment required, including all necessary electrical, mechanical and other works; (2) the cost of operation, involving all operating expenses affected by this mode of traction; (3) the cost of maintenance of all parts which are affected by the installation of electric traction.

SOME SALIENT POINTS OF AGREEMENT

Before taking up in detail the application of electric traction to trunk lines Sir Philip reviewed briefly the axioms which, he said, are more or less generally admitted by those who have studied the problem deeply. He stated that the higher the costs of fuel and labor the more is electrification justified and listed a number of items, some of which were as follows:

1. Sixty-cycle turbo-generators cost less than 25-cycle machines.

2. Rotary converters for traction are more satisfactory at 25 cycles than at 60 cycles, and for 1,500 volts it is necessary practically to put two rotaries in series. Motor-generators are at present employed for voltages of 2,400 to 3,000.

3. Three-phase generators cost less than single-phase generators.

4. Direct-current motors of 600 to 1,200 volts are cheapest to install and maintain, and weigh least.

5. There is actually little difference between the cost of a high-tension direct-current equipment (2,400 to 3,000 volts) and a single-phase equipment.

6. To date there is no practical example of multiple-unit trains operating on direct-current lines of 2,400 to 3,000 volts.

7. At the moment there are four systems which have been applied for a period sufficiently long and on a scale sufficiently large to permit studying the results, as follows: (a) Low-tension direct-current lines, with third rail, 600 to 1,500 volts, applicable with multiple-unit cars or locomotives. With locomotives it is necessary

at junctions and at classification stations to maintain the continuity of the contact line by means of an aerial line. (b) High-tension direct-current lines, 2,400 to 3,000 volts, with aerial contact wire, on which only locomotives can be used. (c) Three-phase lines, 3,000 to 5,000 volts, 15 cycles, two aerial wires per track, on which multiple-unit cars cannot be employed. This system facilitates regeneration on down grades and in braking. (d) Single-phase lines, 15 to 20 cycles, 11,000 to 16,000 volts, with aerial contact wire, on which it is possible to use both multiple-unit cars and locomotives.

8. The maintenance of the aerial line in the case where there is no steam traction is less costly than that of the third rail, but the presence of the third rail increases the track maintenance cost.

9. The higher the contact-line voltage is elevated, the less will be the cost of substations and distribution.

10. On certain old lines it is possible that the cost of increasing the height of bridges would be great, and this must be taken into consideration in estimating capital necessary for electrification.

PRO AND CON REGARDING SINGLE PHASE

Single-phase current has an unfortunate effect on telegraph and telephone lines in the neighborhood, but this interference can be reduced and nearly eliminated by auxiliary installations more or less costly. As to low voltage direct-current motors, there will not in the future be very great progress in regard to their efficiency or their cost. On the contrary, the single-phase system is subject to very great improvement, as has been demonstrated by recent developments in Switzerland and America.

The necessity for raising the voltage for traction on trunk lines caused the introduction of single phase, and it is this introduction which has resulted in the development of direct current at 3,000 volts and the improvements in the direct-current motor.

First cost, maintenance cost and weight of single-phase equipment are higher than those of direct-current equipment at low voltage, but differ little from those of high-tension direct-current equipment.

Regeneration is easiest with three-phase, but can be accomplished also satisfactorily with direct current and single phase. Also, it is easier to handle the small, high-tension current than the large, low-tension current.

TENDENCIES IN DIFFERENT COUNTRIES

Both Switzerland and Sweden have decided in favor of the single phase for electrification of their trunk lines. Prussia, the Grand Duchy of Baden, Bavaria and Austria had reached the same conclusion before the war. Italy has, up to the present time, preferred the three-phase.

In America opinions as to systems are divided. In all cases it has apparently been decided that for heavy trunk-line traction the aerial conductor is preferable to the third rail.

In England there are no examples as yet of trunk-line electrification, the only electrifications being those of suburban systems. The London, Brighton & South Coast Railway, having always had in view the electrification of its principal lines to Brighton, Worthing and Eastbourne, adopted the single-phase at a time when the only existing systems were direct current at 750 volts and three-phase at 3,000 volts.

The Northeastern has an electrification project regarding its line from York to Newcastle, with direct current at 1,200 volts, third rail and with an aerial wire at junctions, passenger stations and freight stations. In another project the adoption of 3,000 volts with a three-wire system and two third rails is under consideration. The track rail would serve as the neutral wire, and each train unit and locomotive would have the same number of motors on both circuits to maintain a load balance.

In France a commission which has studied the question of system in Europe and the United States appears to have concluded in favor of direct current at 3,000 volts, with aerial wire, at the same time anticipating great possibilities of future development of the single phase. This commission apparently has been influenced largely by the question of telegraphic disturbances and by the fact that the Germans were largely instrumental in the development of single phase.

The application of electric traction to railway trunk lines will have a great effect on the production of electricity, and above all on its application in other domains of industry. This influence will vary according to the case and will have in its turn an influence on the system of electric traction to be adopted.

In considering this point of view, there are certain typical cases which present themselves and which may be summarized as follows: (1) The case of a system crossing an agricultural country without great industries, such as that traversed by the London, Brighton & South Coast Railway on the line to Eastbourne, Brighton and Worthing, and without water powers; (2) a non-industrial country where there is no coal but where there are sources of hydro-electric power, such as certain parts of Switzerland and Italy; (3) a country having coal and metal industries, such as that traversed by the Northeastern Railway; (4) an industrial country with metallurgical resources and hydro-electric power but without coal, such as Sweden.

In the first case the demand for energy for electric traction will form the preponderating part of all electrical energy requirements. In the second case it may be that political and military reasons may force electric traction, as is the case in Switzerland. In the third and fourth cases traction will require perhaps a relatively small part of the total electrical energy produced in the country, but the utilization of electrical energy for traction will improve power plant load factors and reduce the price of the electrical energy.

There are intermediate cases, as in London, where electric traction will aid in the amalgamation of the electricity-producing interests now existing, and the creation of new super-power plants which would not be possible otherwise from the economic point of view. In Greater London, for example, the electrical energy necessary for the lines already electrified, or which must be electrified in the near future, is as much as 1,500,000,000 kw.-hr. per year, while the consumption for all other purposes is hardly 500,000,000. The complete electrifi-

cation of the suburban systems of the London, Brighton & South Coast Railway will alone absorb 250,000,000. In Chicago, in 1915, the electrical energy absorbed by the traction lines was 680,000,000 kw.-hr., while that utilized for other purposes did not reach 400,000,000, Chicago having a population one-third that of London. A concept of the quantities of electrical energy required for traction can be gained from the statement that in 1918 Great Britain produced 4,000,000,000 kw.-hr., while the United States produced 28,000,000,000.

Obviously in the study of new power plant installations the demands of electric traction will play an important rôle and will render necessary the installation of super-power plants which would not be justified otherwise. This will permit the production of energy in quantity and the furnishing of it for other purposes at a price otherwise impossible. Again, however, the financial return must be considered from the start. A super-power plant will justify itself only when from the start it will have a good load factor. The location of the power plant also plays an important part in this matter.

THE "WHY" OF ELECTRIFICATION

The principal causes which have led to the application of electric traction on trunk lines in the past may be summarized as follows:

1. The difficulties of ventilation of the tunnels, which led to the electrification of the Baltimore & Ohio in Baltimore in 1894, and later to that of the tunnels in Paris, London, Budapest, Berlin and New York, as well as in Switzerland, Italy and other countries.
2. Competition of the electric tramway and the omnibus.
3. Danger of fire from steam locomotive sparks.
4. The greater facility of traction on heavy grades due to the better adhesion and the economies of regeneration.
5. In the case of countries having no coal, independence on foreign countries for transportation.
6. Increase in capacity of existing lines.
7. Economy of coal consumption, estimated at from 50 to 66 per cent.

As to the results obtained from electric traction, experience gained with electric tramways has been confirmed with railroads; the greater the facilities for travel, the greater the number of travelers. Electrification of a part of the suburban system of the London, Brighton & South Coast Railway and of the London & Southwestern Railway has increased the number of passengers and the receipts more than 100 per cent. Of course, it does not follow that the same results will be obtained everywhere; that depends upon the particular circumstances met with in each case.

One of the great successes of electrification results from the facility with which trains may be divided up into multiple units, according to the needs of the public at different times of the day. It is the frequency of the trains, not the necessities of the clock, which encourages passengers in forming the traveling habit.

As regards freight traffic, the electric locomotives are more efficient and economical than steam. They do not consume energy and do not deteriorate, except when producing traction, whereas a steam locomotive is deteriorating and consuming combustible as long as it is in service. One electric locomotive does much more

work than a steam locomotive, as for example on the Norfolk & Western in America.

The length of railways in the entire world is about 745,000 miles, of which 264,000 miles is in the United States and 29,000 miles in England. On a single-track basis, these figures become respectively 398,000 miles and 62,000 miles. In the United States there are nearly 8,100 miles of single track operated electrically, employing 675 electric locomotives. The railways of the United States consume about 25 per cent of the coal produced, while the railways in England consume only 6 per cent of the coal produced in England. The latter low figure is due to the great export traffic in coal and to the enormous demands of the British marine. In Europe, while electric operation is limited, the number of electric locomotives employed is not much less than in the United States.

In view of the different systems of traction in existence and the youth of electric traction, the question arises as to whether there is a possibility of a single system which can be adapted to all cases. This is without doubt an attractive ideal, but on account of the divergent views of manufacturers, engineers and administrators it will be realized with difficulty, if ever.

It is clear that in the case of the increases in costs resulting from the war, which will long continue, there would be no financial advantage in changing the scheme of electrification of the large systems electrified at 600, 750 or 1,200 volts, to say nothing of the 2,400 or 3,000-volt systems. For the long distances to be covered by heavy trains, especially in cases where a dense and continuous traffic does not exist, a voltage of 600 to 1,200 is not sufficiently high.

For the present, at least, two systems must be used, one for intense suburban traffic and the other for trunk lines. In the first case 600 to 1,200 volts, direct current, will be employed, with third rail; in the second, overhead conductor must be used with high tension, 3,000 volts direct current or 11,000 to 16,000 volts single phase. The question comes back then to determining which of these systems in the end will be shown to be more advantageous financially. A still more desirable solution would be one permitting both systems to use the same track rails and to take current from the same distributing system.

ELECTRIFICATION AND THE SUPER-POWER PLANT

The futures of electric traction and of the super-power plant are intimately related. Unfortunately in England, as well as in the United States, the public press appears to believe that electric traction must be applied universally from now on; that it will lead immediately to great economies and to great financial advantages, and that the only thing to do to obtain energy at a very low price, without consideration of the attendant circumstances, is to build a super-power plant and all will be well.

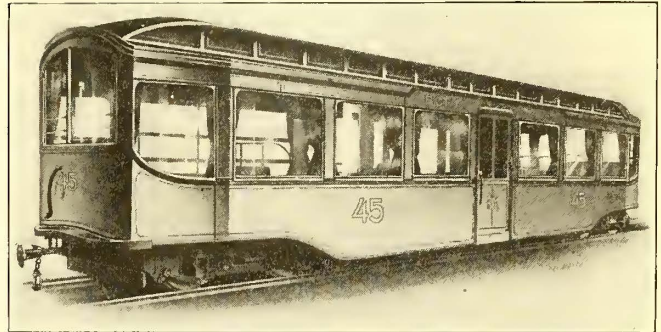
As to Belgium, in view of its relatively small area, its dense population, its frugal and industrious people, its well-developed metallurgical and other industries, its excellent railroad systems and its fuel resources, its railways can be compared with a vast suburban system. If there is a case where a complete electrification would be justified, that case presents itself in Belgium. Here it is necessary to study fundamentally the electrification of the entire system, in such a way that the sections which are to be electrified now will form a homogeneous part of the whole from the points of view both of trac-

tion and distribution. Such a study will be costly, but when millions of francs are involved it seems worth the investment of some hundreds of thousands of francs so as to insure the obtaining of the best possible financial results.

Center-Entrance Cars in Germany

The Construction Details, While Giving a Pleasing Effect, Are More Elaborate Than Would Be Considered in the United States

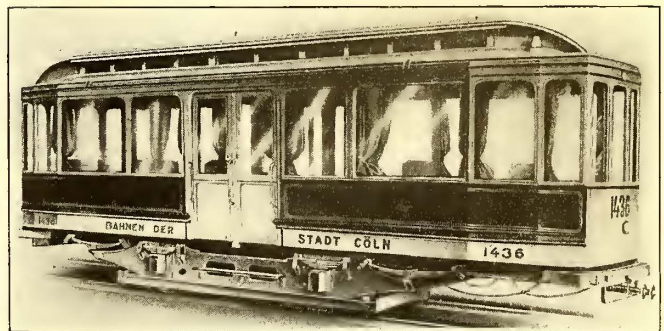
TWO new types of electric cars for street and interurban service in Germany are shown in accompanying illustrations. The single-truck type is for service in Cologne and has a step as part of the truck construction. The truck has pressed steel sides and an angle-iron



SUBURBAN AND INTERURBAN TYPE OF CAR

framework. This car is 29 ft. long, 7 ft. wide, 10 ft. 10 in. high over roof and has a wheelbase of 8 ft. 6 in. It weighs 15,730 lb. and has a seating capacity of twenty-six passengers and a total capacity of forty passengers.

The Bonn-Mehlen interurban car has a well at the center so that passengers may step directly into the car with a single step. There are two steps from the center compartment up into the end compartments. This car is 42 ft. long, 7 ft. 6 in. wide and 9 ft. 10 in. to



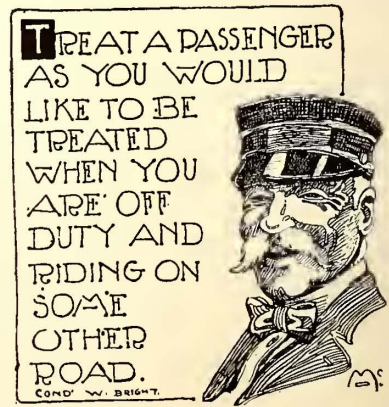
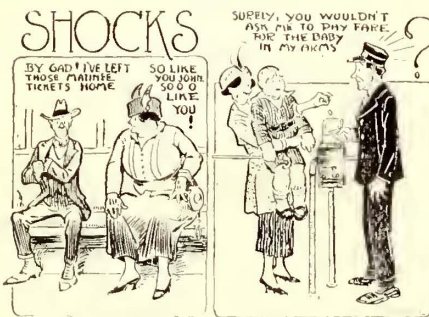
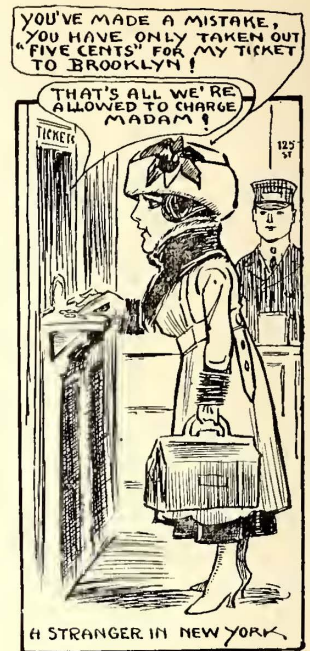
SINGLE-TRUCK CENTER-ENTRANCE CAR FOR CITY SERVICE

the top of the roof. The car weighs 27,500 lb. and has a seating capacity of forty-four with a total capacity of sixty-six under normal conditions and a maximum of seventy-eight passengers.

These cars are provided with both longitudinal and cross seats and have electric heaters. All doors slide into pockets and the interior is provided with sliding doors between the center compartment and the end compartments.

As Seen by the Cartoonist

SMOCKS



This is another group of McCabe's cartoons, taken from recent issues of the "Interborough Bulletin." A previous selection was published on page 974 of the issue of this paper for Nov. 6.

ELECTRIC RAILWAY PUBLICITY

Devoted to How to Tell the Story

Two Scenario Suggestions Presented

Work of Two Film Companies Printed Here to Inspire Discussion and Criticism on Use of Film in Publicity Work

THESE pages have carried considerable discussion about the suggestion made on page 604 of the Sept. 25 issue to utilize the splendid educational strength of motion pictures in behalf of the electric railways in their necessity to win public approbation, or at least to dispel public prejudice. Of all the letters received commenting on the idea none has expressed the belief that the use of pictures in a broad national way was impractical, but several have reiterated the thought expressed in the original article that the making of an effective film would be difficult and would require a great deal of thought by a number of able men.

The JOURNAL has endeavored to learn something of the seriousness of this difficulty by enlisting the aid of two prominent film producers, the Rothacker Film Manufacturing Company and the Atlas Educational Film Company, both of Chicago. Three scenario

writers of these companies, after several conferences with one of the editors of this paper, each outlined a scenario suggestion which he thought could be used as the vehicle to carry the message desired, as he had interpreted the problem. Two of these scenario suggestions are published herewith, for the purpose of putting before the industry something concrete to discuss and criticize. It is not contended that either of them would meet the requirements, though they do show a good grasp of the problem for so short a study on the part of the authors. It was thought that with these definite suggestions to start one thinking along the line of a scenario for broad street railway use it would be possible to induce a real discussion of the matter out of which would come some sound counsel on what ought and what ought not to go into such a picture, and perhaps some suggested themes for other scenarios. It will be out of such a variety of thought that the final product will crystallize, and the more discussion that can be brought out now the easier will be the task of an official committee later on. The JOURNAL will be glad to receive the thoughts of readers about the scenario suggestions.

Scenario Suggestion No. 1

The writer of this scenario quotes a statement from the report of the Federal Electric Railways Commission as the keynote of the object of this picture as follows:

"The electric railway furnishing transportation upon rails is an essential public utility and should have the sympathetic understanding and cooperation of the public if it is to continue to perform a useful public service."

It is to give the general public this "sympathetic understanding" of the situation confronting the street railways of our land that the story has been written. The story, as it will be unraveled in picture form to the public, begins.

"Boss" Bailey, an unscrupulous political boss of a Mid-West city, learns that the local street railway company has failed to comply with the provision of its franchise requiring it to construct at least three miles of new track each year. The reason for the failure interests the boss not at all, but the possibility of ousting the present company and granting a new franchise suggests a golden opportunity.

Accordingly "Boss" Bailey calls on Harry Carson, the local prosecuting attorney, who had been nominated and elected through the boss's influence. With apparent indignation "Boss" calls attention to the deplorable service the street railway company is rendering, picturing old style, overcrowded cars and people having to wait, unable to get on the cars.

And then the "Boss," concealing his own ulterior motive under the guise of deep concern in the city's welfare, points out that these abuses need not be longer endured; that the company has technically violated its franchise; and that it is Harry's duty as public prosecutor to oust the company and permit a franchise to be given to a company which will handle properly the local transportation problem.

Harry Plans Ouster Proceedings

The appeal is effective. Harry, intensely conscientious and public spirited (despite the fact that presumably he is one of the boss's men), immediately prepares to start ouster proceedings—to the delight of "Boss" Bailey, who begins laying wires for a grand "killing" for himself and his friends.

But before filing the papers Harry, naturally square and aboveboard, realizes it is no more than fair to talk the matter over with the railway company, so he calls on the president. To Harry's surprise, the president of the company attempts no denial of the wretched service the company is giving. On the contrary, he freely admits this and deplors the company's inability to do better without an increased rate. He explains that the present 5-cent fare and other franchise terms were based on pre-war conditions. That since then wages have increased enormously, likewise the cost of cars and equipment; that for the past two years the company has barely earned the interest on its bonded indebtedness and paid no return to its numerous stockholders, the real owners of the property.

Company Makes Novel Proposal

Then the president puts the matter up to Harry squarely: "If we are put out of business, then what? The city must have street cars; what assurance have you that a new company can do what we cannot do?"

"It is not a question of ability," retorts Harry, "it is a question of willingness. I am not a street railway man, but to be frank I think you are bluffing. If I had charge of your company for a month I would show you how to give real service." And Harry bangs his fist emphatically on the desk.

For a moment the president looks at Harry thoughtfully. From past experience he knows that Harry is wholeheartedly interested in the welfare of the city; that he is a young man of sincerity and moral integrity. Moreover, the president has uppermost in his mind the knowledge that Harry probably has it in his power to oust the company.

"Very well," begins the president slowly. "maybe you are right, although I don't think so, but I'll put you in as general manager with absolute authority. You can employ whatever help you need."

Harry's eyes open in astonishment at the unexpected proposition and he is on the verge of refusing, when the thought occurs to him that perhaps the interest of the citizens can best be served by accepting the offer. For several moments he sits thinking. Then he recalls an intimate friend who is a street railway engineer of considerable experience, whose assistance he could probably enlist.

"All right, I'll take the job," exclaims Harry. "First of all, I'm going to have a valuation made of the entire line; I want to see how much watered stock you have."

The president smilingly agrees: "Go as far as you like, you are in absolute control."

Harry Becomes General Manager

Fortunately Harry is able to secure the assistance of his friend the engineer, a thoroughly competent man, who immediately takes active charge. A valuation of the company's property is immediately started, together with an examination of its books.

All this occurs while "Boss" Bailey is temporarily absent from the city. When he returns and learns the situation he is wild with rage. Rushing over to Harry's office, he angrily demands that Harry's plan be dropped and the ouster suit instituted. But Harry, convinced that he is working for the welfare of the city, refuses. A heated discussion follows, the "Boss" craftily concealing his real reason for wanting the company ousted. But the "Boss" efforts fail, despite a veiled threat that inasmuch as Harry's term of office is about to expire, if Harry wants to be re-elected, he had better "watch his step." But Harry refuses to be swerved from his purpose and the Boss leaves, wild with rage.

