Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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The Program of the Mid-Year Meeting Will Be Found on Page 412 of This Issue

Standardizing the Various Committees on Standards

THE standardization work of the American Electric Railway Association should be benefited by the organization of the American Engineering Standards Committee (which will probably become known as the A. E. S. Committee), to which Comfort A. Adams gave considerable space in his A. I. E. E. presidential address last week. The scope and plan of this committee are covered in an article elsewhere in this issue. The formation of this committee is in line with what is being done in other countries, and the work of the committee will be a success from the start if the co-operation of all interested societies is enlisted at once. An enormous amount of time and energy has been put into the department of specifications of one sort and another in the hope that these would prove useful in reducing costs, and undoubtedly the total results secured have been very great. That they have not been as great as hoped or expected is illustrated by the experience of the American Electric Railway Engineering Association, which is typical.

One trouble in all of this work, as pointed out by Professor Adams, is "that in many cases the committees are made up of men who do not realize that a standard must not only be rational and technically correct but it must also be acceptable to all those interested in its manufacture and use." In the case of the railway association it has not been so much a matter of the personnel of the committees as a failure on the part of the industry to realize in a practical way what can be accomplished from reasonable uniformity in design. There has not, of course, been the urgent necessity for standardization in electric railway work as in some other lines. For example, the steam roads simply had to get together on couplers and other car details on account of the interchange of freight cars. The automobile manufacturers had to do something of the same kind to enable repairmen to maintain cars of all makes with a reasonable stock of supplies. In the electric railway field the benefits seem more remote and therefor less tangible.

To return to the quotation given above, let us consider further the expresion, "a standard . . . must also be acceptable to all those interested." Now the proof of acceptability is use, not mental assent to theoretical value. A "standard" is a standard only when things are made to standard specification. It would be as idle to expect a musical or literary composition to be a "classic" by so labeling it as to expect a specification to become standard by the same process. A standard must be a crystallization of existing tendencies in practice if it is to live and serve its purpose. To paraphrase an old conundrum: "When is a standard not a standard?"—Answer: When nobody uses it.

Painting Economies Are Increasing

THERE are very few railways that have been able to increase the number of their cars in proportion to the increase in passenger traffic that has occurred during the past two years. This has caused an increased demand by the transportation department that all cars possible be made available for rush-hour service. The mechanical department has thus been placed at a decided disadvantage in carrying out its car-painting schedule, as it is difficult to get the equipment into the shops and when once started all work must be hurried so as to get the cars back into service again at the earliest possible moment. Proper protection of all cars, and especially of steel cars by painting, is very important. Several roads have simplified their painting considerably by eliminating striping and lettering; simple monograms have been substituted for the long names of railways, and numbers have been omitted from the body of the car in many instances. The use of house paint of a uniform color which does not show dirt readily is being adopted at least to some extent. Several roads have adopted battleship gray for their cars and effected considerable savings. Oil enamel has come into general use instead of the older methods of applying a primer with several coats of lead to be followed by rubbing coats and finishing varnish.

The spraying system of painting has also been adopted by several roads. This permits of the work being done in a much shorter time, and many places inaccessible to a brush are thus reached. The amount of paint used with the spraying system is undoubtedly greater than if cars are painted by hand, but this slightly increased cost will be more than paid by the revenue resulting from the earlier return to service.

The removal of paint from cars is another item on which time can be saved by careful selection of equipment and the use of approved methods. In Omaha by using a type of torch for burning off paint with a single hose line instead of with hand torches previously used, the time taken for this part of the work was reduced 40 per cent. Old methods of painting cars are

being rapidly superseded by more rapid and simpler practices. The long standing tradition that electric railway cars must be painted and varnished much like a piano is not in harmony with the present times of efficiency and economy.