With enthusiastic determination Harry takes up his task. First he turns his attention to the matter of improving the service. In order to secure first-hand knowledge of the actual conditions he goes incognito to a busy section of the city at the rush hour. "First-hand knowledge" he certainly secures, as he watches the shoving, jostling crowd struggle to board the crowded, antiquated cars. Suddenly Harry is horrified to see a girl, shoved by the crowd, slip and fall under a moving car. Leaping forward, he grabs her by the arm and drags her to safety by a fraction of a second. The girl thanks him as much as her shattered nerves will permit, and then gets on the next car and, with a good-by smile to Harry, is gone.

A survey of various sections of the city discloses the same condition everywhere—a woeful lack of cars to handle the traffic. A trip to the carhouses shows that all available cars are in use. There is but one answer—more cars must be purchased—up-to-date, high-speed cars which will handle the traffic.

His Eyes Opened to Railway Problems

The following day he sees the other side of the problem. Visiting the carhouse during the dull hours he finds hundreds of cars standing idle, useless, with conductors and motormen likewise idle, drawing their pay while waiting for the rush hours. Even the cars that are running during the dull hours are carrying comparatively few passengers. And then Harry begins to realize some of the problems with which the street railway companies have to contend.

He then investigates the problem of unregulated jitney competition, which his friend the engineer explains can be combated successfully only by new safety cars and frequent headway—involving another expenditure of money.

And so the investigation continues—roadbeds, repair shops, etc., all with the same result. The irrefutable necessity for an increased revenue—*more money*.

Harry then turns his attention to the possibility of reducing operating expenses. An attempt to cut down the men's wages results in a threat of a strike (or perhaps an actual strike). He likewise finds it is impossible to cut down any other items of expense.

Throughout all this investigation Harry has a vague, unexplainable hope that he will again see the nameless girl whom he saved, but never a glimpse of her does he catch.

Harry Meets With Another Surprise

About this time the valuation is completed and Harry eagerly glances at the figure. To his surprise he finds that the company, as the president asserted, has been earning less than 1 per cent on the actual present-day valuation—that there is no watered stock.

Harry and his engineer friend have a long talk. Coolly they analyze the situation. The facts are clear; it is absolutely impossible to give satisfactory service with the present equipment. New, up-to-date cars must be purchased.

"Fortunately, conditions are such that we can use safety cars," states the engineer. "In some localities they cannot be used." Then we dissolve into a series of views showing the operations and advantages of the new type safety car.

"The entire system must be put in first class condition," concludes the engineer, "and all this requires money—the very thing the railway company hasn't got."

He Seeks Aid of Friend Banker

The only solution seems to be to make a loan, and accordingly Harry calls on a banker friend. To his surprise the banker positively refuses to loan the railway company any money.

"Its income is not sufficient to justify it," explains the banker. "I would be criminally negligent to my depositors if I were to loan money to a concern which is earning less than 1 per cent on its investment."

And then the banker goes on to add that big investors, such as insurance companies, savings banks, trust companies, etc., are fighting shy of street railway securities for the reason that in the past they have invested large sums in this class of securities and have received meager or no returns on their money.

Still unconvinced, Harry tries to interest some local investors in the proposition, but they ridicule the idea of investing in a concern which is paying no dividends and is on the verge of bankruptcy. They likewise call Harry's attention to the Federal Electric Railways Commission report that on July 1, 1920, there were 118 companies, with a trackage of nearly 8,000 miles, in receivership.

The Attorney Realizes His Mistake

Harry and his engineer friend have another long conference. Both agree that it is absolutely impossible to improve the service under present conditions.

Accordingly on the following morning Harry calls once more on the president of the street railway company, apologizes for his former criticism, frankly says that he was mistaken; that he and his experts have been unable to work out any betterment of the service; that nothing can be done with the present equipment, and Harry frankly admits that the only solution is an increase in fare, which he promises to use his efforts to assist in securing.

"Boss" Bailey is furious when he hears of this and tells Harry that unless he withdraws from his idiotic position and starts ouster proceedings he will kill Harry politically, to which Harry retorts that he will run independently for prosecuting attorney, while "Boss" Bailey puts up another of his men, Dugan.

Harry Defies the "Boss"

The issue is sharply drawn. Dugan and his crowd stand for ousting the company; Harry and the other independent candidates stand for an improved car service, with new, up-to-date safety cars, fast service, comfort, convenience, safety, extensions, and with necessarily a slight increase in fares, which will be returned many times over in the increased prosperity not only of the community generally but of the in-

dividual citizens, to say nothing of their comfort, convenience and safety. Harry makes an aggressive, energetic campaign and wins many adherents to his already considerable following.

As the election approaches, despite the inherent handicap of Harry's platform, which of course advocates an increase of fare, he gains so many new friends that "Boss" Bailey becomes alarmed and calling together his henchmen he plans by hook or crook to insure Harry's defeat.

The Boss Resorts to Trickery

As a result the day before the election, on the front page of "Boss" Bailey's newspaper, there appears, in red headlines, "Reason for Carson's Friendship for Railway Company Revealed."

Then follows what purports to be a statement of one John Baker that Carson has admitted to him that he was "getting his" from the railway company, together with other insinuations to the effect that Harry had been bribed by the transportation company.

When Harry's wrath over the false accusation has cooled he racks his brain for a means to counteract the effect of the newspaper statement. The only solution seems to be to get hold of John Baker, whom Harry knows to be a tool of "Boss" Bailey, and in some way force Baker to admit that his charge is false. A search is instituted for Baker, but the latter is not to be found.

The possibility of Baker being concealed in "Boss" Bailey's office suggests itself to Harry, likewise the possibility of Harry being able in some way to secure some information from "Boss" Bailey as to the whereabouts of Baker. Over to Bailey's office Harry rushes. And then, as he opens the door into the outer office, he stares in surprise, for at a typewriter sits the girl of his dreams—the girl for whom he has been searching—the girl whom he had saved from the car.

Enter the Heroine

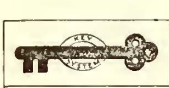
With a smile of delight Betty (for such is her name) comes to meet Harry, and Harry is so pleased that he almost forgets his mission and Betty is just as glad to see him.

But the "Boss" absolutely refuses to see Harry, and Harry is in despair when Betty (into whose sympathetic ear Harry has explained the situation) suddenly recalls having heard the "Boss" and his men mention the "Wayside Inn," a notorious roadhouse.

Two minutes later Harry is in a high-powered motor racing toward the "Wayside Inn." Arriving at the roadhouse, he secures admission secretly through a window.

After a desperate fight with a guard, Harry finds his man, who, terrified, makes a complete confession, including full details of "Boss" Bailey's plans and activities.

How the San Francisco-Oakland Terminal Railway Is Trying to Tell Some Homely Truths About the Intricacies, Detail and Size of the Local Railway Business



HOME-GROWN SERVICE

Eighty per cent of the 6,000 security holders of the Key System live within 50 miles of the Oakland City Hall.

All have other interests in the Eastbay cities.

They are for every just enterprise that will develop the Eastbay region.

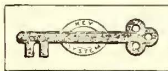
They are against whatever retards such development or is injurious to the Eastbay region. They are entitled to an adequate return on their investment.

Our 2,500 employees are your neighbors. They are entitled to adequate wages in return for their services. Their salaries increase the business of merchants and the deposits of our banks.

Neither Key System Suburban Service, with its 800 daily trains, nor our local traction service, which is three times as great, can continue or develop at a loss. We must go forward, or back.

We have no source of revenue except fares.

San Francisco-Oakland Terminal Railways



Two Million Dollars on Wheels

In each 24 hours 636 trains arrive and leave Key Pier.—It's an average of about one train every two minutes, day and night.

But they don't run that way.

All the experience and skill of 2,500 officers and employees is bent to meet the greater problem of transportation when the public wants it,—the heavy flow of travel each morning and each night.

Traversing seven different routes, with 4,324 train miles (7,074 car miles) and 3,074 boat miles; more than 42,000 passengers each day, year after year, expect and receive fast and punctual Key System Trans-Bay service in a territory of 89 square miles.

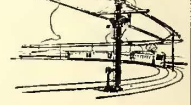
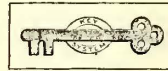
You have a stake in this service.

Its efficient maintenance means your convenience, your efficiency, your safety, and to a degree, your personal prosperity.

It cannot be maintained at less than cost, nor expanded as a losing proposition.

We have no source of revenue except fares.

San Francisco-Oakland Terminal Railways



"If Anything Should Happen to the Motorman"

We've thought of that too, and this is one thing we've done:—

We've built safety devices closer together than you will find them any place else in the world. Some of them are only 200 feet apart.

Should a train run past a warning signal it would stop almost instantly. Its electric power would be automatically cut off and its brakes automatically applied.

This has been proved by tests.

You've never noticed it, because each of our 800 daily Key System trains is regulated to the fraction of a minute in its rapid journey to and from your home.

Key System equipment and maintenance and Key System Service cannot be maintained nor developed at less than cost.

We have no source of revenue except fares.

SAN FRANCISCO-OAKLAND TERMINAL RAILWAYS

Politicians' Plot Exposed

Harry rushes Baker to the evening newspaper offices, where the confession is repeated, and soon thereafter the evening papers are carrying the message to the voters that John Baker admits his statement about Carson is false and was made up at the instigation of Bailey and his candidate Dugan, who are planning to oust the street railway company in order to start another company with a handsome financial profit to themselves.

Baker likewise adds the interesting information that "Boss" Bailey has frequently admitted that he knows that street car service cannot be given for a 5-cent fare, but that it makes good political talk—and "to hell with the public."

The People's Verdict

Naturally the voters are wild with indignation at the "Boss" and his crooked gang, and the following day there is such a revulsion of sentiment that Harry and the rest of the independent ticket are elected.

The increased rates are speedily put into effect, and the company, being able to secure financial assistance, does its part nobly. The lines are rehabilitated, new modern safety cars are installed and the citizens have a transportation system of which they are justly proud. This situation will all be shown in actual scenes which will vividly contrast with the former wretched service under the inadequate 5-cent fare.

And our picture closes with Harry and Betty taking a ride in one of the new safety cars, their action indicating that their friendship is rapidly developing into mutual affection.

Scenario Suggestion No. 2

The writer of this scenario makes a preliminary statement to the effect that the object of the story is to show the complete dependence of the public on street car systems. This is accomplished by weaving in with the story the Toledo incident of stopping transportation by removing the cars out of the jurisdiction of the city and state authorities. In the adjustment which follows the street railways have an opportunity to present their side of the case and make the people themselves the jury which shall decide the outcome, once they thoroughly understand the situation. The action of the story makes this possible in a natural manner in the working out of the Mayor's "back-to-the-land" idea, by which he hopes to mitigate the crime wave which is sweeping the city. The synopsis of the story to carry out this intent follows:

John Dayton lives with his daughter, Helen (a pretty girl of 20), in a mountainous district a few miles from the nearby city. Dayton owns coal property for which he has tried in vain to get capital to develop. Being far removed from the lines of transportation, he finds it impossible to get the necessary funds to promote it or men to work it. Years of experience in mining makes him confident that the stuff is there and he plugs away in the hope that he will some day succeed in getting it developed.

Helen sympathizes with the old miner, whose life work is tied up in this property. There is a strong bond of affection and understanding between them and her convictions that he will some day succeed give the old man courage to go on.

A Man with a Big Idea

In the nearby city a great wave of crime among the young boys has swept over the community, and ex-Judge Hanlon of the Juvenile Court has been nominated on the reform ticket. His years of work among the boys and girls of the court has convinced him that in order to accomplish any lasting good the youth of the country must be saved from the pernicious influences which have bred such an alarming number of criminals among the young boys.

He bases his hope of reform on the "back-to-nature" idea, to take the children away from the congestion of a big city, to

encourage the parents to acquire homes in the suburbs and give their families an opportunity to grow up under the influence of the green grass and blue sky. He knows it is difficult for any one, much less a child, to grow evil when living close to the heart of nature.

Hanlon has a gigantic task before him. To accomplish this end it is necessary to have the street railway system extended in every direction. But there has been a long fight on between the street car corporation and the people. However, Hanlon is young and enthusiastic and refuses to recognize any obstacle to his plan.

Railway Forced to Drastic Action

Meantime the fight has resulted in the street railways giving an ultimatum to the Aldermen of the city, who have recently recalled a franchise they promised. The company officials threaten to stop transportation. The Aldermen defy them, not believing they dare. The city is near the state line; by the next morning every car belonging to the company has been transferred across the line and out of the jurisdiction of the state officials.

There is consternation everywhere as the city wakes up to face a general tie-up of the traffic. As the workers are compelled to use the totally inadequate jitneys and every available vehicle they can muster, or walk, they suddenly have a bitter realization of the value of a utility which until now had seemed as much a part of their everyday life as light or food or air.

Angry Mob Threatens

A mob (ignorant of the action of the company in removing the cars) gathers outside the carhouses, threatens to storm the place and run the cars by force. The carhouses are opened to show vast empty spaces where formerly the cars had stood.

Such is the condition which confronts Hanlon on his first day in office. He goes in person to the president of the street railways to force him, if necessary, to put the cars in operation. He finds the cars have been removed from his jurisdiction and there is nothing to be done by means of coercion.

The situation results in a conference between the Mayor and the president, which gives the street car company an opportunity to present its side of the case in a natural manner. The president appeals to Hanlon's sense of fair play, which is in reality the people's sense of justice. He reminds the Mayor that he wants the street railways extended to carry out his "back-to-the-land" idea and to develop the surrounding country, which extension is impossible at the present rate of fare.

To Rid the City of Crime

Hanlon is open-minded and both sides of the question are brought out, apparently with a view of furthering Hanlon's official ambition to rid the city of the crime wave, which can be done only with the co-operation of the street railway company.

In order that the conference will not be too continuous there is shown as parallel action the condition of the city during the absence of transportation. Part of the propaganda is put into the mouths of the people themselves. For instance: A workman waiting in vain for a jitney complains that every half hour he loses costs him 50 cents. A superintendent waiting at the same corner admits that every hour he loses costs the company hundreds of dollars in the loss of time of its men, and the individual losses are made the basis for pointing out the loss to the entire city.

Not a Soulless Corporation

Meantime the conference is going on. The street railway's president makes Hanlon understand the vast capital involved, the number of small investors who must be protected; that he is not dealing with a soulless corporation, but with every working man or woman or widow who has stock in this great interlocking system of transportation. He points out the small amount of each dollar which actually goes to the investors. This is accomplished by means of a diagram, which divides the dollar up into proportionate shares, showing so much to the city for franchises, so much to the employees, so much for overhead, for accidents, deterioration, etc. In this division of the dollar the audience learns through the eyes what a small slice actually is left for the man who risks his money.

The picture will show that a utility belongs to those who make use of it. The film will also bring out the thought that the system of transportation will carry a man from 1 mile to 10 for 6 or 7 cents,

while the automobile owner with capital invested in his machine, with the added cost of upkeep, pays more than double the amount for gas alone for the same distance. The street car system belongs to the people of moderate means. The electric railways are the capillaries of the body politic, without which it cannot exist.

Public Ownership vs. Adequate Fares

In conclusion the president points out two courses: One is to allow the trolley company an equitable rate of fare which will pay the investors a fair rate of interest (under public regulations of the utilities board there is no longer a chance for larger profits), the other is for the city to buy the electric railway system, run it as a municipal utility, bear the deficit which the present rate of fare entails and make it up in added taxes, same as with the parks, water system, etc.

The latter proposition may seem to the audience at first sight like a solution of the problem. The Mayor explains, however, that no American city of the size has thirty millions of dollars to put into such a utility and run it at a loss; that it would mean an addition of \$50 per capita in taxation, besides plunging the city almost hopelessly in debt for the initial expenditure.

The two men are at a deadlock in the conference. The president finally declares that if the people themselves once really understood the situation, if they would discount the ancient bunk of the professional politician, he would be willing to abide by their decision. He further points out that under municipal ownership the lines would be run by politicians instead of by trained experts who know their jobs.

The conference results in a better understanding by the Mayor (and the audience) and he agrees to use his influence to bring about an understanding between the railways and the public.

An Unexpected Caller

Helen Dayton, in her father's little cabin in the mountains, reads of the aims and principles of the new Mayor, his "back-to-the-land" idea and his hope of having the street railways extended. Unknown to her father, she visits the Mayor's office in the hope of getting the car lines extended so that her father's mine may be developed.

In spite of the Mayor's political success he is young enough to be impressionable, and right here the little God of Romance gets on the job. The girl is earnestly explaining the possibilities of the coal mine. Hanlon looks deep into her eyes—"Did you say diamond mines?" he asks absently.

When the thread of the story is again taken up the extension of the car lines has been made and what was formerly great stretches of weed-grown land around straggly suburbs has now become a newly built up part of the city which the street car system has brought to its doors.

Becomes a Valued Assistant

The girl has become interested in the Mayor's theory of helping the youth of the city and is now an ardent worker in the congested districts. The people have confidence in Hanlon because he holds out a means to them of helping themselves, and hundreds of workmen's families who had huddled in the tenements from force of habit now join the exodus to the suburbs so their families may grow up, free from the pernicious influence of the streets. Truck gardens spring up, production increases, the living problem becomes less acute, and the family life which the suburban home engenders bids well for the success of Hanlon's work among the boys.

The new street car system brings John Dayton's mine within easy reach of the city and he is able to secure the long sought for capital for its promotion. The successful development of the mine causes a thriving mining town to spring up and the hitherto well-nigh valueless property becomes the center of bustling activity.

Happiness and Prosperity

Meanwhile, the romance between Hanlon and the girl has developed as rapidly as the other activities (also owing to the street car system), and when the little God of Romance sees the ring safely on her finger he lays aside his quiver with a satisfied smile.

The final conclusion is obvious: The people need the big industries as much as the industries require the support of the people. One cannot exist without the other, and it is only through intelligent co-operation that any lasting adjustment of their differences can be accomplished.

Appeal to Business Men

The British Columbia Electric Railway, Vancouver, Points Out How Revived Utility Would Stimulate Trade

THE British Columbia Electric Railway has recently addressed the business men of British Columbia on the advantages of a liberal policy to the utilities. A copy was included of the resolution on utilities adopted at the last annual meeting of the Investment Bankers' Association of America and printed on page 935 of the issue of this paper for Oct. 30. The letter itself, which is signed by the British Columbia Electric Railway, is printed, in part, below:

TO THE BUSINESS MEN OF BRITISH COLUMBIA:

One six-billion-dollar industry with a purchasing power of between \$600,000,000 and \$700,000,000 a year is virtually out of the buying market.

Another five-billion-dollar industry which ought to spend \$750,000,000 a year has its purchasing power greatly curtailed.

Business is losing these orders.

The industries are the electric railways and the electric light and power systems of this continent. Their credit largely gone, unable to raise new capital, these public utilities have stopped growing. They are out of the market for anything but essential maintenance supplies. Except in a few cases where fair rates and fair treatment have been accorded them, expansion has ceased and business generally has been deprived of a customer.

The electrical utilities would again be in the market for

supplies for new power plant equipment, wire, rails, ties and other materials, but they cannot attract capital because they have been unable to make a fair return on capital previously invested. Public distrust and antagonism have made public utility securities too risky for investment today, especially when government and other gilt-edged securities are offering 8 per cent interest.

With their purchasing powers restored, public utilities would place more orders for supplies. The expansion of their facilities would mean expansion of other industries dependent upon electric power and transportation. More people would be employed directly or indirectly in Vancouver and their purchasing power would have its effect upon your receipts.

Purchases made by the British Columbia Electric Railway Company for current supplies at present amount to approximately \$1,250,000 a year. One California company is starting upon a program of development which requires an expenditure for new construction of a million dollars a month for fifteen years, provided funds can be obtained. Construction work by our company would mean millions of dollars in increased business to local firms.

The annual payroll of this company exceeds \$4,000,000 a year. The major portion is spent immediately upon the every-day requirements of life. Every merchant directly or indirectly obtains some of this \$4,000,000. Similarly a large part of any construction work would mean wages which would be added to this total.

Do you realize how your interests are affected by the financial condition of your public utilities and how your business will suffer by the inability of your public utilities to attract new capital? Other businesses, realizing that the public utilities' interests are their interests, are actively taking up the case of the street railway and lighting company against public antagonism.

It is good business for them. Why not for you?

Novel Publicity Pamphlet by Bankers

FROM time to time it has been suggested that the banker, who has in the past recommended the purchase of public utility securities, should now appear in public and aid the security holders in telling the actual state of affairs of the utilities so that the public may know. This program was urged by several of the state railway and utility commissioners in their convention at Washington recently, for, they said, the

banker has the confidence of the community and he can make people appreciate the relation of the welfare of the community to the welfare of the utilities which serve it.

In apparent recognition of this sense of duty and opportunity for public service, one of the Seattle banks has recently put out the following article in unique wording in pamphlet form:

The Chariots that Run Through the Streets

FOR behold the city of Seattle flourished and the number of its inhabitants was very great.

And the inhabitants of the City were wont to go about the City in Chariots, called street cars, which were possessed by the Puget Sound Traction, Light & Power Company.

Moreover the people paid a fare to the Company for riding in its Chariots.

And it came to pass that the people sought to purchase for their own possession the Chariots which ran through the streets, for they were displeased with the Company. And a certain agreement was made between the City and the Company whereby the City did purchase the Chariots, agreeing to pay therefor so much, and bonded itself to make certain payments. And when the City had possessed itself of the Chariots for a season, there were serious murmurings among the people.

And some said the possession of the Chariots was proving a curse.

And much criticism was heard and some even said concerning the Chariots that the people's last state was worse than their first.

Now there was a certain man named Mayor Caldwell, a ruler of the Seattleites, and when he had reigned two hundred and five days he divined that the Chariots which the City had bartered for and purchased, even the Chariots which ran through the

streets of the City, were profiting the city nothing, but were a great burden upon the whole people.

And behold in the tenth month on the fifth day of the month of the first year of his reign, being the year nineteen hundred and twenty, Caldwell arose before the multitude gathered together at the Municipal League and cried with a loud voice saying:

"Wot ye not, my people, that it is a human impossibility for the City successfully to navigate the fatuous course we are now embarked upon. . . and I have no hesitation in saying to you it cannot be done."

And he brought forth figures to show the children of Seattle that the Chariots were profiting them nothing and there were none to say where-with-all the payments for the Chariots which were promised could be made, nor yet could it be discerned how the City could with honor escape the payments according to the agreement into which it had entered with those who beforehand had owned the Chariots.

And when the news was spread abroad among the people, many there were who heard and believed the words of the Ruler and marveled that their eyes, and the eyes

of the people had not been opened and their understanding enlightened before they took possession of the Chariots.

And they spake among themselves saying, "Is it not so that they that beforehand possessed the Chariots, even the Traction Company, suffered greater burdens than we have suffered; verily were they not taxed, also required to pay a tribute of 2 per cent of gross earnings which we have escaped, and yet we being relieved of the taxes and tribute and having increased fares are yet unable to make profit?"

And the people remembered that the Traction Company in times past had complained bitterly and were sore distressed, but none was there to offer them succor.

Moreover they remembered that the councilors of the Seattleites and those in authority showed no mercy, refusing to grant its petition for increased fares or to offer other relief.

And the people began to be awakened and many false doctrines were preached.

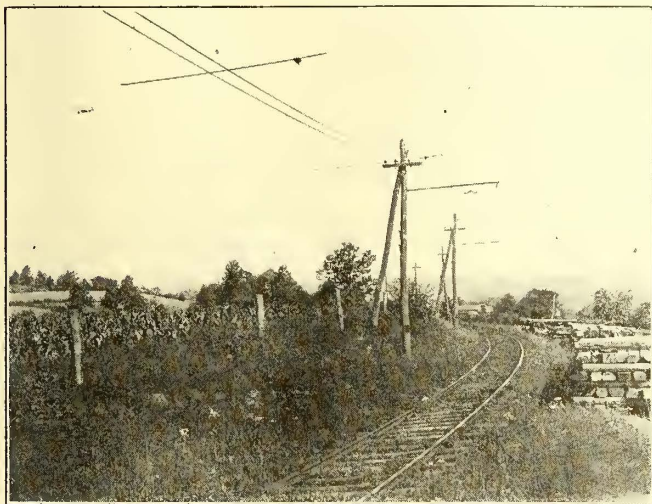
Also men in authority sought to fasten each upon the other blame for the troubles that beset the City by reason of their desire to secure unto themselves the Chariots.

For they were loath to confess that their undertaking had come to nought, not-withstanding that the record of other Cities showed that Cities profit not by the possession of the Chariots that run through the streets.

—Relgnaps

Aligning Trolley Wire on Curves

THE Northampton Traction Company of Easton, Pennsylvania, has a number of curves on its lines where the pole lines are on the inside of the curve. In order to line up the trolley wire with the track, a special type of construction, consisting of "push-overs" with pole brackets, was devised by Edward Welch, line foreman of this railway, and is shown in an accompanying illustration. Pole brackets are installed at their usual location on the poles, and between these from one to



TRACK CURVE WITH INSIDE POLE LINE

two push-overs are used in each section. A guide wire is strung along the inside of the poles to which the inside ends of the push-overs are fastened. The length and spacing of the pushovers is adjusted to meet conditions, so that the trolley wire will line up with the track. This road has a number of curves with this type of construction which have been in service for between six and seven years with satisfaction and its use has saved the expense of installing a pole line on the outside of these curves.

New Line of Insulated Tapes

TAPES of various kinds have been used for insulation purposes for a long time because of their facility of application to irregular shapes of coils, cores, etc., upon which it would be difficult to place insulation in sheet form. These tapes are either woven from fibrous materials, and are known in such case as stays, or webbings, or they may be cut from treated or untreated fabrics.

The General Electric Company will soon place on the market a complete line of such tapes, including several varieties cut from black or yellow varnished or oiled cloth which are adaptable for winding armature or field coils, transformer coils, etc. The ordinary white cotton tape has selvaged edges, an open structure, smooth surface, and medium strength, and may be used to tape armature coils to form a basis for varnish. Asbestos tape contains a small percentage of cotton to facilitate the spinning of the yarn and is adaptable for use on windings where heat-enduring insulation is required.

Another class of tapes is what is known as friction, or splicing tapes, generally used to cover joints which are exposed during splicing or connecting of conductors.

One type, known as splicing gum, is an all-rubber compound containing no cloth and made from fine para rubber. At ordinary temperatures the heat of the hand is sufficient to cause the tape to unite, forming a solid, water-tight joint. Gum-faced tape is made of a layer of 98 per cent pure rubber on a backing of unvulcanized high-grade rubber compound containing only fine para. It is valuable for taping joints on underground rubber-covered cables or other places where high insulation and tightness against water is necessary. Joints made from this tape may be vulcanized if desired. Temporary binding tapes, or friction tapes, are made of an unbleached cotton cloth, coated and filled with either black asphalt, or rubber compounds. They are slightly adhesive at room temperatures and form temporary bindings for ordinary purposes.

Largest Circuit Breakers to Be Installed in Hell Gate Station

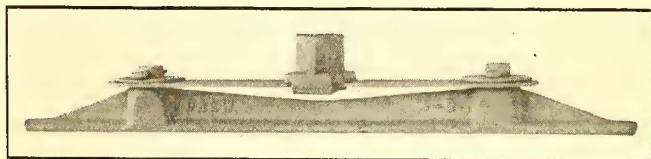
THE heaviest circuit breakers ever designed for 13,200-volt service will be installed by the United Electric Light & Power Company, New York, in its Hell Gate Station, which supplies power to the New York Connecting Railroad. There will be 120 of these solenoid-operated type "04" Westinghouse circuit breakers, having an interrupting ability of 58,000 amp. at the arc (1,500,000 kva). The disconnecting switches are gang-operated and their operating mechanisms are interlocked with the oil-breaker mechanism so that the disconnects cannot be moved unless the breaker is not in operating position, thus assuring safety to operators.

These oil-breakers are unique in that the phase elements will be in separate rooms, approximately 30 ft. apart, with the operating mechanism on the floor above, thereby preventing the possibility of a bus bar short circuit and minimizing the effects of a ground.

Flexible Spring Trolley Ear

THE Drew Electric & Manufacturing Company, Cleveland, Ohio, is manufacturing a new trolley ear, especially adapted to viaduct, tunnel and bridge work, as it is so constructed that it offers a flexible path to the trolley wheel passing over it. This is desirable for this class of service, since due to the small overhead clearance the trolley pole is usually forced down under the highest tension when crossing a bridge or passing through a viaduct or a tunnel.

The ear proper is 15 $\frac{1}{4}$ in. long and is suspended from a spring by two bosses 9 in. apart. The spring is 1 $\frac{1}{4}$



FLEXIBLE SPRING TROLLEY EAR

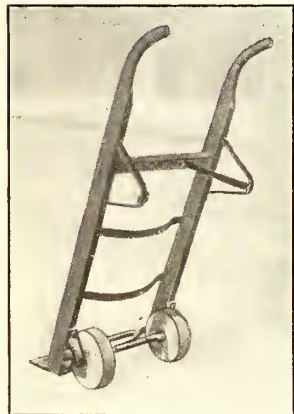
in. wide and made of No. 14 gage steel. A slot in the spring at one point permits a lateral movement which gives flexibility when the trolley wheel strikes the ear. The entire ear is suspended by a boss, which screws on to any standard hanger. The base of this boss is corrugated to make a positive lock when it is screwed tight against a washer. The ear can be readily taken apart and the spring and boss used again after the contact part wears out.

Wooden Wheels Eliminate Noise

By CLIFFORD A. ELLIOTT

Cost Engineer Pacific Electric Railway

THE Pacific Electric Railway recently placed in operation its new store at Torrance in conjunction with the recently completed shops. It was soon found that the warehouse trucks, equipped with cast-iron wheels, when rolled over concrete floors caused too great

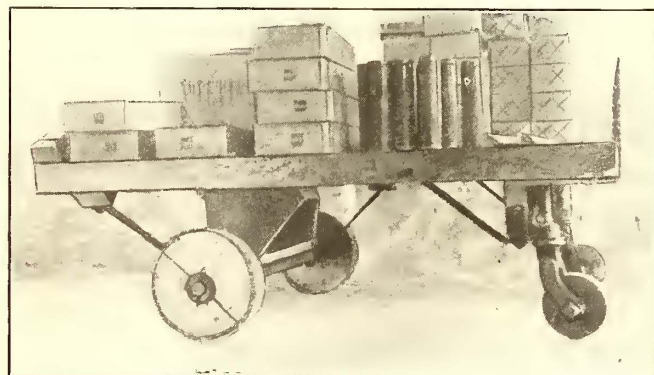


ORDINARY HAND TRUCK EQUIPPED WITH WOODEN WHEELS

annoyance to the office forces. It was almost impossible to carry on a conversation in the office. Patent rubber-tired iron wheels not being available locally, wooden wheels were substituted for the excessively noisy cast-iron ones.

These wooden wheels, of the same dimensions as those discarded, were made from A-1 select maple lumber in the company's wood mill. A wheel 6 in. in diameter and 2 in. deep was used on the ordinary two-wheel truck. For the 3-ft. x 5-ft. platform warehouse truck rear wheels

12 in. in diameter and 2 in. in thickness were made. The casters in front were replaced by 6-in. wooden wheels. Excellent life is being obtained from these practically noiseless wooden wheels. Although not in-



WAREHOUSE PLATFORM TRUCK CONVERTED FOR NOISELESS OPERATION

tentional, the substitution of these new wheels will result in considerable economy over rubber-tired trucks, the tires of which have already given evidence of needing early replacement.

Mechanical Properties of Turbine Steel

AT THE British Electrical and Allied Manufacturers' Association it was decided to conduct investigations to determine what auxiliary tests might usefully be added to the specifications for turbine steel as a supplement to existing information. Practically all commercial tests were performed on two turbine disks and two shafts forged by three large producers, besides an exhaustive examination of the composition, microstructures and mechanical properties. The forgings were placed in service and at some future time their performance will be compared with that indicated by the test.

A second course of tests was conducted on specimens

which had been successful and unsuccessful in service to determine how much the metal under examination was affected by usage. The general conclusions reached indicate that the various mechanical tests performed displayed quite accurately the properties of commercial forgings, although the effect of varying amounts of forgings on the characteristics is not yet sufficiently defined. The tests generally indicate that commercial forgings are of moderately good quality, but that the qualities which can be induced in small masses are not obtained, nor are they to be expected, in large masses. That design may be a factor of greater importance than the quality of the steel is suggested by the fact that similar steel has given good results in some turbines while not in others. It can safely be said, because of the various tests on forgings, that the tensile test gives a good indication of the quality of the material, though perhaps not sufficient for absolute reliance. The difference between ductility longitudinally and transversely is generally shown in the value for elongation or reduction in area, while the maximum stress indicates hardness.

Association News

Hotel Arrangements for Meeting

SECRETARY BURRITT of the American Electric Railway Association announces that arrangements have been made with the Drake Hotel in Chicago to reserve a number of rooms for delegates to the midyear meeting of the Association. This meeting, as published last week, will be held on Feb. 10 in Chicago, with headquarters at the Drake Hotel, which is located at the corner of Michigan Avenue and Lake Shore Drive, or about a mile from the Blackstone Hotel. Although the Drake Hotel has 800 rooms, hotel accommodations in Chicago during the winter are at a premium, and those who expect to attend this meeting from out of town are urged to make reservations early.

The prices for the accommodations vary from single room with bath when occupied by one person, which is from \$6 to \$8 a day, to a double room with bath, when occupied by two persons, which is from \$8 to \$14 per day.

For the banquet of the association in the evening, the sub-committee on hotel arrangements has reserved the main restaurant and Avenue of Palms in the Drake Hotel. This restaurant will seat 1,500 persons. The program for the technical sessions during the day and the banquet in the evening will probably be made public next week.

November Bulletins Now Available

THE following list of compilations and reports has been prepared by the Bureau of Information and Service during the month of November and is available to member companies upon request:

Wages of Employees in General Maintenance and Operating Departments. Based on replies to general letter sent to member companies.

Recent Official Valuations. Based on decisions of Public Service Commissions during the last year.

List of Companies Receiving Relief from Paving Requirements. This includes special exemptions allowed companies under existing franchises and also the limited requirements

provided under new franchises including service at cost agreements.

Standard Blank Forms. Copies of existing forms used by companies in all departments will be loaned to member companies upon request. As the number of copies is limited members are requested to indicate only the departmental group desired and to return the forms at the earliest convenience.

In addition supplements have been prepared to bulletins on subjects of wages of trainmen, cost of living, fares, and automobile accidents, bringing these up to Dec. 1.

Letter to the Editors

Trolley Versus Motor Truck for Freight Handling

EAST PITTSBURGH, PA., Nov. 27, 1920.

To the Editors:

In the issue of the *ELECTRIC RAILWAY JOURNAL* for Oct. 16, page 795, you printed an abstract of the address of George M. Graham, vice-president of the Pierce-Arrow Motor Car Company, presented at the Atlantic City convention.

After admitting that the motor vehicle cannot replace the street railways in the handling of passengers from either a service or an economy standpoint, Mr. Graham makes a number of assertions with reference to freight haulage on electric lines which might be taken by the casual reader as evidence that the electric line cannot successfully compete with the motor truck in the handling of freight.

While his statement is true that the income from freight handling represents only 9 per cent of the total revenue of electric lines now engaged in the transportation of commodities, it should be borne in mind that practically all interurban roads were originally planned and constructed for passenger service only and that they have hardly begun to develop their possibilities in the way of transporting freight.

By some method of analysis, the basis of which is not divulged, the conclusion is reached that in handling freight, the electric lines are "handicapped"; that "freight haulage is not their field"; that "electric lines should not figure too hopefully on freight revenues," and that "sound business would indicate the withdrawal of freight facilities where they cannot successfully compete with steam railways and motor trucks"; also that "in short distance transit of package shipments up to 100 miles they cannot compete with the motor truck."

None of these assertions is substantiated nor can they be reconciled with the facts. While it is true that the electric lines are handicapped in the handling of freight, this handicap consists principally in the lack of adequate terminal facilities and equipment, which could be secured with a much smaller investment than would be necessary to provide motor trucks to handle the same amount of tonnage. All who have studied the electric interurban railway situation agree that there are immense possibilities for freight handling; that this branch of service has hardly been touched, and that the actual results already obtained, even with inadequate equipment and facilities, more than justify the service in net financial results, and this from the transportation of goods distances of from 20 to 200 miles.

Statistics which have been gathered covering actual motor truck operation prove conclusively that motor trucks cannot be operated profitably, or with a reasonable return on the investment, for distances over 20 miles, even under ideal conditions as to weather and roads, if they charge on any basis less than American Railway Express rates. At a recent meeting of members of trucking associations, covering the states of New York, Massachusetts, Connecticut, Rhode Island and eastern Pennsylvania, and including several large trucking companies in New York, Boston and Philadelphia, this basis of rates was decided upon. This meeting also developed that trucking companies operating between New York and Boston found it unprofitable to haul by truck all the way, and they are now merely picking up or delivering shipments at either terminal and loading them into steam road freight cars to be forwarded each night as solid carload shipments and at the much lower freight rates, in order to secure quickest possible delivery and make their operations pay.

As against this, electric lines are handling freight at rates less than half of those charged by the American Railway Express Company and in most cases on a parity with steam road rates, and are rendering better and more dependable service than would be possible with trucks, with less liability of loss and damage, and assuming all the responsibilities that go with freight operation by a common carrier.

Mr. Graham cites the fact that the average revenue received by nine typical electric lines for transporting freight amounted to \$4.89 per ton, or 94 cents per freight car-mile operated. What he failed to state was that the expense of handling this same tonnage was \$3.462 per ton, or \$0.5928 per freight car-mile, leaving a net profit of \$1.428 per ton, or \$0.3472 per car-mile, or, in other words, an amount equal to approximately 15 per cent on the investment for freight facilities and equipment used.

Truck operators in Middle Western states have also made a study of the cost of freight handling and have found that they must receive at least \$1.25 per truck-mile for 5-ton trucks. Compare this with the average cost of \$0.5928 per car-mile on electric railways, each car carrying from two to three times the tonnage of a motor truck.

Surely there is nothing in these figures which would warrant the statement that "sound business would indicate the withdrawal of freight facilities on trolley lines," or that they cannot successfully compete with motor trucks. There is no question but that the motor truck has its place in the transportation problems of the country and that it will continue to handle a large amount of tonnage, but in view of the facts it cannot be conceded that the motor truck is either more efficient or more economical than the electric railway. The greatest factor which has prevented electric lines from establishing or increasing freight service has been the lack of funds to provide the necessary equipment, terminals and other facilities. Recent developments, however, indicate that a brighter outlook and a more favorable consideration on the part of the investor are looked for in the marketing of electric line securities. With adequate facilities, it is not difficult to foresee gross freight revenues equaling if not exceeding passenger revenues and with much greater net returns per dollar of investment.

T. H. STOFFEL,

Vice-chairman 1920 Committee on Express and Freight Traffic Facilities and Costs, American Electric Railway Transportation & Traffic Association.

Recent Happenings in Great Britain

Tramway Employees Still Restive—Strike Narrowly Averted in Glasgow—London Council Raised Fares None Too Soon

From Our Regular Correspondent

The insatiable demands of tramway employees in Great Britain were continued in the end of October, when application was made for an increase in wages of 12s. a week for adults and 6s. for those under eighteen years of age. It was as recently as last spring that a large advance was granted. Following this tramway fares were further increased all over the country. The breaking point must soon be reached. The application came before a special meeting of the National Joint Council for the tramway industry on Oct. 26. The council consists of representatives of municipal tramways, company tramways, and employees.

THE companies cannot, like the municipalities, fall back on the rates to make good deficits. Accordingly it is not surprising that their representatives announced that they could not entertain the application. They thereupon retired from the meeting. Subsequently the representatives of the municipalities and of the employees agreed to institute an inquiry through their secretaries as to the increased wages and bonuses that have been received by the employees in comparison with the increased cost of living, the effect that the increased fares have had on the financial position of the tramway undertakings and the rates of wages paid to tramway employees as compared with those paid to other classes of labor in municipal undertakings. The result of the inquiry had not at the time of writing been made known.

WAGE INCREASE IN GLASGOW

A strike of all the employees of the Glasgow Corporation Tramways which was to have been declared on Oct. 22 was averted at the last moment by the corporation agreeing to grant an advance in wages of 4s. a week. The increase will add £60,000 a year to the expenses of the undertaking, so all calculations as to the financial results of the recent increase of fares are blown sky high. The fares in Glasgow, however, are still lower than the fares in many other towns, so a margin in that direction is still available. It has also to be said that tramway wages in Glasgow have been lower than in many of the large towns in England. Glasgow did not come within the national tramway wages scheme, but settled its own affairs.

I mentioned last month the dispute in the coal-mining industry. The negotiations which were in progress at the time of writing failed, and on Oct. 16 all the coal miners in the country went out on strike. Paralysis of other industries immediately began, coal was rationed, railway services and in some cases tramway services were reduced. Negotiations were resumed and on Oct. 28 an agreement was reached by the government, the coal owners and the miners' executives. Under this arrangement employers and employed are to use all possible means to increase output and the miners get the 2s. per shift increase which they demanded, but only for a short time. Thereafter for a time the wage is to be regulated in

proportion as the profits of the industry rise above or fall below those of the September quarter. The owners' share of the profits is to vary correspondingly.

NATIONAL WAGE BOARD PROPOSED

A National Wages Board is to be set up and when it comes into being it will carry on future regulation of wages. District committees to promote output are to be formed. The executives of the Miners' Federation recommended the men to accept the scheme. A ballot was taken in the beginning of November. On Nov. 3 the result of the ballot was reported to the executives of the Miners' Federation. It was found that the number of votes for accepting the proposed terms was 338,045 and that the number against was 346,504. This gave a majority against of 8,459. The rules of the federation, however, provide that a national strike shall not be declared unless two-thirds of those voting decide in favor of such a strike, and similarly that when a ballot is taken during a strike a vote of two-thirds of those taking part in the ballot shall be necessary to continue the strike. As the two-thirds majority was not forthcoming the executives declared the strike at an end. Within a few days thereafter the men were back at work. The government at once canceled the temporary restriction orders on the use of coal, electricity and gas and the railway and tramway services were brought up to full pitch in the week beginning Nov. 7.