Safety Cars Making Good in Connecticut

EVIDENCE continues to accumulate that the safety cars put in operation in Bridgeport on Feb. 2 are most popular with the public, the men and the company. As described in our issue of Feb. 15, the line on which they run is not in the outskirts but extends through the center of the city where the streets, as in many other cities in New England, are quite narrow. Nevertheless the cars maintain their schedule and make such good time that they are winning traffic from those who formerly walked or rode in private automobiles. The Hartford press is already calling for their installation, at least experimentally, in that city, to which one of the Bridgeport papers replies: "All the Birney cars that Hartford does not want, Bridgeport will take." The success of the light car was presaged by experience in the Southwest, but satisfaction over the first extended trial in New England is none the less welcome.

Of course the demonstrated value of the safety car for certain routes should not tempt managers to apply it to conditions to which it is not adapted. On heavy traffic lines in large cities two men per car are still recognized as necessary by the advocates of the safety car. Nor should the car be considered as in any way removing the necessity for a higher fare than that which was adequate before the war conditions raised the prices of material and labor. The car helps a railway to give improved passenger service on a route for which it is adapted, but it should not be expected to effect miracles in the financial condition of the operating company. In this connection it might be said that the Connecticut experiment has demonstrated that the motorman on a safety car has no difficulty in collecting a 6-cent fare. The fact that it consists of two coins has not materially affected the speed of the safety cars.

Complaint Handling Makes Friends or Enemies—Which Do You Want?

THE Illinois Public Service Commission, as a result of its five years' experience, has been much impressed with the influence of complaint handling upon public relations. As we noted in a recent issue, the commission has directed the attention of the State utilities to this point. Its action in so doing is to be commended, not because utilities in Illinois need the reminder any more than those in other states, but because the commissions should be encouraged to make use of their function of double representation to bring the public and the railways into a better understanding.

The specific suggestion of the Illinois commission cannot be urged too strongly. Complaints in most cases are the beginning of an intercourse which will result in the making of friends or enemies. The choice in the main lies with the company. A prompt, sympathetic acknowledgment, followed by a just investigation and a prompt, frank explanation, will probably satisfy the complainant and convince him of the company's sincerity and honest efforts to serve. But what does the other course do?

Three years ago a friend of ours sent in a legitimate complaint regarding poor service and discourteous treatment by employees on an Eastern railway. Two weeks later he received a stereotyped reply to the effect that the complaint had been referred to the official who had "special charge" of such relations with the public. Since then—silence, in spite of a repetition of the complaint. Perhaps the case has not yet been reached on the company's complaint docket; be that as it may, an enemy has been made. Need we add that this company to-day is in general public disfavor? Need we say that a large part of this ill-will is undoubtedly due to such examples of complaint-handling stupidity?

But it may be argued that the company is not at fault for what this "public relations" official failed to do. It is true that an executive and a board of directors cannot keep in touch with the details of such work, but the vital character of all relationships with the public permits no excuse for a lack of general supervision by those in authority. Certainly when public hostility is growing yearly and no effort is made to lessen it, the blame lies at the door of the highest.

Public Misconceptions Cannot Simply Be Wished Away

ELECTRIC railways are widely distrusted by the public. This may be stating conditions with excessive harshness, but not to any great extent. Observant operators have during the last two years noticed on the part of the public an attitude of decided hostility which has hindered if not prevented the procuring of many higher fares. About 348 fare increases have indeed been granted, but many petitions have been refused and many others have been allowed only after much delay and strife. Why is this?

This question permits of various answers, according to the class and the experience of each respondent. Some striking answers are given in the address made by R. T. Sullivan before the Central Electric Railway Association, abstracted this week, and more are contained in the replies, published this week and last, to the questionnaire which this journal recently sent out to public service commissioners, mayors, representatives of chambers of commerce and other men interested in civic affairs. The answers are not sufficiently numerous to warrant the drafting of very definite conclusions, but on the whole they seem to be centered around a few general ideas worthy of mention.