A novelty is being introduced in connection with the Bradford municipal tramways in the shape of a double-deck trackless electric car with the top deck inclosed—that is to say, it has a roof cover like many tramcars to protect the top-deck passengers from the weather. The vehicle seats fifty-one passengers. Hitherto such cars have been of the single-deck type, and there was not much encouragement to adopt the two-story vehicles, as permission to fit roof covers has been confined to tramcars.

TRACKLESS TROLLEY FAVORED

The want of a roof cover is one of the great drawbacks to the motor omnibus in London. The Ministry of Transport has, however, allowed it on these Bradford railless electric cars. Over the routes equipped for them there are of course two trolley wires and the cars have double trolleys, posi-

tive and negative. They are also adapted for running over overlapping stages of the tramway routes. When using the tramway overhead wire the negative trolley pole is pulled down and for the return circuit an iron shoe is fixed to the front of the car and runs in the groove of the rail. Of course no ground electric contact can be made by the wheels as they are rubber-tired. A considerable body of opinion in this country favors for routes of light traffic the railless electric car rather than the petrol omnibus.

The recent large increase of fares on the London County Council Tramways came none too soon to judge from a return issued for the six months ended Sept. 29 last, when the old fares were in force. The traffic receipts during that period were £2,224,522, while the expenses, including capital charges and half cost of renewals, were £2,594,800, showing a deficit of £370,278. Since the last increase in fares the receipts are showing increases of about 25 per cent over those of the corresponding weeks of 1919. How this will compare with present expenses remains to be seen.

It should be noted that under a recent arrangement with the government the London County Council has been permitted, in view of the exceptional position of the undertaking, to charge during the years 1919-20 and 1920-21 half the cost of renewals against capital, the money to be repayable in twelve years. The proportion of renewals expenditure chargeable to capital account for the year 1919-20 is £142,688 and for the following year £205,000.

ELECTRIFICATION PLAN REVIVED

It is announced that the Northeastern Railway intends next year to promote its scheme, foreshadowed some time ago, for the electrification of the main line from York to Newcastle-on-Tyne and of a line from Northallerton to Stockton-on-Tees. Evidently the recommendations of the government's advisory committee on railway electrification will be followed because it is proposed to use the third-rail system between stations and the overhead system at stations and busy junctions. Electric locomotives will also be used for shunting at important yards. The main line between York and Newcastle is part of the east coast route between London and Scotland over which some of the fastest trains in the country are operated.

There has been some talk here over the fact that the Partington Iron & Steel Company has placed an order valued at £200,000 with the Allgemeine Elektrizitäts Gesellschaft, Berlin, for two 1,400-kw. generators and one 3,000-hp. motor for a rolling mill. It appears that the contract went abroad because the Partington company objected to the price adjustment clause now usual in British contracts, which provides for revision of the price in case of any alteration in the cost of materials or wages. The difference in price between the British and the German tenders was not great.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

Mayor Starts Road

New York Executive Ushers in Municipal Operation of Line on Staten Island

Dec. 1 was a big day on Staten Island. It marked the restoration under city auspices of service on the Midland Railroad, suspended since last January. All was not gladness, however. It is true that a little girl did kiss Mayor Hylan, but then the municipal ferry boat wending its way from Manhattan to the Island and carrying the city celebrities got lost in the fog and delayed the ceremonies.

The line as restored to service runs from Concord to St. George. The Mayor acted as motorman of the first

warmed to his favorite subject, "The Traction Trust." The movement of the robber barons of the traction world in New York for an increased fare had its inception on Staten Island, but instead of a fare increase the people now had a municipally-operated line run at a 5-cent fare. Of course, the Mayor was renominated by acclaim by those who listened to him, but he modestly said he had enough.

The lines to be operated are from St. George to Richmond, St. George to Concord, St. George to Port Richmond via Concord, St. George to Port Richmond via Silver Lake, Manor Road, Richmond Terrace, and Clove Road and West New Brighton to Four Corners. A shuttle will operate between Grant City and

Syracuse Grant Fails

Council Rejects Service-at-Cost Plan After Months of Delay—Ten-Cent Fare Possible

By a vote of twelve to six the Common Council of the city of Syracuse, N. Y., on Nov. 30 rejected the service-at-cost plan in that city. The New York State Railways, which operates the railway lines in Syracuse, Rochester, Utica and Rome, had placed a proposition in the hands of the Council that the city administration direct service, assuring only that the company might realize a yearly revenue of 6 per cent on the sum of \$12,000,000, a valuation placed on the property by Ford, Bacon & Davis, who made an appraisal for the city.

SETTLEMENT PENDING NINE MONTHS

Nine months ago the proposition was first advanced, and a representative commission was appointed to look into the matter. The New York experts were engaged and made a valuation. The finding of the engineers was considerably lower than the value set by the company on its property. The new figures were accepted by the company, but they did not meet with the approval of the Aldermen, as the many months of constant political wrangling testified.

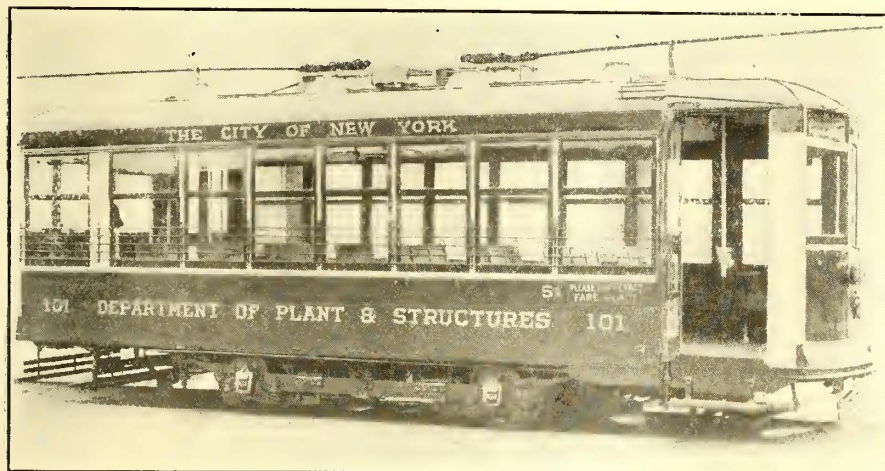
In consequence of the action just taken by the Council the settlement of the railway question in the city of Syracuse appears to be just as far from a solution now as it was nine months ago. Following the action of the Common Council, B. E. Tilton, vice-president of the railway, gave out a statement to the effect that the company would probably apply at once to the Public Service Commission for a 10-cent fare to make up for the deficit suffered during the many months that earnings have been insufficient to meet operating expenses.

In discussing the action of the Common Council Mr. Tilton stated that the valuation found by Ford, Bacon & Davis was most reasonable, but notwithstanding that the Aldermen still seemed to believe that the 7½-cent fare asked was exorbitant. Mr. Tilton immediately ordered a drastic cut in the service on all lines and eliminated all but a few "owl" cars. This was done in the interest of economy.

MAYOR RESENTS COMPANY'S ACTION

Mayor Harry Farmer was incensed over this action. He stated that a complaint would probably be filed with the Public Service Commission to require the company to give the service deemed necessary to the convenience of the people of the city.

In the city of Utica the New York



UP-TO-DATE EQUIPMENT FOR CITY LINE

car. The city's chief executive is an old hand at this work. He was once a locomotive engineer on the elevated railroad in Brooklyn. Anyway, those who saw him guide the car over the Staten Island hills agreed that this was a job he handled as if he really knew all about it. Out on the front platform of the car hung a big floral horseshoe, wishing success to the municipal undertaking.

At the carhouse at Concord the Mayor again was much in evidence. Here he raised the flag of the city over the building to the strains of music by the Street Cleaning Department Band.

But this isn't all. Aside from the formal ceremonies at which the Mayor was kissed there were big doings at St. George, the terminal of the municipal ferry. There the Mayor spoke while a banner fluttered in the fog bearing the inscription "Thanks to Whalen for the Nickel Trolley." The Mayor was introduced as "the most honest, fearless and able executive of the greatest city on earth." He quickly

Midland Beach. The cars to Richmond and Port Richmond will run on a fifteen-minute schedule to meet the ferry boats. The Concord line will have a ten-minute schedule.

Twenty-eight cars were ordered from the J. G. Brill Company. They are the standard-design safety car. The fare will be 5 cents. Special school tickets will be issued to children.

Franchise Forfeit Enjoined

Judge Sater in the United States District Court at Columbus, Ohio, has denied the petition of the city of Martins Ferry, Ohio, for a permanent injunction against the Wheeling (W. Va.) Traction Company. In June last the Martins Ferry City Council passed an ordinance revoking all rights of the company and ordering it to remove rails, wires and poles from the streets. Judge Sater ruled that under Ohio laws a forfeit of franchise does not exist merely by virtue of revoking a grant, but must be fixed judicially.

State Railways also faces a complex situation. There the company is awaiting the action of the Common Council on an application for an 8-cent fare. The Council has on several occasions ignored the petition, while the Mayor has openly opposed the increase. A

number of railway employees in Utica are out of work at the present time, the service is curtailed, and it is intimated that if the city continues to ignore the company's application the service would have to be curtailed still further.

Mayor Urges Railway Settlement

Louisville's Chief Executive Now Convinced That City Must Grant Fare Relief or Submit to Curtailed Service

Plans are being revised for a settlement of the railway problem at Louisville, Ky. In consequence the whole matter will probably be thrown open again soon for public discussion. Foremost in the present movement is Mayor Smith. He appears at last to have been convinced that the city will suffer materially if some forward step is not taken. In a message to the Council he has urged that the matter be considered promptly and disposed of.

THE appeal of the company for relief was made in March, 1919. Several conferences were held. In May the Mayor announced that he would oppose any increase in fares. Subsequently changes were made in the personnel of the company and an executive committee was created to administer the affairs of the railway. This committee consisted of W. S. Speed, John W. Barr, Jr., and William H. Kaye. After considerable study on their part of the affairs of the company and the problems before it they submitted to the Mayor last July an exhaustive report in which the committee asked for an increase in fare from 5 cents to 7 cents and suggested a service-at-cost franchise. In the meantime, however, trial operation at a 5-cent fare for three months under the direction of the committee was carried out in the hope of proving the case of the company to the city. The matter was allowed to drag by the city. It has now been revived by the Mayor on his own initiative.

In a message to the Council on Nov. 24 the Mayor said:

During the fall of 1918 the Louisville Railway requested the city of Louisville, through me, to grant the company increased carfare. After carefully considering the situation at that time, in April, 1919, I published a statement containing facts and reasons why the company was not then entitled to relief. The company made no effort to deny or refute these facts or reasons. Indeed, subsequent events proved them to be true.

Early in the year 1920 the request for increased fare was renewed. At that time I informed the directors of the Louisville Railway that no request would be considered until the company had reorganized under new executives and with certain new directors. I said at that time that if the company did reorganize as outlined and after a test was able to show that it was still unable to operate without serious loss I would recommend some form of relief. The company was reorganized, new directors were selected and a new president elected.

On July 1, 1920, the company made direct application to the Board of Councilmen to grant relief on the basis of what is known as the service-at-cost plan. That body promptly and properly rejected this ordinance. Since then, I am informed, no new ordinance has been offered by the company.

From figures submitted to me at the present time and carefully analyzed I find the company now is operating at a loss and will continue to do so unless assisted financially. Only two courses are open to the company; the one is to obtain increased revenue from higher fares, the other to reduce its operating costs. To reduce operating costs materially it will be necessary to reduce the service. It is our duty to decide which course must be pursued.

You have so uniformly rendered such splendid service, and you have been so unflinchingly loyal to your duty, I should not have communicated with you at this time except I am convinced the subject is of such importance that I should urge you to take it up promptly and dispose of it. I ask you, therefore, to consider this problem in the light of public duty and public benefit, and to provide some measure of relief for the Louisville Railway.

J. E. Isgrigg, chairman of the committee of the Council to which the matter has been referred, is of the opinion that any ordinance looking toward relief for the company should originate with the Mayor or in the office of the city attorney. It is expected that he will call a meeting of the committee soon to consider the matter. The next general meeting of the Council will be held on Dec. 7.

Now that the time has arrived when to delay action further can only reflect greatly to the discredit of the city and to the embarrassment of the general public, the Louisville papers are inclined to be severe with the Mayor in their editorial comment on his handling of the situation. The *Times* said that the Mayor's word to the Council is a mere alarm clock, buzzing:

Gentlemen, it is high noon. You were supposed to be at work at 8. It is high noon. Get up or stay abed, but do something.

That paper said further:

If the proper committees do not originate a program and initiate action, let one or all of the leading members of both bodies resolve themselves into a general committee and do it themselves. They have the ability; they do not take their political profession so seriously as to fear the "organization," and as responsible members of the community they know the perils of having an insolvent street car company in Louisville.

If they or any of them will walk up to the street car question, take it firmly by the hand and lead it to settlement, they will find the community behind them. A few moves by patriotic members of the Council are in order if the duly authorized committees do not do their duty and promptly.

The *Courier-Journal* said:

The Mayor's message to the General Council on the carfare question at least has the virtue of disclosing, after long delay, some form of action by the chief magistrate of the city. It breaks a silence and officially brings a grave problem before the two legislative boards. Aside from this the message is definite only in its indefiniteness. For the present the issue, involving most complex and profound principles of economics, is left with the individual and aggregated wisdom of twenty-four members of the Lower Board and twelve members of the Upper Board. And the public will now have another opportunity to behold how our city government operates.

City and Railway Discuss Compromise

Prospects Appear Bright for an Agreement Being Arrived at in Detroit Which Will Stop Litigation

Negotiations between the Detroit United Railway and officials of the City of Detroit, Mich., were renewed on Nov. 26 when Elliot G. Stevenson, counsel for the Detroit United Railway; the Mayor, Corporation Counsel Wilcox, Joseph S. Goodwin, general manager of the new municipal lines, and the Street Railway Commission met in the Mayor's office. No statement as to the proposals considered was given out except that the meeting was the first step toward establishing a working agreement between the city and the Detroit United Railway.

IN a statement made by Mayor Couzens, acting as spokesman for all parties concerned in the proposal, it was related that at a meeting attended by Mr. Stevenson and E. J. Burdick of the Detroit United Railway and the Street Railway Commission and the Mayor some months ago a suggestion was made that it was not outside the bounds of possibility that an arrangement might be made whereby the public would be benefited if there were less litigation. With that end in view the meeting on Nov. 26 was arranged. It was suggested that as the directors of the Detroit United Railway were to meet soon a plan for future action might be discussed that probably would meet with the views of the city administration and the directors. Mr. Stevenson left the meeting on Nov. 26 with the understanding that he would confer with the board of directors and meet with the city administration again on Dec. 6.

It is reported that city officials were

planning to start action to take over certain non-franchise lines and lines operated on the day-to-day agreements as soon as cars were ready to be operated on the municipal lines that are now nearing completion. In order that the public might not be inconvenienced it is desired that these lines be acquired without long-drawn-out litigation. The company now operates certain lines in the city under day-to-day agreements, the franchises on which the city can terminate at will.

According to a ruling by Federal Judge Arthur J. Tuttle the city cannot acquire these lines with any part of the \$15,000,000 bond issue voted last April, but can only cancel the franchises, leaving the company the choice of selling or tearing up its tracks. Resort to the latter course on the part of the city is unbelievable on account of the great inconvenience to which residents of certain sections of the city would be put. The opinion prevails that any proposition leading to the sale

of these lines at a reasonable figure would be accepted and presented to the voters for approval.

It is believed that the Detroit United Railway would look with favor upon an agreement whereby the repairing of the day-to-day agreement lines could be avoided. The company is now in a position of having to spend thousands of dollars in repairing lines on streets from which it may be ousted at any time. It is believed that the sale of these lines to the city and an agreement under which the Detroit United Railway could operate over them until the city was in position to connect with them would be considered favorably by the company.

No attempt has yet been made by the municipal railway to cross existing lines of the Detroit United Railway and fear was expressed that another lawsuit would be started by the Detroit United Railway when the attempt to cross the company's lines was made. It is understood that the Detroit United Railway would be willing to permit the municipal lines to cross its tracks provided the city grants certain concessions in return, and it is believed that it would be more satisfactory if an agreement can be reached without appealing to the courts or having the matter referred to the Utilities Commission.

Unless delayed by weather unfavorable to construction work or by the non-arrival of material it is expected to operate the first cars on the municipal lines Feb. 1, over the Charlevoix and St. Jean lines.

"Movies" Refute Injury Claim

A novel use of motion pictures was recently made by the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., in defending a personal-injury suit filed against it. The company sought to show through the medium of "movies" that the plaintiff in the case, a woman, was not seriously injured in the accident, on which her \$10,000 suit was based. It was testified at the trial that the company employed a motion picture man to make a "fake" verbal contract with the woman, leading her to believe that she was to be a "movie" actress, and thus obtaining pictures which might be used at the trial. Scenes showing the woman alighting from an automobile were among those shown to the jury in the case during the trial. The presentation was made at one of the local theaters. After some deliberation the jury handed down a verdict in favor of the plaintiff of \$550. It found her, however, guilty of contributory negligence.

The plaintiff's attorney objected to the use of the film as evidence, claiming that it had been obtained through fraud and that motion picture films could be accelerated to make the plaintiff appear more active than she really was and that parts of the film could be cut out and other devices used. He is reported to have declared that the

decision in the case will be appealed to the Wisconsin Supreme Court on the ground that the trial court erred in admitting a motion picture film as evidence.

Another State Bureau

Arkansas Follows Lead of Other States in Establishing Headquarters for Utility Information

Establishment of a public relations section to inform the public about the public utility business in Arkansas was decided upon at a meeting of the executive committee of the Arkansas Utilities Association held at Little Rock, Ark., on Nov. 10.

C. J. Griffith, president of the state association and manager of the Little Rock Railway & Electric Company, will be chairman. A. G. Whidden, until recently managing editor of the Pine Bluff *Daily Graphic*, was elected manager, with S. R. Brough, manager of the Arkansas Water Company, Little Rock, treasurer. Other members of the committee are: Judge R. M. Foster, Helena; H. C. Couch, Pine Bluff; D. C.

Open Shop in Shreveport

The citizens of Shreveport, La., have determined that the open-shop principle shall prevail in all local industry. Several months ago it appears that union labor had so completely tied up all lines of industry in the city that it became necessary for the public to declare for the open shop and to form an organization known as the Open Shop Association.

Although the Shreveport Railways, of which H. B. Hearn is president, has a contract with its employees which embodies the closed-shop feature common to most Amalgamated Association contracts, the company became a party to the efforts of the Open Shop Association, because it was convinced that this was a step in the right direction.

Subsequent to the formation of this association, practically all of the business interests of Shreveport, including the banks, agreed to start no new work of any kind except on the open-shop basis. All jobs under way at the time the organization was formed are to be continued to completion.

A climax to this situation in Shreveport came during the week of the recent Atlantic City convention of the American Electric Railway Association. It happened that an important piece of machinery in the plant of a local industrial concern broke down. It was impossible to get this repaired without great delay, except at the shops of the electric railway. The machine was accordingly taken to the railway shops and later the machinist declared they would walk out before they would do the repair work, because the machine came from a non-union shop.

Officers of the open-shop association thereupon wired Mr. Hearn about the situation, as the master mechanic did not feel that he had authority to make the decision. Mr. Hearn was caught on a train en route to the convention and upon being advised of the circumstances, he telegraphed back to have this work done in the railway shops "regardless of consequences." When the master mechanic received this telegram, its contents were disclosed to the shop men, who returned to their work and have had nothing more to say.

Service Resumed in Saginaw

Electric railway service was resumed in Saginaw on Thanksgiving morning on an agreement between the officials of the Saginaw-Bay City Railway and the city in which a new franchise is to be granted the company and the operation of the jitney bus curbed.

Pending the passage of a new franchise the company agrees to charge the old rate of fare; the employees who struck for higher wages will receive their demands, and in return the Council agrees to pass a regulatory jitney ordinance, which will forbid the operation of jitneys on streets where street cars run.

It is proposed to pass the new franchise on a cost plus basis. In return the company will agree to adequate ex-

You Should Know the Facts About Public Utilities

DID YOU ever stop to think what the public utilities—the Electric Light, Power and Water Companies—mean to you?

They provide comforts, conveniences, protection and opportunities for profit and pleasure you would not otherwise possess. These public servants can exist and continue to serve satisfactorily only if they prosper. Should they suffer you suffer with them. Poor public service means poor business for the individual and the community.

The utilities of Arkansas are handicapped and community and state development re-

tarded by reason of inadequate revenues, and a tendency in some places to harass the companies with unreasonable restrictions and unjust taxation. This makes it difficult for the companies to obtain funds needed for extensions and replacements.

The utilities themselves are partly responsible for their plight. Because they have neglected to inform you and others of their business and its needs.

You should know the facts about the utilities, as their welfare is your welfare, and succeeding advertisements will tell you more about the public utility business.

Be Fair to Yourself!
Know the Facts!

Public Relations Section
Arkansas Utilities Association
Little Rock, Arkansas

ONE OF THE FIRST OF THE
ARKANSAS ADS

Green, Fort Smith; J. S. M. Wharton, Helena; A. S. Long, Little Rock; S. E. Dillon, Hot Springs; J. F. Christy, Jonesboro, and W. J. Thorpe, Little Rock.

Mr. Griffith issued a statement in which he said:

It is our plan to publish information to show the people of Arkansas just what the utilities mean to them. The utilities provide not only comfort, convenience and protection, but contribute to the development of states and community resources and create new opportunities for operation of other profitable enterprises. Without electricity, telephone, gas and water services we would not have the industries, the cities, the opportunities for pleasure and profit we enjoy.

The wonderful resources of Arkansas are not being developed as rapidly as they should be because of the impression in some quarters that there is a tendency to discriminate against investors in public service and other large enterprises. It is to show the detrimental effect of this tendency and to serve as a clearing house for information from other states relative to operating methods that this section of the association is established.

The owners and operators of the utilities have come to realize that it is a mistake not to keep the public informed about the utility business. After all, it is the public that suffers or prospers as the utility suffers or prospers.

tensions, and improvements to bring the service up to standard.

The Saginaw company, like all other traction companies in Michigan, has been trying to carry an added burden brought on by business depression. With many Saginaw factories closed, or working but part time, the revenue of the company has been considerably reduced.

The City Council has agreed to draft the franchise and have it ready for submission to the voters not later than May 1, 1921.

New Franchise Presented in Richmond

The Virginia Railway & Power Company, Richmond, Va., has submitted to the street committee of the Council of that city a tentative blanket franchise providing for an extension of the present grant of the company for a period of thirty years, at the end of which time the city is to have the right to purchase the property. The provision regarding fares prescribes an initial rate of 6 cents, with school tickets at 2½ cents sold in books of twenty each. A passenger will be permitted to carry free one child under five years of age, but two children under five years of age will be charged at the rate of fare then prevailing. Two cents will be charged for each transfer.

Under the proposed grant the right is reserved to the city to vary the fare from time to time so as to make possible the payment of a return of not less than 8 per cent upon the capital invested by the company. All questions in dispute will be settled by a board of arbitration, composed of a representative of the company, a representative of the city and a third representative chosen by these two. A local public utilities commission of six members will be appointed to adjust complaints about service, schedules and routes. Appeal may be made from the decisions of this commission to the State Corporation Commission. The proposed franchise has been referred to a committee of five, composed of Councilmen Puller, Gunst, Moore, Sullivan and English.

Commissioners Fight Ousting

Action has been begun before the New Jersey Supreme Court to determine the legal status of the members of the old Board of Public Utility Commissioners recently ousted by Governor Edwards on charges of inefficiency in office. The ousted commissioners recently appeared in court in answer to a summons secured by Attorney General McCran. They have been ordered to answer the charge that they are not legally entitled to remain in office and to draw their salaries and will be called upon to make a reply.

The Attorney General, acting in the name of the state, will then reply to the answer of the former board members, and the court will determine where and before whom the case shall

be finally settled. The ousted commissioners are represented by Judge William L. Lewis, Josiah Stryker, B. Claude Palmer and L. Edward Hermann. The State Senate has so far refused to ratify the nominations for new members of the board recently made by Governor Edwards.

Toledo Measure Certified

Expected New Service-at-Cost Arrangement There Will Go Into Effect Next February

Arrangements are being made for a meeting during the week commencing Dec. 6 of the board of control under the service-at-cost arrangement approved recently by the people of Toledo, Ohio, at the polls.

MANY MENTIONED FOR COMMISSIONER

Dec. 5 has been set as the limit for the receipt of applications for the position of transportation commissioner. The board will receive written applications from anyone up to this time. Between that date and the time for naming a commissioner the board members will proceed to investigate personally the merits of several of the most acceptable applicants.

Among the men who have been mentioned for the position are Harry McClure, formerly city engineer; George L. McKesson, member of the service-at-cost commission, and identified with the Houghton Elevator Company; Cecil Rood, county surveyor; Arthur Wickenden, engineer with the Defiance Electric Light & Power Company; and John F. Collins, formerly assistant general manager of the railways at Toledo and now with the Michigan United Railways.

W. W. Knight, a member of the board of control, is in California. The first meeting will be held upon his return.

Officials of the Toledo Railways & Light Company, who conferred with Henry L. Doherty and his attorneys relative to the legal separation of the properties, upon which the ordinance is awaiting before it can be put into effect, stated upon their return to Toledo that the full ninety days allowed by the franchise plan would be needed to get ready.

The measure was certified by the city clerk as passed on Nov. 15. This would bring the measure into operation not later than Feb. 15.

COMPANY GOING AHEAD WITH REPAIRS

Attorney Morton Seeley at Toledo and Dewey C. Bailey at New York are making the legal separation and preparing for the operation of the Community Traction Company as created by the ordinance. Meanwhile Attorney Seeley is investigating all the liens against the present properties and adjusting them so that a clear title may be given to the new company when it takes over the lines.

Since the service-at-cost ordinance was ratified by the people of Toledo the

company has gone ahead with needed repairs. On Tuesday Federal Judge Killits granted an order in court to spend \$28,668 from the Craig fund mostly for repairs made to thirty-six cars. More than \$80,000 has been spent out of the fund for the installation of fare boxes.

The Craig fund was set up by the federal court several years ago when a raise in fare was granted to the company. It makes it mandatory for the company to set aside 6 per cent of its revenue each week for betterments to service.

Labor Agreement Reached in Richmond

After a conference extending over four days with a committee of employees representing the locals throughout the system of the Virginia Railway & Power Company, Richmond, Va., an agreement was arrived at which was practically the same as that prevailing last year. The few changes made related to operating details, such as "runs," meal periods, seniority, etc. No change was made in the wage scale nor in the company's "open-shop" policy. Nor was the arbitration clause changed under which all matters may be arbitrated excepting those pertaining to wages or matters affecting operating costs.

The committee, however, was only authorized to negotiate. It took the new agreement back to the locals, and after an interval of about ten days the committee returned stating that it desired some further changes in some of the operating details discussed at the previous meeting. These were readily arranged in a one-day conference. It is understood that the revisions have since been accepted by the Richmond and other locals.

Strike in Clinton

Following the refusal of the City Council of Clinton, Iowa, on Nov. 16 to grant an increase in fare from 5 cents to 6 cents to the Clinton Street Railway employees of the company struck at 1 o'clock on Nov. 17. The company had made an increase in wages contingent upon the granting of an increase in fare. The employees have been working under a contract calling for the payment of 50 to 55 cents an hour, awarded them when the strike a year ago was arbitrated. They recently asked an increase to 70 and 75 cents an hour. The contract expired on Oct. 30, but the men continued at work with the understanding that if the company was granted the increased fare the company in turn would advance wages.

The strike is now reported to have been settled on the basis of a wage of 60 and 65 cents for the men, the company to charge a 6-cent fare, with nine tickets for 50 cents. Pending a permanent agreement as to the rate of fare refund coupons good for 1 cent will be issued for each fare paid.

News Notes

Electrification Rumor Denied.—Rumors that the Chicago, Milwaukee & St. Paul Railway would electrify the Des Moines-Boone and the Madric-Marion branch lines have been denied by Harry Warren, general passenger agent of the company.

Toronto May Run Buses.—The Board of Control of Toronto, Ont., will be asked by the Council to submit a by-law to the voters on Jan. 1 calling for an appropriation of \$1,000,000 for the purchase of motor buses by the city for use in passenger service. If the measure is successful at the polls bids for the vehicles will probably be asked early in 1921.

Spokane Men Want More.—Conductors and motormen of the Washington Water Power Company, Spokane, Wash., have petitioned their employers for an eight-hour day and further ask an increase in wages of 14½ cents an hour. W. E. Coman, general manager of the company, declares that "under the present earnings of the railway the expenses cannot be increased."

Request for Eight-Hour Day Denied.—F. E. Connors, vice-president and general manager of the Spokane (Wash.) Traction Company, has notified the employees that the company cannot at this time meet the request of the men for an eight-hour day. It is not expected that the matter will come up again until the expiration of the present working agreement between the company and the men in the spring.

Wage Advance in Muskogee.—Employees of the Muskogee (Okla.) Electric Traction Company will receive a wage increase of 5 cents an hour. The men had been receiving from 25 to 29 cents an hour. Under the new award the scale will run from 38 to 45 cents an hour. Funds for this wage award will come from the higher fare which went into effect in September of this year. Under an agreement with the city half of the increased revenue will be spent on improvements.

Wage Raise for Interurban Employees.—Employees of the Boston & Worcester Street Railway, Boston, Mass., have received a wage increase of 8 cents an hour. The men have been working for 52 cents an hour since July, 1919. In September of this year they demanded 95 cents an hour and a working day of eight hours in ten, instead of nine hours in eleven. The dispute was left to a board of arbitrators, Guy W. Cox, Boston, representing the company and James H. Vahey, Boston, representing the men. The wage increase will probably be retroactive to last September.

Suburban Men on Strike.—Trainmen of the South New Orleans Light & Traction Company operating between Algiers and Marrero, La., are firm in the statement that they will remain on strike unless their demands are met. On Nov. 1, when the men went on strike, it was believed that an amicable solution would be reached in the hope of the commission's passing favorably upon the company's application for increased rates. The men want retroactive pay due for forty days during a former controversy and retroactive pay since Nov. 1. At a recent meeting the men decided to return on the condition that President Burgis would pay the retroactive award pending the granting of 8-cent fares. This he is not willing to do.

Trackless Trolley in Prospect in Richmond.—There are prospects of putting the trackless trolley into service in outlying sections of Richmond when the Common Council takes action on the request of the Virginia Railway & Power Company for a new franchise. This statement is made in *Public Service News*, issued by the company. In this bulletin the company says: "Richmond has for a long time been in need of more transportation service." The company, as well as citizens of the community, has realized this, but the circumstances, financial and otherwise, have made extensions impracticable. When the new franchise is worked out we hope the company may be in a position to try out the trackless trolley, with a view of providing a flexible and dependable service for our residential sections."

Strikers Sentenced for Manslaughter.—Justice James C. Cropsey in the Criminal Branch of the Supreme Court in Brooklyn, on Nov. 29, sentenced to terms of from eight to twenty years in Sing Sing five men who had pleaded guilty to manslaughter in connection with the killing of Ferdinand Friedman during the strike of the employees of the Brooklyn Rapid Transit Company last summer. Edward J. Reilly and Louis Fridiger, who represented the accused men, made a plea for clemency, maintaining that the men were young and that they had served in the war. Justice Cropsey disagreed with the attorneys that the men had meant to injure no one. He said: "You were all guilty of murder. I think every consideration has been shown you when the District Attorney accepted your plea of manslaughter. You had the right to strike, but you did not have the right to interfere with any one who wanted to work."

Temporary Injunction Vacated.—The temporary injunction granted the Detroit (Mich.) United Railway restraining the city from expending tax money in the construction of its street railways has been dismissed by Circuit Judge Harry A. Mandell in one of the two formal decisions made by him recently. This injunction was sought by the Detroit United Railway immediately after the first contract had been awarded for work on the municipal rail-

way on Charlevoix Avenue between Connors Avenue and Alter Road. In the other ruling the judge handed down the decision concurred in by Judges Webster and Dingeman, issuing a mandamus compelling Corporation Counsel Clarence E. Wilcox to approve the form of the ordinance offered by the Detroit United Railway last March in opposition to the ordinance containing the city's plan, which carried on April 5. It is the intention of the Corporation Counsel to appeal the mandamus suit to the Supreme Court. The injunction case is now before the Supreme Court on appeal.

Doherty Men Get Together.—"I can't see anything to disturb us seriously. I think the strength of our organization is due to its ability always to meet situations with courage and confidence." Such was the gist of a talk by Henry L. Doherty before 400 members of his organization who came many miles to attend the annual conference held at the Waldorf-Astoria, New York City, Nov. 22, 23 and 24. There were two sessions daily at which many subjects were discussed. Included in the list were "Employees' Representation Plan," "Publicity," "The Bond Department's Problems and Its Future" and "How We Can Sell More Doherty Securities in Our Towns." There were also sectional meetings of the public utilities, of the oil department and the bond department. These reflected the motto of the organization, which is "We don't always agree, but we do not undertake anything unless we do all agree." This meeting was in line with the practice of the Cities Service Company to call its managers together every year for a general conference. At this time particular stress was put upon questions of public policy and the necessity of rate adjustments to meet present operating costs. A general plan of operations was outlined for the coming year.

Program of Meeting

Equipment Men to Meet

The master mechanics of the electric railways of Ohio, Pennsylvania and West Virginia, who have been organized for the last three years as the Association of Electric Railway Men, will meet in Mansfield, Ohio, at 9 a.m., on Dec. 7, for a round-table discussion of numerous maintenance problems. The meetings of these men have been sponsored by the Westinghouse Electric & Manufacturing Company. They have proved of great value through the interchange of information about common problems. The meeting this year will be held in the offices of the Richland Public Service Company. Railway motor maintenance and electric arc welding will be discussed by J. S. Dean and A. M. Candy of the Westinghouse Company. A general discussion by the members will follow. A list of seventeen questions bearing on equipment maintenance problems has also been prepared as a guide to the discussion.

Financial and Corporate

Discontinuance Considered

Receiver of Buffalo-Depew Line May Abandon Property Unless \$80,000 Is Raised

Unless \$80,000 is subscribed for the rehabilitation of the Buffalo & Depew Railway Company, Buffalo, N. Y., application will be made by the receiver for permission to discontinue service between Buffalo, Depew and Lancaster and junk the property. A plan of rehabilitation and reorganization has been prepared by C. P. Franchot, attorney for William B. Cutter, receiver for the property.

DEFICIT FOR TWO YEARS

For almost two years the line has been operated by the receiver at a big deficit. The United States government holds receiver's certificates for \$45,000 and banks hold receiver's certificates for \$13,000. In addition there are several thousand dollars of receiver's notes outstanding in the hands of the public. The government financed the construction of a double-track addition to the company's property between Depew and Lancaster during the war to facilitate the transportation of war workers. The government was paid in receiver's certificates.

The plan of reorganization and rehabilitation outlined by Mr. Franchot calls for the holders of the company's first mortgage bonds to turn in their securities. These would be resold for approximately \$80,000. Purchasers would in addition receive a bonus of common stock.

Under this plan there would be sufficient money raised to pay off or compromise all outstanding indebtedness and allow a reserve fund in the treasury for improvements. The new owners would then reorganize the company and the receivership would be terminated.

SEEK HELP FOR INTERNATIONAL

If this plan fails the company plans to carry on negotiations with the International Railway, Buffalo, with the view of having the International acquire the property, which is a 7-mile double-track line between the Buffalo city line and Lancaster.

Municipalization Planned

Plans for the operation of the Guelph (Ont.) Street Railway by the Ontario Hydro Radial Commission are being considered by the municipal authorities. Several conferences have been held between representatives of the city and Sir Adam Beck, representing the commission, and Premier Drury. The commission has promised to take over the management of the property as soon as the municipality desires.

The Guelph Street Railway matter

is in the same position as it was before the agreement was signed between the commission and the city for the acquisition of the traction lines by the Hydro, the ratification of which was blocked by Premier Drury. It is proposed to submit a by-law to the rate-

payers at the next municipal election to secure authority to raise a sum sufficient to rehabilitate the property and place it in better physical condition.

Premier Drury has advised the city to proceed with the work of improving the line and suggested that a charge be made by the Guelph lines for the privilege of interurban companies operating cars through the city. In this way, Premier Drury says, a substantial revenue could be obtained. It would be necessary, however, to lay heavier rails and improve the overhead system for heavy interurban cars.

Remarkable Progress at Montreal

Operating Deficit for Year Ended June 30 Reduced to \$364,700, a Gain of \$712,659 Over 1919—Total Deficit Now \$1,728,812

The deficit of the Montreal (Que.) Tramways for the twelve months ending June 30, 1920, was \$712,659 less than that for the previous year, according to the second annual report of the Montreal Tramways Commission. In its report the commission gives in detail the operations of the system. The deficit of the company was increased during the last year by \$364,700. This sum, plus the deficit of \$1,364,111 carried over from the previous year, makes a total deficit to date of \$1,728,812. The receipts from passengers amounted to \$10,578,890. From other items, such as freight, advertising, mail, etc., a sum of \$203,580 was realized, making the total railway operating revenue \$10,782,470 as compared with \$8,645,548 in 1919. This was an increase of \$2,136,922, or 24.7 per cent. The total operating expenses increased more than \$1,000,000, or 20.5 per cent, over 1919, making a total of \$7,840,359. The company was again unable to meet the annual payment of \$500,000 to the city for the use of the streets, as provided in its contract with the city.

ACCORDING to the advance estimates by the commission the company was entitled to expend 24.7 cents a car mile for motor cars and 17.4 cents for trailers at a traffic density not exceeding 8.4. The actual density for the year was 8.386. Therefore the commission decided that the company, having complied with the conditions laid down in regard to mileage and density, was entitled to receive the allowance as granted. This allowance amounted to \$5,749,116. If the company had not expended more than this amount it had the right to claim its operating profit, which is $\frac{1}{3}$ of 1 per cent of the average total of the capital value during the year. For 1920 the latter sum was fixed at \$37,285,347.

Excess of expenses over credits must be taken from the gross receipts to the point where they equal the operating profit. Where the excess is greater than the operating profit, as was the case in 1920, the company must submit a detailed statement in justification of the excess. Failure to justify the excess of expenses over credits results in the company itself having to pay the difference, but if the commission finds the justification sufficient it may authorize the company to take from the gross receipts the sums necessary to liquidate every approved item making up the excess, allowing the company its operating profit, less any part of the excess not deemed to be necessary.

For 1920 the excess of expenditure

INCOME STATEMENT — MONTREAL TRAMWAYS COMPANY

Year ended June 30	1920	1919	Percentage Change
Revenue from transportation.....	\$10,578,890	\$8,483,137	+24.7
Revenue from other railway operations.....	203,580	162,411	+25.3
Total railway operating revenue.....	\$10,782,470	\$8,645,548	+24.7
Maintenance of way and structures.....	609,766	516,160	+18.1
Maintenance of equipment.....	982,261	802,458	+22.4
Miscellaneous renewals.....	598,530	362,856	+65.0
Power.....	1,208,206	1,172,376	+3.1
Conducting transportation.....	3,056,348	2,423,936	+26.1
General miscellaneous.....	1,338,641	1,182,874	+13.2
Operating profit.....	46,607	45,928	+1.5
Total railway operating expense.....	\$7,840,359	\$6,506,588	+20.5
Net operating revenue.....	\$2,942,111	\$2,138,960	+37.6
Taxes assignable to railway operations.....	246,717	208,680	+18.2
Gross income.....	\$2,695,394	\$1,930,280	+39.6
Deductions from gross income:			
Interest 6% on capital value.....	2,177,178	2,189,200	— 0.6
Interest 7% on additions.....	69,827	16,205	+331.0
Interest 6% on working capital.....	23,833	34,347	—30.6
Financing expense.....	181,431	181,431
City of Montreal rental.....	500,000	500,000
Contingent reserve fund.....	107,825	86,456	+24.7
Total deductions from gross income.....	\$3,060,094	\$3,007,639	+1.7
Net income.....	*\$364,700	*\$1,077,359	+66.2

* Deficit.

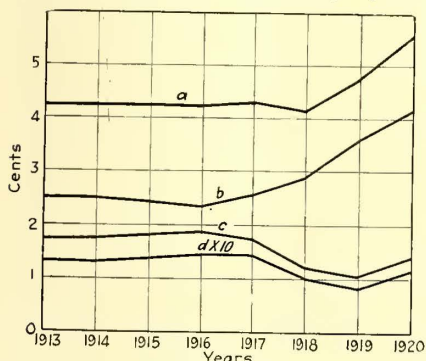
STATISTICAL INFORMATION—MONTREAL TRAMWAYS COMPANY

Year ended June 30	1920	1919	Percentage Change
Total length of track	264.60	262.25	+ 0.9
Length of track in operation	246.03	243.68	+ 1.0
Car-miles	22,888,670	23,155,516	- 1.2
Revenue passengers	191,941,835	183,350,923	+ 4.7
Transfer passengers	63,744,151	65,711,288	- 3.0
Total number of passengers	255,685,986	249,062,211	+ 2.7
Gross receipts per mile of track inspection	\$43,826	\$35,478	+23.5
Gross receipts per revenue passenger (cents)	5.62	4.72	+19.1
Operating expenses and taxes per revenue passenger (cents)	4.21	3.64	+15.7
Percentage — operating cost and taxes to gross receipts	54.68	57.72	- 3.04
Percentage — maintenance and renewals to gross receipts	20.32	19.44	+ 0.88
Percentage — total operating cost to gross receipts	75.00	77.16	- 2.16
Statistics per car-mile:			
Operating revenue (cents)	47.11	37.40	+26.0
Operating expenses (cents)	34.20	28.10	+21.7
Number of revenue passengers	8.38	7.92	+ 5.8
Car-miles per revenue passenger	0.119	0.126	- 5.6

for motive power was \$122,712. The commission's estimate for this item was \$1,085,494, based upon a probable saving due to the installation of a new substation which would permit the substitution of hydro-electric power for steam-generated power. This substation was not completed during the year and consequently the cause of the excess was apparent. The company also

operating expenses and taxes, the cost of maintenance and renewals and a part of the interest on the capital invested. For the second year, ended June 30, 1920, the results were better, and there was sufficient to pay operating expenses and taxes, maintenance and renewals, all the interest on capital invested, original and additional, and also \$120,212 for financing expenses out of \$432,784, which should be provided. Therefore the commission believes that next year the company will be able to commence to make payments to the city. The contract provides that the company pay \$500,000 a year for the use of the streets. The total amount owing the city on this account is now \$1,192,694.