To take Mr. Sullivan's remarks first, he frankly says that electric railways have shown the lack of a definite and a continuous policy in the past; that their publicity has too often consisted of cries for succor in emergencies rather than of a constant telling of all the facts in times of calm as well as storm, and that some deeds of the past are not to be commended. He avers, however, that frequently railway men are too ready to take the blame for sins of bygone days; that political attacks and yellow journalism have created and fostered public ill-will against the railways, and that the car rider's interest in service is purely selfish while the railway desires the good of the largest number.

While admitting that the electric railway industry

has internal faults, therefore, Mr. Sullivan points out emphatically some external causes of public distrust. He undoubtedly speaks the truth, but—here's the vital point—the public is less interested in its own faults than in the believed faults of the railways. The thinking part of the public will confess the injustice and the impropriety of certain methods of handling utilities, but the public as a whole lays the greatest blame for present conditions upon internal defects of the electric railway industry.

Do you think that this is exaggeration? Read the replies to our questionnaire. The points which public representatives believe the public has in the front of its mind are these—that many railways are overcapitalized; that they held on to the 5-cent fare to make excessive profits in the past and can well stand temporary losses now, and that they have in the past rendered some form of inadequate and inefficient service. Therefore the public's idea of correction is more of a punitive character than that of assisting the railways to get on their feet again. In most concrete cases the charges are based only upon erroneous ideas and deep-seated prejudice, as many public leaders admit behind the scenes. But the public believes the charges to be true, and it requires more than a mere denial of them on the part of the railways to convince the public that retributory treatment is not justified.

The public has a certain fundamental antipathy against doing any more than it must to aid any monopoly, but its hostility to electric railways goes beyond this. If we had to sum up in two words the reasons for this general hostility, as portrayed by the replies to our questionnaire, we would unhesitatingly choose "ignorance" and "distrust." And what do the public representatives suggest as the proper means for overcoming these states of the public mind? Facts, and a conduct that creates and maintains confidence. Note carefully this double answer, for it is characteristic of the public point of view. Publicity is deemed to be fully effective only when it is backed up by the rendition of adequate service and the maintenance of a genuine policy of public co-operation.

The public must be educated, to be sure, but it has its own ideas about the process. It wants to be able to find out the facts instead of being deluged with mere argument. It wants its education to be through a consistent 365-day policy of facts supported by performance and not through a sudden splurge of publicity only when the company is in difficulty. It wants to know what the service costs and where the money goes. It wants to know the reasons, if adequate service cannot be given. It wants a surfeit of information and evidences of a desire to serve and to please. That is the price of public good will.

One word more. As Mr. Sullivan says, unfortunate is the company which cannot see its way clear to a consistent policy of publicity until it finds itself in a tight place. The last two years has produced many such unfortunates. Have they fully learned their lesson? We hope so, for doubly unfortunate would be such a company if it should now give up its work for better public relations. There is only one thing worse than a public neglected, and that is a public used and abandoned.

A Decision in Which Both Sides Lose

THE people of Des Moines appear to have won a hollow victory in the decision of Federal Judge Wade denying an increased rate of fare and holding that service must be adjusted to the income of the electric railway property. The decision was referred to in our issue of Feb. 15, and while it is a complete indorsement of the sanctity of a franchise agreement it also makes clear that a contract works both ways.

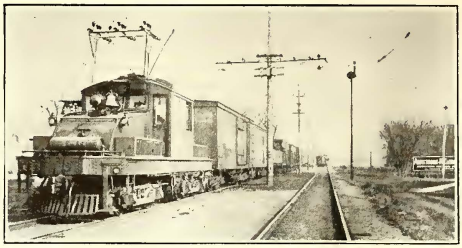
The court's ruling interprets two sections of the ordinance of 1915 under which the receivers for the company hoped to be released from the established fare of 5 cents or six tickets for a quarter. The receivers claimed that the service demanded by the city could not be rendered under present conditions from the present income. The federal judge held that while this claim if true is most unfortunate, he had no authority to modify the provisions of the contract. This meant, he explained, that the people are bound by the agreement as well as the company, "and when they get that service which can be paid for under the provisions of the contract, they must be content." Announcement of the court's views was followed by a statement of the company officials that a general curtailment of service would go into effect in the near future.

A regrettable feature of the Des Moines situation is that this modern type of ordinance, containing many excellent features, the result of a long period of negotiations, should so soon fall short of the purpose contemplated by its framers. Its weakness, of course, was the establishment of a flat rate of fare, and now that the court has emphasized the folly of such an arrangement we believe the car riders will be convinced that they have won no real victory in having the contract declared sacred. This view is already taken by the Des Moines *Capital* which says: "The real loser will be the patron, and when the patron loses the merchant naturally suffers his proportion of the loss, which will be exceedingly great. It is a most unfortunate result, after all of the years of effort Des Moines has made to get a real solution of its street railway problem."

Adequate transportation is the life-blood of a community. Excess service is a waste and insufficient service is a detriment. It is the part of good operating policy to eliminate non-productive lines, but when the curtailment of service is necessary on other routes because the patrons are unwilling to pay for what they are getting, the result must be unfortunate for all concerned.

The people who must put up with inferior service will, of course, be subjected to inconvenience, and business interests are bound to suffer in every district where trade is driven away because the facilities for transportation are allowed to deteriorate. We hope the people of Des Moines will not be too long in finding this to be true. Their better judgment must prevail after an experience with inadequate facilities, and if a new and more equitable deal between the company and the city is the outcome the decision of Judge Wade will have proved beneficial to all parties in this unfortunate dispute. We look for a speedy readjustment of the fare controversy.

Handling Electric Railway Freight by Train Loads



(In order of appearance)

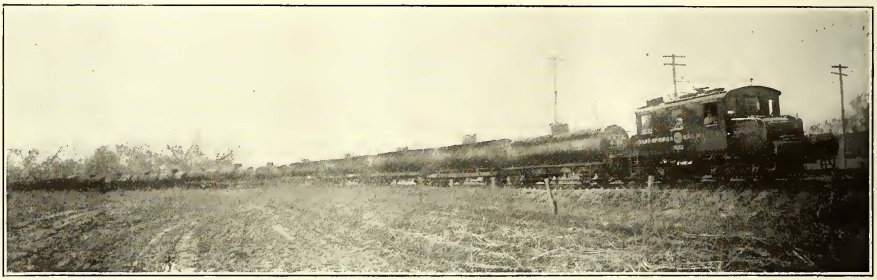
Waterloo, Cedar Falls & Northern Railway.

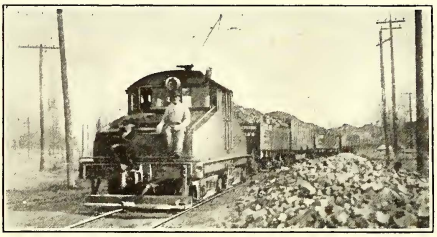
Sand Springs Railway.

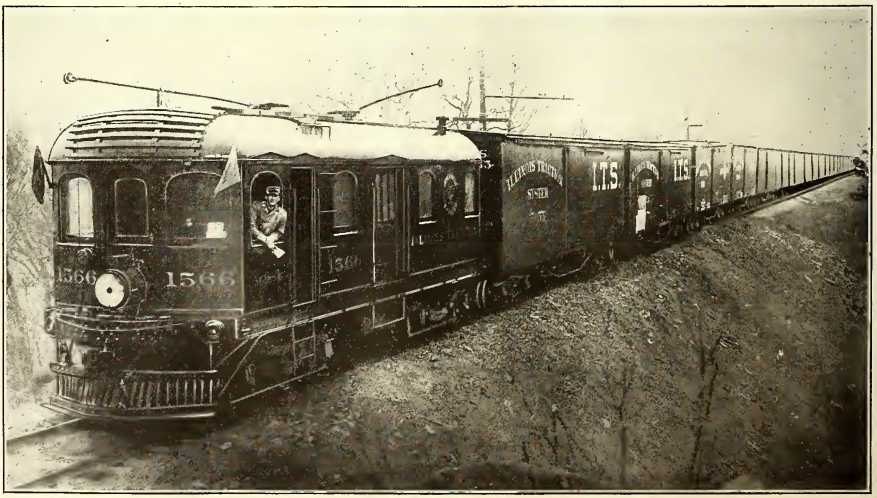
East St. Louis & Belleville Electric Railway.