The company has deposited \$100,000 both years as required by the contract as a fund against which action could be taken for failure to carry out the provisions of the contract.



a—Gross receipts per revenue passenger.
 b—Operating expenses and maintenance per revenue passenger.
 c—Net receipts for payment of fixed charges and dividends.
 d—Per car-mile (scale 10:1).

paid over and above allowances, \$38,430 for taxes, \$16,593 for snow removals, and \$22,517 for insurance, all of which were unavoidable. The total excesses, amounting to \$100,796, were therefore approved, and the company was entitled to its operating profit of \$46,607.

At the end of the first year's operation under the present contract the gross receipts were sufficient only for the

Receivership Suit Carried to U. S. Supreme Court

An appeal has been taken to the United States Supreme Court from the decision of the Federal Court of Appeals in St. Louis in the receivership suits against the United Railways, St. Louis, Mo. The original receivership suit was filed by John W. Seaman in the United States District Court. In addition to asking for a receiver for the company it sought to recover large sums from the directors. While this suit was pending a second receivership suit was filed by Samuel Adler. In the

Adler suit the United Railways admitted its insolvency.

District Judge Dyer held that the Seaman suit should take precedence over the Adler suit. Mr. Adler appealed to the Circuit Court of Appeals. That body reversed Judge Dyer. It held that Mr. Adler was entitled to have a receiver appointed. Mr. Seaman has now taken an appeal from the decision of the Circuit Court of Appeals to the Supreme Court.

Duluth Earnings Shrink

Figures to show that the Duluth (Minn.) Street Railway has increased operating costs and a decreased income this year in comparison with 1917 were submitted to the City Council on Nov. 26 by Herbert Warren, vice-president and general manager of the company. Mr. Warren agreed to meet with the City Council and discuss the question of bettering the service. The table submitted by Mr. Warren follows:

October:	1920	1917
Gross revenue	\$157,078	\$140,986
Operating expenses	134,076	93,988
Net revenue	\$23,001	\$46,997
Interest, sinking fund, taxes	25,387	30,489
Net income	*\$2,385	\$16,508
Year to Date:	1920	1917
Gross revenue	\$1,620,745	\$1,338,087
Operating expenses	1,310,727	849,881
Net revenue	\$310,018	\$488,206
Interest, sinking fund, taxes	260,182	252,481
Net income	\$49,835	\$235,724
* Deficit.		

Financial News Notes

Seeks to Sell Another Shore Line Section.—Robert W. Perkins, the receiver of the Shore Line Electric Railway, Norwich, Conn., has filed a petition in the Superior Court asking that he be allowed to sell that portion of the Shore Line lying in Westerly, extending from Pleasant Street to the Pawcatuck River at White Rock. This portion of the railway is said to be one of the few sections that has in the past been operated on a paying basis.

Receiver Asked for Barre Road.—The Westinghouse Electric & Manufacturing Company applied on Nov. 26 for the appointment of a receiver for the Barre & Montpelier Traction & Power Company, Barre, Vt. An injunction was also served to stop a sheriff's sale of railroad property to satisfy a judgment of \$5,500 secured against the road by Robert Stewart. The action was declared to be designed to prevent the depletion of the assets of the railway.

Manchester Company to Offer Stock.—The stockholders of the Manchester Traction, Light & Power Company, Manchester, N. H., have voted to increase the capital stock of the corpora-

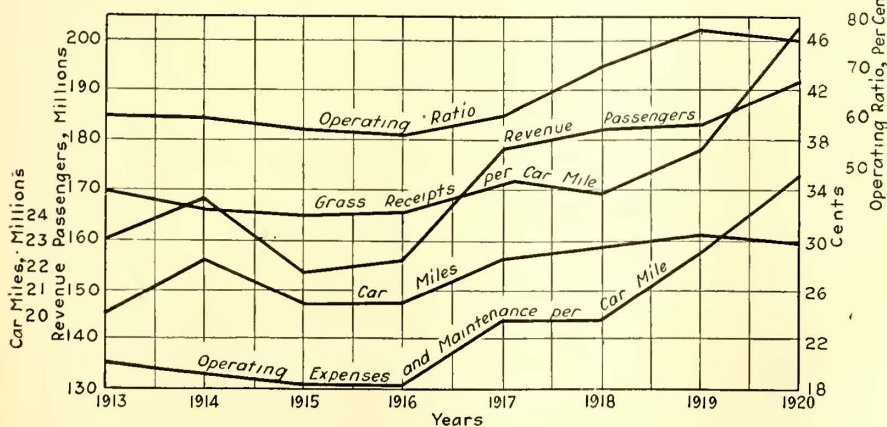


CHART SHOWING PROGRESS MADE BY MONTREAL TRAMWAYS FROM BEFORE WAR TO THE PRESENT

tion from the present amount of \$3,864,000 to \$4,250,000. The new stock will be offered proportionately to the present stockholders at \$100 per share.

Equipment Trust Plan Approved.—The Board of Public Utility Commissioners of New Jersey has approved an equipment trust agreement between the Public Service Railway, Newark, N. J., and the Philadelphia Trust Company, as trustee, and the Standard Steel Car Company. Under the agreement the Public Service Railway will issue \$1,300,000 of equipment certificates at par. The certificates will bear interest at the rate of 8 per cent.

Rochester Valuation Under Way.—J. C. Brackenridge, representing the city, B. C. Campion, representing the railway, and E. G. Connette, neutral member, are busily engaged upon the task of appraising the Rochester lines of the New York State Railways. The field work is expected to require four or five weeks for its completion. Session of the full board will then be held to fix the final determination. The appraisal will probably not be ready to be made public until early in 1921.

Fort Wayne Traffic Increasing.—Pressure of traffic in Fort Wayne, Ind., has resulted in the re-establishment of the old belt line service in that city which was discontinued in 1914. The old tracks, which had been disused for so many years, have been replaced by new tracks and a four-minute schedule will be in force over the line during the rush hours. Traffic in Fort Wayne has been increasing rapidly during the past few weeks with the advent of cold and disagreeable weather.

Bus to Replace Railway.—The City of Greenville, Tex., has purchased the railway system of the Greenville Power & Traction Company, which has been in receivership. The road has not been in operation for some time. The city paid \$15,000 for the property, which includes about 7 miles of single track, trolley wire, carhouse and other equipment with the exception of seven cars. The city will junk the line and sell it and with the proceeds will establish a municipally owned motor bus transportation system.

Agreement Appears Likely.—The postponement for a week of the appointed hearing in the proceedings for the confirmation of sale of stock of the American Railways, Philadelphia, Pa., held as collateral by the National Properties Company, is taken to be an indication that the minority bondholders' committee and the majority bondholders' committee have come to an understanding which may result in the withdrawal of the petition in bankruptcy recently applied for, on the basis of the appointment of a receiver for this company.

Segregation Planned.—Plans for the segregation of the lines in the Ohio Electric Railway system have been announced by J. H. McClure, vice-president of the company. A meeting of the stockholders will be held at Philadel-

phia on Dec. 11, at which time the division of the present system into its two tributary lines—the Indiana, Columbus & Eastern and the Ohio Electric Company—will be passed upon. The former road operates between Lima, Dayton, Springfield, Columbus and Zanesville, while the latter operates from Lima northward into Toledo.

Upward Turn Seen in Utility Securities.—H. M. Byllesby, who recently returned to Chicago after a visit to the Southwest on the annual inspection train of the Texas Oil Company, says that the consensus of opinion on the part of the gentlemen on the special train, who represented, without exception, large financial interests and operations, was that the utility securities were due for a substantial rise; that they had weathered the recent storm as well as, if not better than, any other class of securities; that the situation was at present far better understood by the public and the law makers; and they all predicted a greatly improved and very satisfactory condition, now appearing in all utility investments.

Receiver Wells Reports for September.—The September report of Rolla Wells, receiver for the United Railways, St. Louis, Mo., filed in the United States District Court in St. Louis, shows that on Aug. 1 the cash on hand was \$2,920,172 and that on Sept. 30 the cash on hand was \$661,256. The difference in amounts was explained by the fact that in September the sum of \$2,285,000 was used to redeem receiver's certificates which fell due on Sept. 2 and for which money had been set aside from the August receipts. The largest items in the receipts for September were \$724,544 conductors' remittances and \$968,817 from the sale of tokens. The redemption of receiver's certificates was the largest disbursement item. In September the company paid \$29,420 in back wages and \$829,993 accrued wages.

Outlook More Hopeful.—The protective committee representing the holders of \$260,000 of 4½ per cent twenty-year bonds of the Brockton & Plymouth Street Railway, Brockton, Mass., due on Dec. 1, 1920, announced recently that there was no way by which the bonds could be paid at maturity. The members did say, however, that from their constant study of the situation they believed that the outlook for a reasonable settlement in the near future was hopeful. The committee, believing that the interests of the bondholders would be best protected by continuing the receivership, has approved such continuation. Interest on the bonds has remained unpaid since Dec. 1, 1918. The protective committee consists of Francis E. Frothingham, Arthur Perry and Alfred A. Montgomery. The road has been operated since Dec. 9, 1919, by Hollis T. Gleason as receiver.

Stockholders Approve Abandonment.—The stockholders of the Providence & Danielson Railway, Providence, R.I., on Nov. 22 authorized the directors to dispose of the company's property. In short, the security holders confirmed

the action of the directors and officers in discounting the operation of the road and approved the action of the latter authorizing the abandonment and sale of certain portions of the road.

Announcement was made on Nov. 27 by D. F. Sherman, president of the company, of the sale of the rails, poles and wires and all other equipment of the road, from North Scituate to East Killingly, Conn., some 20 miles of railway, to M. C. Fairchild & Company, Inc., New York, and Swift & McNutt, Boston, who will tear up the rails and junk the system. At the present time the road is not in operation, but the branch of the system from Providence to North Scituate has been reserved by the company with the hope that some arrangement may result from the negotiations now under way looking to the resumption of this line.

Sea View and Pier Roads to Be Sold.—The Sea View Railroad, Providence, R. I., will be sold for scrap. This decision was reached at a joint meeting held recently of the various committees appointed by the towns of South Kingstown, North Kingstown and Narragansett. Nathaniel T. Bacon, the present owner of the property, declared at the meeting that this was the only course open in view of the fact that the report made by the various committees showed the towns to be unwilling to bond themselves for the purpose of financing operation of the lines. Mr. Bacon stated he was willing to let the towns have the road at its scrap value, but that if it was the sentiment of the towns that it would be inadvisable to take the line over there was no further need for argument. He declared that the scrap value of the two roads, the Sea View and the Narragansett Pier Railroads, was \$220,000. He added that this sum included the real estate owned by the company. According to Mr. Bacon, the road will be sold to M. C. Fairchild & Company, Inc., New York.

Protective Committee for Interurban Holders.—A protective committee has been formed to represent the holders of the first mortgage 5 per cent bonds of the Columbus, Newark & Zanesville Electric Railway, Springfield, Ohio, due 1924. Livingston E. Jones, president of the Saving Fund Society, Germantown, Pa., is chairman, and William A. Law, president of the First National Bank, Philadelphia, and A. A. Montgomery, treasurer of the Portland Savings Bank, are the other members of the committee. The circular of the committee states that "the interest due on Nov. 1 last on the Columbus, Buckeye Lake & Newark Traction Company first mortgage 5 per cent bonds of 1921 was not paid, and a protective committee has been formed in the interest of holders of that issue. This default makes it obligatory, in order better to safeguard their interests, that all owners of the Columbus, Newark & Zanesville Electric Railway first mortgage 5 per cent bonds, due 1924, unite and deposit their bonds with the Girard Trust Company, Philadelphia."

Traffic and Transportation

Traffic Changes Suggested

Expert Thinks Memphis Equipment Adequate, but Recommends Expenditure for New Construction

Ross W. Harris, Madison, Wis., consulting engineer, has submitted to the Railroad & Public Utilities Commission of Tennessee his report on the traffic survey of electric railway conditions in Memphis, Tenn. The survey was made under order of the State body by Mr. Harris himself for the joint account of the Memphis Street Railway and the city of Memphis. Six months was required to complete the job.

The state commission has since handed down an order approving the recommendations set out in the report and ordering the Memphis Street Railway to proceed to put the recommendations into effect. About \$140,000 worth of property will be abandoned and approximately \$75,000 of new construction will be required.

MR. HARRIS IN CHARGE

At the joint request of the city and the company the state commission has issued an order appointing Mr. Harris as its representative in Memphis to supervise the operations of the Memphis Street Railway. In this work it is expected Mr. Harris will put into effect the scheme of line standards used with good effect by him in other cities. This calls for following out a system of determining equitable daily line standards for each route in such manner as will connect operation equitably with the rate of fare, rate of cost of service, integrity of securities, volume of business, etc.

The full report is now being printed and bound for distribution. The principal recommendations contained in it, however, have been outlined by Mr. Harris for the benefit of the public.

If the recommendations made by Mr. Harris are followed, Main Street will be relieved of street railway congestion, with more cars on Third Street than are now on Main Street; with a greater transfer point at Third and Union, and with more cars passing every hour of the day than now pass Main Street and Madison Avenue.

According to the plan advocated by Mr. Harris, the principal railway loop will be Third Street to Jefferson Avenue to Main Street to Union Avenue. Front Street will be practically abandoned by the street cars. The congestion on Main Street will be relieved by having as much traffic on Third Street through Jefferson to Union.

In order to gain some idea of the situation, it is only necessary to state that cars are now operated on Main Street at the rate of 120 per hour, on one track in one direction, and

occasionally the rate is as high as 152 an hour.

Mr. Harris believes that the Memphis Street Railway has a sufficient number of cars and that its equipment is adequate to take care of the traffic with the rerouting and distribution which he proposes. He says that the receivers have done remarkably well in maintaining the present standard of service under the system that is now in vogue.

Asks Ten Cents in Trenton

The Trenton & Mercer County Traction Corporation, Trenton, N. J., has filed a petition with the State Board of Public Utility Commissioners asking an increase of fares from 7 to 10 cents in Trenton and on all its suburban zones. The railway proposes to relinquish the 1-cent transfer charge. The petition will come before the board at a hearing on Dec. 15. The company has announced that unless relief is granted it will face insolvency. The New Jersey State League of Municipalities will be called upon by Mayor Donnelly of Trenton, who is chairman of the executive committee of the league, to oppose the fare increase.

Mayor Donnelly has announced that he will move for the inauguration of a motor bus service for Trenton and vicinity, paralleling the traction company's lines, to be operated under municipal franchises. The Mayor says that the proposed bus system would be different from the ordinary jitney service and that double-deck buses of large size would be placed in operation.

The Trenton & Mercer County Traction Corporation declares that 10-cent fares are absolutely necessary to maintain its property and its service at the present standard; that it has not paid any dividends whatever and no rentals in more than three years, and that the cost of operation has increased during the past year to such an extent that deficits have continued to grow. The company says that there is no possibility of a reduction of rates of wages at present paid motormen, conductors, operators, powerhouse employees and electrical workers, and that the cost of all materials has been advanced. The railway's petition says:

We are not alone in this situation. It is nation-wide. Traction companies in forty-nine cities are charging a base rate of 10 cents, and many other applications for 10-cent fares are pending. No company can operate for less than cost.

The present 7-cent fare and 1-cent transfer rate was put into effect on Jan. 4 last. The revenue for the present year will amount to approximately \$1,387,733. The total operating expenses and taxes for 1920 will amount to \$1,239,987. The deficit for the year will be more than \$440,262.

Cleveland Results Good

Early Returns Indicate Fare Increase and Industrial Depression Have Not Affected Company Adversely

Patrons of the Cleveland (Ohio) Railway on Nov. 14, began paying a 6-cent fare with 1 cent extra for a transfer. They met this increased rate as predicted in the *ELECTRIC RAILWAY JOURNAL* of Nov. 13, without a murmur.

While the new rate of fare makes Clevelanders for the first time in the city's history pay more than a nickel for a car ride, it has taken ten years for street car fare in Cleveland to double, as in November, 1910, the rate of fare was 3 cents cash with a 1-cent charge for transfer.

NO DECLINE IN TRAFFIC

No figures to indicate how the recent raise has affected the receipts of the company are as yet available, but at the offices of the Cleveland Railway it was said that there was a very marked increase in revenue and that no falling off in the number of riders had been noticed. In fact, Cleveland, unlike other large industrial cities, has so far been free from any reflection in its railway receipts from the recent industrial depression.

It is a curious fact that residents of two of Cleveland's populous suburbs, Lakewood and Cleveland Heights, can ride to and from their places of residence more cheaply than car-riders within the city limits proper. This is due to the fact that Lakewood and Cleveland Heights both have franchises that call for a straight 5-cent fare. This situation again demonstrates the unfairness of incorporating in a long term franchise a fixed maximum rate of fare.

SUBURBAN FARE UNCHANGED

The Cleveland City Administration, City Street Railway Commissioner Sanders and the newspapers are now engaged in a campaign urging Lakewood and Cleveland Heights car riders voluntarily to pay the increased rate demanded of the city riders. Some of the officials of the two suburbs have indicated their willingness to change the franchises so as to permit the increased rate for Lakewood and Cleveland Heights riders.

In this connection the *Cleveland Plain Dealer*, in commenting editorially on the recent report of the American Electric Railway Association showing the upward trend of electric railway rates, said:

Its own report indicates an increasing tendency on the part of American cities to treat railway companies fairly while preserving the interest of the car rider. The course of fares in the future as in the past will be determined mainly by the cost of operation.

Since the agitation was started for an increase in fares in the suburbs, the Cleveland City Council has passed a resolution asking Lakewood and Cleveland Heights to raise their fare from 5 cents to 6 cents to conform with the new rates of fare in Cleveland.

Bus Issue Unsettled

The Connecticut Company Continues Operation in Waterbury Pending Action by Aldermen

The federal trustees of the Connecticut Company, New Haven, Conn., at their meeting in New Haven on Nov. 27 reported that the revenue of the company had increased materially since the 10-cent fare went into effect. The receipts were nearly sufficient to meet expenses, it was announced. The trustees, however, are not at all satisfied with the action of cities throughout the State with regard to jitney regulation.

The trustees are said to be dissatisfied with the situations in Waterbury and New Haven. It was believed by the trustees that the ordinances restricting jitneys in New Haven and Waterbury did not meet the requirements as laid down by the trustees for assurance of uninterrupted railway service.

Although the Board of Aldermen of Waterbury on Nov. 26 failed to pass an amendment to the jitney ordinance barring jitneys from Bank Street in that city, it was said that the trustees had not taken any definite action relative to that situation. The ten-day period agreed upon by the representatives of the company and the city of Waterbury at the hearing before the Public Utilities Commission in Hartford last week was to expire on Dec. 3. Chairman R. T. Higgins of the Public Utilities Commission recently stated that he hoped the results would warrant the continuance of railway service in Waterbury.

WATERBURY LINES LOSE

Lucius S. Storrs on Dec. 1 addressed a letter to Mayor W. S. Sandland of Waterbury, in which he said in part:

For the period of seven days to and including Monday, Nov. 29, the average daily revenue on the Waterbury Division has been \$4,347, which you will note is a marked falling off from the revenue of the first few days, which was \$4,613 per day. This is accounted for by the decline in revenues upon these lines on which competitive jitney operation is possible under the recent ordinance, mainly East Main Street, the revenues on which average but \$894 per day for the period, the average for the first four days having been \$991. The number of jitney buses operating on that route have increased from one on Tuesday, the 23d, to eleven on Monday, the 29th.

R. B. Stoeckel, State Motor Vehicle Commissioner, in his biennial report issued Nov. 29 stated that legislation by the state rather than by municipal ordinances should be obtained to effect regulation of public jitney traffic throughout Connecticut. The report states that the number of public service motor vehicles registered by the department declined from 3,025 in 1919 to 628 in 1920. With regard to the regulation of public motor vehicle transportation in the state as affecting the trolleys, Commissioner Stoeckel says:

The various emergencies created between competing transportation systems and more particularly between the public service vehicles and the trolleys have created a situation which seems to call for additional State legislation. If it is proper that the public service motor vehicle be regulated beyond

the point to which the regulation now extends, then that regulation should be made by state law rather than by city ordinance.

That is, if the operation of the public service motor vehicle is to be determined as to routes, stopping places, continuous service and other like details, as is the case with other carriers of the public, then such legislation should be statewide.

In making such legislation, if it is determined that such is necessary, great care must be taken that the functions of this department relating to the determination of the fitness of an operator and as to the safety appliances and general equipment of the vehicle be not interfered with in any way. This department has the necessary machinery to examine into qualifications of drivers and into safety appliances of vehicles.

As regards the latter point, the department needs a law giving it discretion as to what it will pass as a safety factor in connection with the public service motor vehicle. There are, at the writing of this report, many public service motor vehicles on the highways which are topheavy because a light chassis has been loaded with too heavy a top. Whatever else is done in connection with the public service motor vehicles the functions of this department must include the ones referred to to safeguard the public, and the department must cause the necessary legislation to make them absolutely effective.