Toledo & Western Railway

Illinois Traction System.

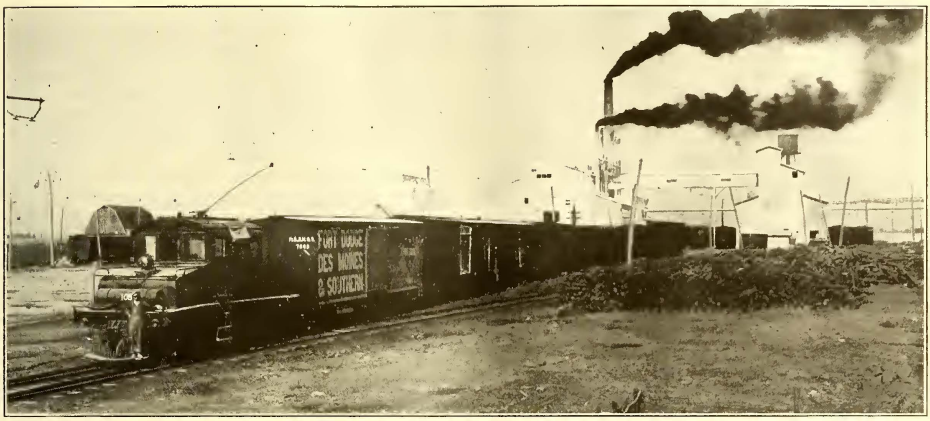






Hints for the Freight Operator*

BY A. B. COLE
Westinghouse Electric & Manufacturing Company



HAULING FREIGHT ON THE FORT DODGE, DES MOINES & SOUTHERN RAILROAD

Market Train Service Offers Lucrative Field for Electric Railways—How Interchanged Equipment Should Be Cared For—When Motor Cars, Trailers and Electric Locomotives Should Be Used—Proper Signaling Is Necessary for Safe Freight Operation

MILK HANDLING is undoubtedly one of the oldest forms of freight service on electric lines, and milk is generally one of the first commodities to be handled by any line taking up freight operation. Almost all electric railways have milk service, and this service is so valuable to the communities served that its loss would be of considerable monetary value. Consider, for example, the milk traffic into Indianapolis. The interurban lines entering this large center transport about two and one-half times as much milk and cream from the surrounding territory as do the steam railroads. During one year an interurban line carried 191,000 cans of milk and cream into the city, while all the steam lines together brought only 186,000 cans. This tremendous traffic is probably due to the frequent movement of electric as compared to steam trains, and also to the accessibility of the electric lines to the farms. The electric lines not only give frequent and fast service but also load milk at cross roads.

One way for an interurban railway to increase its freight revenue, without materially affecting the quantity of freight handled, is to see that all milk rates over the various divisions are consistent. On many lines inconsistencies often exist which involve discrimination and cause the companies to lose considerable money.

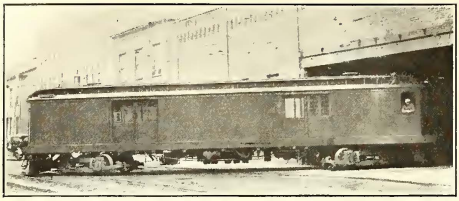
To supplement a milk and dairy service, one of the most natural services is that given by market trains. This applies, of course, to interurban lines that operate in territory having a number of truck and fruit farms. Market-train service has proved lucrative wherever tried on steam railroads, and undoubtedly interurbans, on account of their accessibility to the farms at one end and the city public at the other, could in many instances do a similarly profitable business. In general, however, this market-train service would not interest growers whose production was sufficiently large to enable them to ship in carload lots. Nor would it be of any advantage to those communities where farmers were co-operatively united to ship in carload shipments the output of many farms devoted to the products of the same commodity.

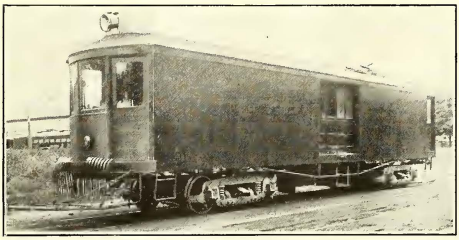
The service is designed primarily for small producers. Fruits and vegetables on many farms are maturing at intervals throughout the summer. The dairy products (eggs and poultry) and such commodities as apples and potatoes usually can be shipped throughout the year when ready for shipment or as the market demands. In all cases the producers would naturally combine their shipments into carload lots whenever possible.

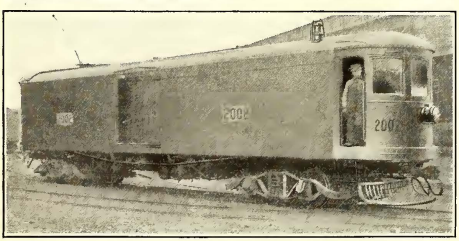
The market nearest to the small farmer is generally the best for him, especially if he produces a great variety of commodities and does not specialize on one or two. As nearness to the market enables him to keep in close touch with its demands, he can quickly adjust his supply to the demand. The electric railway plays a most important part in making the market accessible to the farmer irrespective of the location of his farm, provided it is within a distance of 100 miles.

In other words, the small farmer is really doing a re-

*Other articles by Mr. Cole in regard to freight hauling by electric lines were published in the ELECTRIC RAILWAY JOURNAL of May 11, 1918; Jan. 4, 1919, and Feb. 1, 1919.







TYPICAL FREIGHT MOTOR CARS IN ELECTRIC RAILWAY SERVICE

New York State Railways.
Interurban Railway & Terminal Company.
Waterloo, Cedar Falls & Northern Railway.
Detroit United Railway.
Northern Ohio Traction & Light Company.

tail business when compared with the large producer. Since the retail market is adjacent to or near the city terminal of the electric railway, the small producer by using the interurban can do a retail business in every sense of the word and sell direct to the consumer in spite of the distance of his farm from the city.

In some sections of the country electric interurbans have thus performed considerable economic service to the city communities, but often the advantages of market-freight service are offset by the lack of adequate and centrally located city terminals. Sometimes, too, the Board of Health of the city has imposed restrictions, making necessary the shipment of certain commodities in one type of car to the exclusion of all others. This increases the cost of transportation facilities on lines where one car would hold all the shipments. The paramount obstacle, however, seems to be the restrictions imposed by local authorities on the running of freight cars through city streets, but even this can be overcome by proper salesmanship on the part of the traffic manager.

These are merely a few of the objections that are found to exist in connection with instituting a market-train service. Without electric service, however, the small farmer is dependent either upon the local freight train service of the steam railroad, which is too slow, or upon express service, which is relatively too expensive. Therefore there seems to be a possibility for considerable development along the line of electric railway market service.

How Local Service Should Be Handled

The handling of local freight train service is a most important transportation problem. As conditions exist throughout the country, it is the immediate problem that electric railways must solve if they expect ever to meet the freight situation successfully. The steam railroads are passing up the local or short-haul freight and in many instances turning this over to the motor truck.

Adequate passenger service generally supplied by electric railways enables traveling salesmen to make several towns in one day. This always increases the merchandise sales of the jobbing houses and thus in many cases assists in building up carload shipments for points along the line.