Plea for Special Rates for School Children

A campaign to have the Cleveland (Ohio) Railway establish a special fare for school children at 3 cents a ride or forty tickets for \$1 is being waged by the *Cleveland Press*. As proposed, the plan would restrict the 3-cent or 40-ticket-for-a-dollar rate to the school children riding on school days between the hours of 7:15 a.m. and 4:30 p.m. The campaign was started immediately after the fare in Cleveland was boosted to 6 cents with a 1-cent charge for transfer.

John J. Stanley, president of the Cleveland Railway, has so far refused to give an opinion on the proposal, but City Street Railway Commissioner Sanders is objecting to it on the ground that it is directly contrary to the spirit of the Taylor service-at-cost franchise, which provides that all riders shall be treated equally in the matter of fare and none shall be discriminated against for any reason.

Mr. Stanley has, however, indicated that he is not inclined favorably toward the plan on the ground that if the general industrial depression should hit Cleveland, there is no certainty that a 6-cent fare will suffice to meet the cost of operation. Increased tax levies approved by the people at the election in November will boost the Cleveland Railway's taxes \$150,000 a year, company officials say.

Public and parochial school officials, members of women's organizations, and some other civic bodies have approved the low fare for school children. The City Council is now considering the plan.

Fare Reduction Sought

The town of Winthrop, Mass., has petitioned the Massachusetts Department of Public Utilities asking for a reduction of fare on the narrow gage electric line of Boston, Revere Beach & Lynn Railroad. At present the fare is 10 cents. A similar petition for a reduction in fare has been presented by residents of Revere.

Cincinnati Fares Up

Ticket Rate Advances Half Cent—City Asks Injunction, Alleging Faulty Allocation in Certain Accounts

The Cincinnati (Ohio) Traction Company on Dec. 1 raised its cash fare from 8 cents to 9 cents. Two tickets are sold for 17 cents, or six for 51 cents, making the ticket rate 8½ cents.

If the contentions of the City of Cincinnati as set forth in a suit filed by Solicitor Saul Zielonka in Hamilton County Court of Common Pleas are sustained, the end of the increases in fare in Cincinnati is in sight and a downward revision of these fares will result. Acting under the instructions of the City Council with respect to a report made by Street Railway Director W. C. Culkins, that the Cincinnati Car Company and the Ohio Traction Company owe the Cincinnati Traction Company thousands of dollars for rent, light and electric power supplied, City Solicitor Zielonka filed the suit, which demands an accounting from the Ohio Traction Company for light and power provided and for rentals for buildings from Jan. 1, 1917.

In the petition the court is asked to determine the amount due to the Cincinnati Traction Company and to compel its payment, and, if the sum is sufficient to create a fund which meets the provisions of the new ordinance under which the traction company is operating, an injunction to prevent further increases of fares is demanded, as well as an order to decrease the rate of fare charged.

MR. SCHOEPF'S EXPLANATION

W. Kesley Schoepf, president of the railway, has replied to the charge made by Mr. Culkins. Mr. Schoepf contends that the total sum to be accounted for by his company is \$20,000 instead of \$350,000. Mr. Schoepf is in full accord with the views of the director that any agreement between the Cincinnati Traction Company and the Ohio Traction Company, or between it and the Cincinnati Car Company that would be inequitable to the Cincinnati Traction Company is contrary to the spirit of the revision franchise. He says that the \$20,000 in question is the amount payable by the Cincinnati Car Company to the traction company for light, heat and power.

He also states that he believes that the maximum rate of fare will be reached on March 1, when a straight 9 cents may be necessary. He expressed the belief that if granted the full requirements for the budget of the year of 1921 the fare will not go above 9 cents, unless some extraordinary condition looms up. Mr. Schoepf also says that he does not believe that this maximum will continue for long.

In answering Mr. Culkins' charge that the Traction Building is lighted by power which belongs to the car riders, the company says that a full accounting for current used in the building since the operation under the service-at-cost franchise would be \$800.

City Grants Relief

Eight-Cent Fare Allowed in Grand Rapids — Attempt to Force Referendum on Fares

An 8-cent cash fare with seven tickets for 50 cents will take effect in Grand Rapids, Mich., on Dec. 16. The new rates have been authorized by the City Commission to afford financial relief to the Grand Rapids Railway. The fare is now 7 cents.

The railway recently applied to the city authorities for a 10-cent fare. The commission, although admitting the justice of the railway's petition, refused to allow the 10-cent rate because of the stand taken by the Trades and Labor Council, the body representing the organized labor of the city. The council threatened to force a referendum on the fare increase unless the 10-cent fare were granted by the commission.

UNION ASKS REFERENDUM

Organized labor stood out for the higher fare to back up a demand of the railway's employees for an advance in wages. The carmen were promised a wage increase from 60 cents to 62 cents an hour, provided the fare was raised to 10 cents. Petitions for the proposed referendum have not yet been circulated. A small group of citizens has endeavored to stir up feeling against the rate increase by an "I walk—Do you?" campaign, but with little success.

In September the Grand Rapids Railway did the largest month's business in its history. Nevertheless, on a basis of a 7-cent cash fare, with sixteen tickets for \$1, it lost about \$1,500. This was the best financial showing made by the company in a year. In October the financial report of the company was the poorest in its history, showing an actual operating loss of \$23,000, due to an increase in wages of from 52 to 60 cents an hour, and also to the dropping off in patronage resulting from the business depression which set in at Grand Rapids about Oct. 1. With winter coming on the company found itself facing a monthly loss of more than \$25,000, and the commission was quick to respond to its request for aid.

ESTIMATED TICKET RATIO 60 PER CENT

Under the present rate of fare—7 cents cash and sixteen tickets for \$1—statistics compiled by the company show that a little less than 40 per cent of the company's passengers use tickets. It is estimated that under the new fare 60 per cent of the car riders will use tickets and 40 per cent will pay the cash fare. Patronage based on the October business, at the increased rate, should net the company in the neighborhood of \$25,000.

Financial statements for the first ten months of the present year indicate an actual loss for the company during 1920 of \$150,000. The loss for the first ten months totals \$125,000.

A wage agreement of the company with its men expired Sept. 1, and the company offered 60 cents an hour, as

against a demand for 68 cents on the part of the men. The working contract provides for arbitration, but the company and its employees could not agree on the third arbitrator. With wages decreasing locally almost weekly the men signed an agreement on Nov. 1 for 60 cents an hour, effective until May 1, with the further understanding that they should receive 62 cents an hour in the event the City Commission at any time before May 1 granted a 10-cent fare.

SPEED WORK ON FRANCHISE

The present franchise of the Grand Rapids Railway will expire on April 4, 1921. The company will be forced to operate under a working agreement with the city from that time until the new franchise can be submitted to the voters, which cannot be before Aug. 1, and may not be before April, 1922.

Members of the special committee of the City Commission having in charge railway affairs last week blocked an attempt which was being made to make the franchise a political football, when they instructed the engineers at work making an appraisal of the company's property to complete their task at the earliest possible moment. Those in charge of drafting the new franchise were also instructed to complete their work at once. The appraisal is being made on the basis of three costs. The first is a historical cost, the second the value on the average price for the last five years and the third on present-day values. The inventory work is now completed, and the valuations should be in the hands of the company and the city about Feb. 1. Provisions for service-at-cost will be contained in the new franchise.

May Put Absolute Ban on Parking

The local-transportation committee of the City Council of Chicago, Ill., has unanimously recommended that all parking in the downtown business district of Chicago be prohibited between 7 a.m. and 6:30 p.m. The final decision in the matter rests with the Council, but Chairman Schwartz, who advocated the measure, believes that its adoption is assured.

Traffic experts told the committee that enforcement of the ordinance would save Chicagoans from \$20,000,000 to \$25,000,000 annually in time saved and accidents prevented. If the ordinance becomes law it will be the duty of the police to see that all vehicles, whether horse-drawn or automobile, stop only to load or unload passengers, baggage or merchandise in the no-parking area between the hours stated. The anti-parking district as defined by the proposed ordinance is bounded on the south by Harrison Street, on the north by Kinzie Street, on the east by Michigan Avenue, and on the west by Clinton Street. The measure was opposed before the committee only by the representatives of the local automobile clubs.

Another Increase Needed

Dallas Railway Unable to Earn Authorized Return Under Six-Cent Fare — Fewer Riders Carried

The Dallas (Texas) Railway has found that the 6-cent fare granted it last July is inadequate to enable the company to earn the authorized 7 per cent on the agreed valuation of its property under the terms of its franchise. Richard Meriwether, vice-president and general manager of the railway, recently pointed out the reasons why the 6-cent fare had proved insufficient. Mr. Meriwether expressed the belief that an 8-cent cash fare with two tickets for 15 cents would prove adequate and would enable the company to maintain service and at the same time to earn its authorized return.

The decreased revenue of the company under the 6-cent fare, according to Mr. Meriwether, is due to three factors:

1. Material reduction in the number of passengers carried, which decreased the gross earnings of the company.

2. The very material increase in the cost of power, due to the higher cost of fuel. Power costs for September were approximately 3½ cent per kw.-hr., as compared with 1.4 cents per kw.-hr., when the power company purchased oil at 90 cents a barrel. The company is now paying \$3.50 a barrel for fuel oil.

3. Increased wages to car operators. An increase in pay was granted immediately before the 6-cent fare went into effect.

FARE SITUATION DISCUSSED

Mr. Meriwether goes into detail in explaining that money spent for extensions and improvements in the Dallas Railway's system does not come from the gross earnings of the company, but is obtained by the sale of securities, and in no way affects the earnings of the company, except that the added value of the property gives a larger amount on which to calculate the authorized return of 7 per cent.

Discussing the unprofitableness of the 6-cent fare and the reasons therefor Mr. Meriwether said:

We could not foresee that passenger traffic would greatly fall off when we asked for the 6-cent fare, nor at that time could we have shown that a higher fare than 6 cents would be needed. In our application we called attention to the fact that traffic probably would decrease immediately following the increased fare, but we had every reason to believe that it would return to normal after the first month. It has failed to do so.

For the last three years the number of passengers has steadily increased, the monthly average carried in 1918 being 2,829,000, which increased to 3,927,247 in 1919, and to 4,523,050 for the first six months of 1920. Instead of continuing the steady increase as was anticipated the average number of passengers carried during July, August and September, the first three months of operation under the 6-cent fare, was but 4,275,602.

Taking the first six months of 1920 the number of passengers carried, month by month, was: January, 4,316,027; February, 4,088,823; March, 4,641,792; April, 4,604,369; May, 4,880,451; June, 4,606,839. Immediately following the 6-cent fare the traffic decreased to 4,287,275 in July, 4,277,702 in August, and 4,261,827 in September, showing a steady decrease.

Whether the decrease in traffic is due to the higher fare or to other causes I cannot say, but it is a fact, nevertheless, that the revenue has failed to increase as we had anticipated it would.

Jitney Dying Hard

Seattle "Parasites" Carry Their Case Against City to the State Supreme Court

W. R. Crawford, attorney for the jitney interests at Seattle, Wash., has made an offer to the city to dismiss the litigation against the city now pending in the courts, if the city will approve the proposed route schedule for the jitney buses outlined by the jitney commission just before election. The city utilities committee, to which the offer was made, however, has turned a deaf ear, and "indefinitely postponed" the measure.

At the election the city voters declared against the jitneys. Previous to the election the jitney owners objected to the schedule of routes proposed, but since the election their attitude has changed, inasmuch as the city voted against allowing them full rights to operate as they chose.

The right of the city to regulate the jitneys was upheld by the court refusing a permanent injunction against the enforcement of the city's jitney ordinance, but the victory was a hollow one, as the temporary restraining order remains in effect until the case is disposed of in the State Supreme Court.

Before the case was heard on its merits, the city made an effort to have the temporary restraining order dissolved, but this motion was denied. Had the temporary order been dissolved and the case then gone to trial on its merits, the city would not be in a position to enforce its regulation of the jitneys.

Three federal judges passed on the validity of every phase of the city's proposed ordinance regulating the jitneys before the application for a restraining order was filed in the Superior Court. They held that the city had every right under the law to carry out its regulation of the jitneys.

The whole litigation means that probably several months will elapse before the city will be in a position to proceed with its regulation of the jitneys as proposed in the ordinance.

"No-Accident" Week in Fort Wayne

R. N. Hemming, superintendent of transportation of the Indiana Service Corporation, Fort Wayne, Ind., was in active charge of the "No-Accident" week staged in Fort Wayne by the local Safety Council during the week of Nov. 29. Mr. Hemming is the chairman of the council. The week was advertised by means of posters placed in all the street cars, in downtown buildings and in all the industrial plants and by means of newspaper stories and advertisements. During the week the Boy Scouts distributed small cards and window shield stickers to the public to help along the movement. In speaking of the campaign Mr. Hemming said:

The number of accidents in Fort Wayne and Allen County during the past year is appalling, compared with fatalities due to carelessness in other cities. In Allen County there were eighty-two fatal accidents during the period from Oct. 1, 1919,

to Oct. 1, 1920, and that figure represents nearly one-thousandth of the total of 38,000 fatalities due to carelessness in all the United States. We hope by means of this campaign to prove to the public the hazards of carelessness and we also hope to induce a greater degree of safety on the part of the general public.

Transportation News Notes

Three Cents a Mile on Interurban.—The Auburn & Syracuse Electric Railroad, Auburn, N. Y., recently raised the fare on its interurban lines from a basis of 2.75 cents to one of 3 cents a mile. The company also raised the price of commutation and other reduced fare tickets.

City Sanctions Fare Increase.—The City Council of Charles City, Iowa, has approved an application of the Charles City Western Railway for permission to increase its cash fare within the city limits from 5 cents to 10 cents. The company proposes to sell fourteen tickets for \$1.

Ten Cents on Maine Road.—The Portsmouth, Dover & York Street Railway, Portsmouth, N. H., on Nov. 1 raised the fare on its lines in Maine from 7 cents to 10 cents. The increase was made under authority of the Maine Public Utilities Commission. Tickets are sold at the rate of 6 cents each.

Grants Temporary Increase.—A tentative increase in fares from 7 to 8 cents has been allowed the North Alabama Traction Company, Albany, by the Alabama Public Service Commission. The higher rate will be in effect until a formal hearing is held in December, when the case will be finally decided.

"Safeties" in Kenosha.—The Wisconsin Gas & Electric Company introduced Birney one-man safety cars on its lines in Kenosha, Wis., on Nov. 15. It is planned to have the "safeties" furnish the base service, while the old type cars are to be used during rush hours to furnish supplementary service. Reports in the Kenosha newspapers indicate that the new cars have already won public favor.

Higher Newspaper Rates Asked.—Following increases in freight and passenger rates, the Philadelphia (Pa.) Rapid Transit Company has filed a new tariff with the State Public Service Commission increasing newspaper-carrying rates from 12 to 18 cents a hundred pounds, effective Dec. 19. The increase on newspapers completes the general advance that the company has effected in the last four months.

Asks More on Suburban Line.—A petition for an increase in fare from 8 to 10 cents on the Black Bridge-Venice division of the East St. Louis & Suburban Railway, East St. Louis, Ill., has been filed with the Illinois Public Utilities Commission. Service on this

division was curtailed for about four months but was resumed recently. During the time it was suspended persons going to and from Venice paid from 20 to 25 cents for jitney rides.

Six Cents in El Paso.—The City Council at El Paso, Tex., has approved the application of the El Paso Electric Company for a 6-cent fare on its city lines. The Council first held a public meeting to obtain the views of the public on the proposal, and at this meeting practically no opposition to the fare increase was voiced. The company represented that it could not maintain the present service on the 5-cent fare, and that unless fares were increased, the service would have to be curtailed.

Conductor Freed of Murder Charge.—J. C. Knight, who on Oct. 12 shot and killed James M. Means, assistant superintendent of transportation of the Georgia Railway & Power Company, Atlanta, Ga., has been acquitted of a charge of murder by a jury in the Criminal Court at Atlanta. The shooting occurred while Mr. Means was reprimanding Knight, a conductor, who had admitted being short in his accounts. Knight based his defence on the claim that the slaying was accidental.

Bus Regulation Urged.—The Chamber of Commerce of Providence, R. I., has forwarded to the City Council a copy of the report of its committee on jitney regulations, made after a study of the local bus situation. The committee finds that the jitney service as at present operated is "extremely dangerous," and believes that the public should be safeguarded by the passage of a new ordinance. The report recommends the requirement of a bond for every person operating a jitney, limitation of operation to persons over twenty-one years of age who have passed an examination, and the establishment of routes and schedules.

More State Rates Raised.—The Interstate Commerce Commission on Nov. 26 rendered a decision in which it directed railroads operating in the State of Illinois to raise intrastate passenger fares 20 per cent. The commission on Dec. 1 ordered a 20 per cent increase in intra-state passenger fares in Wisconsin. The commission reaffirmed its recent action ordering intrastate passenger fares fixed by the New York Public Service Commission for the Second District should be increased to conform to the interstate rates. It asserted that its construction of the recent transportation act is not a violation of state rights. Fourteen railroads operating in Illinois on Nov. 29 obtained an injunction in the federal court restraining Attorney General Brundage and municipal and county officials in Chicago from enforcing state tariff restrictions. Justice Cropsey of the New York Supreme Court on Nov. 27 issued injunctions restraining the Long Island Railroad and other carriers from placing in effect the higher fares authorized by the Interstate Commerce Commission authorized by the I. C. C.

Personal Mention

William H. Taylor Resigns

Fritz J. Frank, vice-president of the Iron Age Publishing Company, has been elected president of that company, following the resignation of William H. Taylor, who has been president and general manager for more than ten years.

Mr. Taylor has resigned because of ill health. He became connected with the *Iron Age* as general manager, after a group of publishers had acquired the ownership from David Williams. Mr. Taylor had been connected previously with various trade and engineering publications over a period of fifteen years, having for a time been vice-president of the McGraw Publishing Company, and, later, president of the Taylor Publishing Company of Chicago.

Fritz J. Frank, who succeeds Mr. Taylor, has been with the Iron Age Publishing Company since 1910, after an active association with other trade publications, among them *Colliery Engineer* and the *Mining and Scientific Press*. He has a wide acquaintance in the iron and steel and machinery trades, is experienced in business journalism, and is thoroughly committed to the traditions and standards of *Iron Age*.

Changes on the Chicago "L"

E. C. Noe, for many years general manager of the Chicago (Ill.) Elevated Railways, has been promoted to the office of vice-president of the several companies comprised in the system. The duties of the general manager will be assumed by Britton I. Budd, president. Active responsibility for operation of the roads will be assigned to B. J. Fallon, assistant general manager.

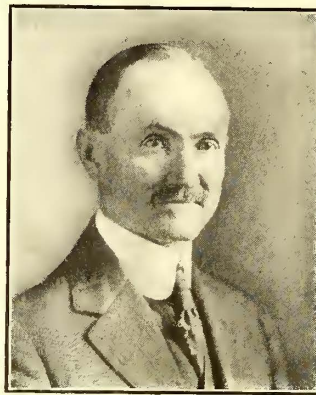
John Bauer, Consultant

John Bauer has established himself in New York as a consultant on finance, accounting and tax matters. From July, 1917, to December, 1920, he was chief of the division of accounts of the Public Service Commission for the First District of New York. Following his resignation from the Public Service Commission Mr. Bauer acted as expert adviser on transit matters in the office of the Corporation Counsel of New York City. Mr. Bauer received his technical training in economics and finance at Yale University. In 1908 he went to Cornell, where he served as instructor and then assistant professor in economics, lecturing on general economics, corporation finance and accounting. In 1914 he obtained a leave of absence from Cornell and joined the Public Service Commission for the First District temporarily, working more particularly on a revision of the uniform

system of accounts. He also did a variety of analytical work in connection with rate cases, capitalization cases, rapid transit contracts, etc. He subsequently took charge of the newly created department of accounting, corporation finance and public utilities at Princeton University. Mr. Bauer is the author of numerous articles on finance, economics and accounting matters, some of which were contributed by him to the *ELECTRIC RAILWAY JOURNAL*.

Mr. Perry, President

Through an oversight in the composing room incident to the preparation of the issue of Nov. 20 for the press, the wrong portrait was published in connection with the biography of James



J. A. PERRY

A. Perry, the new president of the National Association of Railway and Utilities Commissioners. The correct portrait of Mr. Perry is published this week.

Mr. Perry is a staunch advocate of vesting rate-making authority in the state commissions. He will probably play a prominent part in the campaign to be waged by the state regulatory bodies to preserve their powers from curtailment at the hands of the Interstate Commerce Commission. It is reported that the association may intervene in the legal actions now pending to test the right of the federal commission to fix intrastate rates.

Obituary

P. L. Utley, secretary, general manager and purchasing agent of the Escanaba (Mich.) Traction Company, died recently.

J. J. Regan, of the railway department of the General Electric Company, Schenectady, N. Y., died on Nov. 11. Mr. Regan was born in Schenectady in 1876. He received his education at the schools in that city and entered the employ of the General Electric Company at the age of eighteen years. For a number of years he was connected with the railway department of that company, and had a large acquaintance with men identified with railway interests.

B. Leighton Beale, secretary of the Boston (Mass.) Transit Department, died on Nov. 24. Mr. Beale became secretary of the Boston Transit Commission when it was organized in 1894. He served continuously in that capacity until it went out of existence in 1918. When, under the "constitution" act, it became the Boston Transit Department he remained its secretary, and was such at the time of his death. Mr. Beale was a newspaper man by profession. He was connected with a number of Boston dailies at one time or another, occupying positions all the way from reporter to city editor. He gave up journalism several years ago.

D. Levering Jones died of paralysis at his home in Philadelphia recently. Mr. Jones was a dominant figure in electric railway circles in Indiana from 1895 to 1910. He was president of the old Ft. Wayne & Wabash Valley Traction Company and chairman of the board of directors of the Ft. Wayne & Northern Indiana Traction Company until the company went into receivers' hands some years ago. At various times he was interested in the Indianapolis Street Railway, the city lines of Lafayette, the Indiana Union Traction Company, the Ohio Electric Railway, the Ft. Wayne & Wabash Valley lines and the Ft. Wayne & Northern Indiana Traction Company, now the Indiana Service Corporation.

Edgar Peckham, prominent as a manufacturer of trucks for electric railways during the early history of the industry in this country, died in London, of heart failure, on Sept. 22. For a number of years Mr. Peckham had been living in London, part of this time being engaged in the manufacture of trucks. Mr. Peckham was a native of Oneida County, N. Y., and while engaged in the truck business in this country, had his factory at Kingston, N. Y. He was one of the earliest to advocate the use of independent trucks as opposed to the former horse car running gear with the motor suspended from the car frame. The principal feature of the Peckham truck, as built for single-truck cars, was what was called the cantilever extension frame or the use of an extended spring base supported by a cantilever truss from underneath. The purpose of this construction was to reduce the oscillation of the car and at the same time to provide a better support for the end of the car, while retaining a short wheel base. Mr. Peckham moved from this country to England in 1904. He was eighty years of age.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Buying of Heater Repair Parts Not Large

Manufacturers Are in Good Shape to Meet the Demand—Back Orders for Heaters Catching Up

Following a good buying season for electric car heaters, manufacturers report that the buying of repair parts thus far, while fair, has not been up to the standard of other seasons. Apparently electric traction companies are not making repairs to heaters except where absolutely necessary, the inference being that tightness of money is to blame. Furthermore, on the buying of material for repair work there is a tendency to postpone ordering as long as possible, a circumstance which causes embarrassment to the heater manufacturer who must anticipate his needs for repair parts well in advance. On the other hand, late rush orders for completed heaters did not develop this year along in October or November.

Supply conditions of heater parts on the whole are favorable. The steel situation has eased up to such an extent that surplus stocks of the metal parts, such as screws, clips, sheets, etc., are in good shape. Resistance wire is also said to be in good shape. Shipments of porcelain, on the other hand, leave much to be desired, but by advance ordering manufacturers have accumulated a stock sufficient to care for customers' needs.

Up to this time manufacturers have been very busy turning out back orders for complete heaters, but just now production is beginning to catch up with unfilled orders.

Emergency Coal Order Vacated by I. C. C.

Preferential Transportation of Coal for Utilities and Priorities on Open-Top Cars Withdrawn

With the vacating by the Interstate Commerce Commission on Nov. 24 of service order No. 21 all preferential transportation of coal for utilities has been stopped. This order, which had been on the books since Oct. 8, superseded the general preferential order for utility coal and applied only to emergency cases. In setting the order aside the commission stated that "the emergency which caused the commission on the eighth day of October, A. D. 1920, to make and enter its service order No. 21 has in general been measurably relieved."

A few days later the I. C. C. cancelled order No. 20, the last of the open-top car coal transportation priority orders.

The Interstate Commerce Commission rescinded the priority order against the advice of many coal specialists. It is believed necessary to continue maximum production during December to insure against scant supplies later with attendant price increases.

The commission very evidently is of the opinion, however, that most of the open-top cars will continue in the coal trade despite the withdrawal of the order owing to the limited amounts of building and road materials which are

shipped at this season of the year. In some quarters it is feared that the lack of open-top equipment during recent months has led to an accumulation of stocks of materials best handled in that type of car and that immediate advantage will be taken of the lifting of the order to make these shipments. It is pointed out, however, that should other commodities absorb an undue proportion of the open-top cars the commission would reinstate the order on short notice.

Steel Price Cut Expected to Stimulate Buying

Action of Certain Independent Mills in Lowering Prices to Meet Those of Steel Corporation Likely to Relieve Steel Situation

Following the announcement on Nov. 26 by the Jones & Laughlin Steel Company that its prices on bars, plates and structural shapes had been revised downward to meet the prices quoted by the United States Steel Corporation, which prices were those suggested at the conference of steel interests with the Industrial Board in March, 1919, there has been in the steel trade a general feeling of satisfaction. It is felt that this action on the part of this independent steel company will exert a stabilizing influence on the steel market, and that a readjustment in the trade will follow.

Some action was necessary to overcome the low level of steel buying and to avoid complete suspension of work in many plants. At the time of this writing, however, there has been little noticeable revival of buying, but it is expected that few days will go by before this condition is overcome and buying is resumed. While not all independent producers have met the full drop in prices announced by the one producer above, many mills have shown a recession to figures close to the bottom prices quoted.

The independent mills as a whole are working much below capacity, in some cases down to 60 per cent. It is probable that these mills will now receive some orders which had previously been given to the corporation but on which shipments were some distance off. This feature of prompt shipment on the part of the independent companies is likely to cause cancellation orders on the leading steel producer.

Certain independent prices on plates are quoted now at 2.65 cents, on structural shapes 2.45 cents and on bars 2.35 cents, Pittsburgh, while wire nails have dropped to \$3.25 per keg. At the same time other of the independents have quotations much higher than these. Reductions in sheets have just been announced from some independents;

blue annealed has gone to 4.05 cents base, black to 4.85 cents and galvanized to 6.20 cents. However, other interests are still quoting 5.50 cents for the black and 7 cents for galvanized.

Better Deliveries Help Railway Purchasing Agents

In meeting immediate needs, railway purchasing agents note general improvement in deliveries by both manufacturers and jobbers. Hand-to-mouth buying is practised throughout the traction industry, but the better shipments now available are tending to establish a fairly healthy cash business, especially in small supplies. A substantial volume of service must be maintained regardless of the present shrinkage in general business, and from the buyer's standpoint conditions are improving right along. The demand for supplies continues far above levels common to some less stable industries whose buying has fallen to a bare fraction of their normal.

For a long time the electrical supply jobber was overwhelmed with orders from industrial plants and central stations. Little attention was paid by some of these houses to the problems of electric railway material supply, probably because of its comparatively small volume and because of the precarious financial status of many traction companies. Now that the jobbers' sales forces are combing the field for orders, the purchasing agent who seeks service need not go far to find it. In the opinion of well-informed purchasing agents, the time is ripe for establishing new and better relations with the sales representatives of both manufacturer and jobber. Even small orders are treated with a new respect and current needs may be helpfully met by such orders in view of future price uncertainties, it is believed. The railway purchasing agent is not inclined to

stock up extensively on supplies with the prospect of price recessions which many buyers still believe exists, and it is felt to be a wise policy to buy carefully and to take advantage of improving deliveries in cutting down idle investment in spare parts. A little co-operative sales effort on the part of the jobber, it is believed, especially in supplying material from stock for roads in the same general territory, would help in liquidating accumulated supplies and reduce the outlay needed by the companies to maintain the volume of service now necessary. Nor are the electric roads canceling orders as are some other buyers. These are the opinions of a leading purchaser of electric railway supplies and are suggestive of a better outlook.

Trolley Cord Quotations Lower in Soft Cotton Market

Recent declines in the raw cotton market—spot cotton being quoted in New York at 16.65 cents at this writing—have been reflected in lowering prices for trolley cord and bell cord. Within the past month reductions in the different grades of cord have amounted to approximately 25 per cent and new figures are being quoted almost weekly. According to the grade desired, trolley and bell cord can be purchased at prices ranging from approximately 75 cents to 95 cents a pound.

Buying in the trolley field is quiet and the building field is not providing anything like normal demand for either the weatherproof or plain braided cord. Stocks, consequently, are in good condition both in manufacturers' hands and in jobbers' hands and no difficulty was found in filling orders.

Low Cotton Affects Car Curtain Manufacturers

Present Light Demand Reflects Tendency to Await Drop in Prices—Production and Deliveries Improve

Sales of car curtains the past year have been good, but for some time past demand has been falling off as consumers are taking the attitude of waiting for lower prices. The buying of curtain material and parts for winter repair purposes, however, is said to have been as good as in other seasons. Steam road demand especially has been large in that respect.

Earlier this year the large buying of curtain material from other industries than railway, such as the automobile, for instance, was so heavy that it curtailed somewhat the supply of curtains. Trouble in obtaining metal fittings for curtains was also experienced. These conditions have now changed as curtain cancellations from automobile manufacturers were received in considerable volume and the metal situation has eased up. Combined with greater labor efficiency and a very plentiful supply of cotton, these factors have tended to improve deliveries of car curtains, and back orders which were numerous three or four months ago are now catching up.

At present deliveries can be made on curtains in about four weeks, according to representative manufacturers, with a variation at each extreme depending upon the class of material desired. There seems to be a decided tendency at present for electric railways to make their curtains serve a longer period than usual without making repairs.

Following their rate increases some time ago the buying of steam railroads

for a time increased substantially. There is still considerable business in sight both from steam and electric lines, which will probably not be placed until the market reaches a firm basis. Even curtain manufacturers are buying on a hand-to-mouth basis owing to the situation in the cotton market. Some slumping of prices on the finished product is reported recently and at present, it is stated, the price tendency seems still to be downward.

New Woods Sought for Ties

The Pennsylvania Railroad, owing to unprecedented cost of railroad ties, it is announced, has decided to investigate the adaptability of the hard woods of Central and South America for this purpose. Normally the Pennsylvania system uses from 5,000,000 to 6,000,000 ties annually. The average net cost has risen fully 100 per cent since the beginning of the war. Furthermore, white oak, which the company considers the most desirable wood for ties, is becoming scarcer. Therefore the company has inquiries under way to determine the comparative cheapness and longevity of southern hard woods for railroad ties.

Rail Bonds and Contactor Parts Lower

With electrolytic copper being sold at a figure below that reached at any time since the opening of the war, it has brought down with it prices of certain of its products made for the most part of that metal. Copper has been sold in small amounts by dealers for spot delivery as low as 13.5 and 13.75 cents delivered, but little is available at that figure. Producers are holding

NEW YORK METAL MARKET PRICES

	Nov. 3, 1920	Dec. 1, 1920
Copper ingots, cents per lb.	15.00	14.00
Copper wire base, cents per lb.	17.50 to 18.00	17.00
Lead, cents per lb.	7.25	5.50
Nickel, cents per lb.	43.00	43.00
Zinc, cents per lb.	7.40	6.00
Tin, cents per lb.	39.50	33.25
Aluminum, 98 to 99 per cent, cents per lb.	33.10	32.90

OLD METAL PRICES—NEW YORK

	Nov. 3, 1920	Dec. 1, 1920
Heavy copper, cents per lb.	12.00 to 13.00	10.50 to 11.00
Light copper, cents per lb.	10.00 to 10.50	8.50 to 9.00
Heavy brass, cents per lb.	6.50 to 7.00	6.50 to 7.00
Zinc, cents per lb.	4.00 to 4.50	3.25 to 3.50
Yellow brass, cents per lb.	5.00 to 5.50	4.50 to 5.00
Lead, heavy, cents per lb.	5.25 to 5.50	4.00 to 4.50
Steel car axles, Chicago, per net ton.	31.00 to 32.00	32.00 to 33.00
Old car wheels, Chicago, per gross ton.	33.00 to 34.00	19.00 to 21.00
Steel rails (scrap) Chicago, per gross ton.	22.50 to 23.50	19.00 to 21.00
Steel rails (re-rolling), Chicago, gross ton.	30.00 to 31.00	20.00 to 21.00
Machine shop turnings, Chicago, net ton.	8.00 to 8.50	7.50 to 8.00

ELECTRIC RAILWAY MATERIAL PRICES

	Nov. 3, 1920	Dec. 1, 1920		Nov. 3, 1920	Dec. 1, 1920
Rubber-covered wire base, New York, cents per lb.	23.00	23.00	Galvanized wire, ordinary, Pittsburgh, cents per lb.	3.95 to 4.70	3.95 to 4.45
Weatherproof wire (100 lb. lots), cents per lb.	23.00	22.00	Car window glass (single strength), first three brackets, A quality, New York, discount*	77%	77%
Standard Bessemer Steel Rails, per gross ton.	45.00 to 63.00	45.00 to 55.00	Car window glass (single strength), first three brackets, B quality, New York, discount.	77%	77%
Standard open hearth rails, per gross ton.	47.00 to 65.00	47.00 to 57.00	Car window glass (double strength, all sizes, A quality), New York, discount.	79%	79%
T-rail, high (Shanghai), per gross ton, f.o.b. mill.	73.00	73.00	Waste, wool (according to grade), cents per lb.	15 to 21	15 to 21
Rails, girder (grooved), per gross ton, f.o.b. mill.	88.00	88.00	Waste cotton (100 lb. bale), cents per lb.	15 to 17½	15 to 17½
Wire nails, Pittsburgh, cents per lb.	3.25 to 4.50	3.25 to 4.25	Asphalt, hot (150 tons minimum), per ton delivered.	40.00	40.00
Railroad spikes, drive, Pittsburgh base, cents per lb.	4.25 to 5.25	3.25 to 4.25	Asphalt, cold (150 tons minimum, pkgs. weighed in), per ton.	42.50	36.00
Tie plates (flat type), cents per lb.	4.00 to 5.00	3.00 to 3.75	Asphalt, filler, per ton.	40.00	36.00
Tie plates (brace type), cents per lb.	4.00 to 5.00	3.00 to 3.75	Cement, New York, per bbl.	5.10	4.90
Tie rods, Pittsburgh base, cents per lb.	6.50 to 7.00	6.00 to 6.50	Linsed oil (raw, 5 bbl. lots), New York, per gal.	1.05 to 1.07	.85
Fish plates, cents per lb.	4.00 to 5.00	3.25 to 4.25	Linsed oil (boiled, 5 bbl. lots), New York, per gal.	1.07 to 1.09	.87
Angle bars, cents per lb.	4.00 to 5.00	3.25 to 4.25	White lead (100 lb. keg), New York, cents per lb.	15½	14.25
Rail bolts and nuts, Pittsburgh base, cents per lb.	6.00 to 7.00	6.00 to 7.00	Turpentine (bbl. lots), New York, per gal.	1.17	.95
Steel bars, Pittsburgh, cents per lb.	2.35 to 3.25	2.35 to 3.00			
Sheet iron, black (24 gage), Pittsburgh, cents per lb.	4.20 to 6.85	4.20 to 5.35			
Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb.	5.25 to 8.05	5.25 to 6.55			
Galvanized barbed wire, Pittsburgh, cents per lb.	4.45	4.10 to 4.85			

* These prices are f.o.b. works, with boxing charges extra.

to 14 cents as a minimum figure, with some of them not in the market at that price.

This has reflected on rail bonds, which are being quoted at another 5 points off, bringing the discount to 25 per cent as of Dec. 1, with the buying very quiet. Copper wire, net, at the mills is at 17 cents. At the same time from at least one source contactor fingers and segments are being quoted at about a 5 per cent lower figure since the last week in November.

Rolling Stock

The Los Angeles (Cal.) Railway. following the successful operation of forty-five safety cars on two of its lines, has received a recommendation from the Board of Public Utilities of that city to install fifty more Birney cars.

Consolidated Railway Company, Springfield, Ill., has installed the first of seventeen one-man cars and the others are expected soon. Officials stated that the use of the new cars will result in no reduction of the working force, but will reduce the present twelve-minute schedule to ten and nine minutes.

Track and Roadway

Los Angeles (Cal.) Railway.—The Hollywood Board of Trade has petitioned the Board of Public Utilities requesting the extension of the Vermont Avenue line from First Street to Griffith Park.

South Covington, Cincinnati & Newport Street Railway, South Covington, Ky.—The South Covington, Cincinnati & Newport Street Railway has been granted an extension of six months instead of a year for the use of Cincinnati streets north of Third Street because the Dixie Terminal will not be completed before that time.

Union Traction Company of Indiana, Anderson, Ind.—In order to eliminate two sharp curves and also the slow movement of interurban cars in Main Street through Summitville, Ind., the Union Traction Company is moving more than 4,000 ft. of its track one block west of Main Street. A compromise was effected with persons who at first refused an offer of the railway for a small tract of land, where curves in the line will be removed.

Pittsburg County Railway, McAlester, Okla.—The Pittsburg County Railway announces that it will extend the interurban line eastward to Fort Smith, Ark., in the near future. Preliminary surveys have already been made and financial arrangements are now being negotiated. The distance is approximately 80 miles. It is estimated that the line will cost about \$2,500,000.

Minneapolis (Minn.) Street Railway.—An ordinance has been drafted on authority of the street railway commit-

tee directing the Minneapolis Street Railway to build its proposed East Twenty-fifth Street line in accordance with the plan originally suggested.

Duluth-Superior Traction Company, Duluth, Minn.—The Wisconsin Railway Commission has dismissed the petitions for a new railway on East Second Street from McBane to Hennepin Avenues and also a double-track from Wyoming Avenue to New York Avenue in Superior, Wis. The petition for the erection of these two lines is part of the recent demand made for the construction of new lines which also included a line on Twenty-first Street and extensions on the Tower Avenue line. These two lines were ordered constructed by the commission in the month of April, 1920. At this time the petitions for the Itasca line and the Billings Park line were considered.

Holyoke (Mass.) Street Railway.—The Holyoke Street Railway will very shortly begin the work of laying new ties and rails in Hitchcock Street. This improvement plan was brought about by the repeated complaints of residents of Hitchcock Street against the way in which the ground shakes and vibrates when trolleys pass.

Trade Notes

The J. G. Brill Company, Philadelphia, Pa., has arranged for the sale of equipment trust notes totaling \$152,000 and \$144,000 respectively.

The Walstrum Armature Works, Birmingham, Ala., have filed notice of increase in capital stock from \$10,000 to \$25,000.

W. McK. White, Western representative of the Columbia Machine Works & Malleable Iron Company, has moved his office from 6712 Cornell Avenue to 343 South Dearborn Street, Chicago.

The Kalamazoo Railway Supply Company, Kalamazoo, Mich., manufacturer of railway supplies, has filed notice of an increase in capital stock from \$300,000 to \$600,000.

The Bates Expanded Steel Truss Company, Chicago, Ill., has placed a contract for a one-story addition, 100 x 135 ft., to its plant on Forsythe Avenue, East Chicago, Ind.

The American Insulator Company, New Freedom, Pa., has acquired a site at Norfolk, Conn., on which it proposes to erect a two-story building. The proposed plant will give employment to about 500 people.

The Southern Car Wheel Company, Railway Exchange Building, St. Louis, Mo., contemplates the erection of a new plant on Marcus Avenue, fronting on the Terminal Railroad. The estimated cost will be more than \$250,000.

The Worthington Pump & Machinery Corporation has completed plans for remodeling a building at North Bridget and East Dwight Streets, Holyoke, Mass., in connection with its local plant there. The cost is estimated to exceed \$25,000.

Heywood Brothers & Wakefield Company, Wakefield, Mass., announces the appointment of Edward Buker as representative of its car-seat department, with offices and exhibits at 1415 Michigan Avenue, Chicago, Ill. Mr. Buker will handle sales of car seats and woven rattan car-seat webbing, as well as snow-sweeper rattan, in that territory.

Swedish Merchant Wants Cars.—An importer and commission merchant in Sweden desires to be placed in communication with manufacturers of narrow-gauge electric motor cars for two or three passengers. Information may be had from the Bureau of Foreign and Domestic Commerce at Washington, D. C., by referring to No. 34067.

The Erie Electrical Equipment Company is seeking a location in Johnstown, Pa., to erect a foundry and factory for the manufacture of electrical and mechanical products, fittings to support high-tension and low-tension cables, busbars, insulator supports, switchboard panel fittings, etc. The company has opened an office at 620 Elder Street, Johnstown. F. S. Proudfort is chief engineer.

The Black & Decker Manufacturing Company, Towson Heights, Md., has recently increased its capitalization by \$2,000,000. Of this amount \$368,500 was subscribed by the employees. Since closing the books on the above issue so many more requests for subscriptions have been received that the company has decided to open up immediately another block of \$150,000 for the benefit of the employees of the organization.

New Advertising Literature

Condensers.—The Elliott Company, Jeannette, Pa., has issued bulletin "C," covering its Elliott-Ehrhart condensers.

Elevators and Conveyors.—The Dodge Sales & Engineering Company, Mishawaka, Ind., has published a 160-page catalog describing the Dodge standardized elevators and conveyors.

Copper-Clad Steel.—"Putting the Strength of Steel Into Your Wires" is the title of a two-page leaflet issued by the Copper-Clad Steel Company, Rankin, Pa. (Braddock, Pa., post office).

Ballbearings.—"Langhaar Self-Adjusting Ballbearings" is the title of a thirty-two-page booklet issued by the Langhaar Ballbearing Company, Aurora, Ind., describing the "L-S-A" self-adjusting ballbearings.

Headlights.—"Mine Locomotive Headlights" is the subject of bulletin 7-A-C-1, which describes the new mine locomotive headlights for 23-watt to 94-watt lamps recently placed upon the market by the Westinghouse Electric & Manufacturing Company, George Cutter Works, South Bend, Ind.

Jacks.—The Duff Manufacturing Company, Pittsburgh, Pa., is distributing catalog No. 104, a 148-page book illustrating and describing the complete line of Duff lighting jacks.