In giving local freight service, an electric railway must remember that its patrons from the millionaire wholesaler down to the cross-roads storekeeper watch and comment upon such service. The storekeeper is anxious about his small shipment, just as the carload dealer looks after his in seeing that it is not delayed in transit. The delivery of merchandise or l.c.l. shipments promptly and in good condition assists unquestionably in keeping down criticism and, above all things, in cutting down claims.

The freight loaders should understand the handling and the storing of commodities so that the train crew can unload the freight promptly without searching the cars over and possibly carrying the shipment by. A record should be made of all cases where the packages show signs of rough handling. Any packages bearing evidence of pillage should have their contents carefully collected, and a proper record should be made for future reference when claims are presented.

Each freight house along the line should be provided with a door of the correct height according to the cars. It should also have a gang plank long enough to reach from the car door to the freight-house door so that freight for inland towns and freight which cannot be delivered on the day of arrival can be safely and easily placed in the house; likewise in order that freight from the house may be so placed in the car. Usually the station agent will have some arrangement with the town draymen to be on hand if the arrival time of local trains can be depended upon, and these men will handle a lot of freight direct from the cars to the consignees. Of course, where night operation prevails (which must be resorted to by electric railways), it is necessary for the freight in many cases to be placed in the freight-house by the crew.

The crews for local freight should be among the best in the service as far as the employees' schedule will permit. By a little diplomacy the employing officer can secure good experienced men on these trains. They should be able-bodied men weighing at least 150 to 160 lb. The conductor should be a man more than fairly educated, not easily excited, polite, able to render his reports accurately, and immune from the charge of laziness. He should also have some executive ability in order to secure the full support of his motorman and other members of his crew if any.

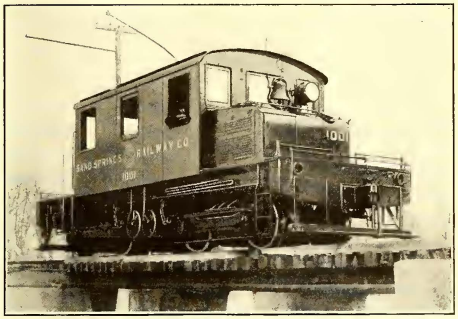
Accidents should be kept down to a minimum. This especially refers to switching at stations to avoid collisions with vehicles on crossings, laborers loading and unloading cars on industry tracks, children playing around the station grounds, and passengers in general.

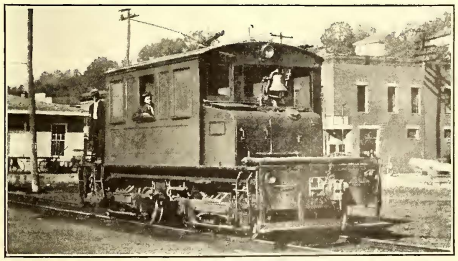
On a railroad where sufficient traffic prevails and where the "local" is in the form of a long train operated during the day, the yard master should see that the cars are properly placed in the train and in good condition. This is necessary so that when the conductor checks the train, he will not have to go to the office and advise that there is a wrong car in the train or one that must be "set out" on account of some defect. Either of these conditions might result in considerable terminal delay and overtime.

Usually the local crew does all the station switching up to where it meets the train running on the opposite local run. It moves all intermediate loads and as far as possible bunches through loads originating at way-stations for through freight or "drags" to pick up without switching at designated points.

When the local trains are of any length, the agents can be of great assistance in expediting movement by telephoning to the conductor in advance the amount of switching in order that the crew may be informed as to the character and the volume of work and can arrange that work may be saved farther down the road in making "setouts" and "pickups." The agent's helpers and operators should be lined up at the station upon the arrival of the local train and help as much as possible in handling the freight.

The conductor should be on the locomotive or front motor car when approaching stations where switching is to be done, and by the time the merchandise cars





TYPICAL INTERURBAN FREIGHT LOCOMOTIVES ON ELECTRIC LINES

Pacific Electric Railway—60 tons.
Detroit United Railway—50 tons.
Sand Springs Railway—50 tons.
Lewisburg & Ronceverte Electric Railway—30 tons

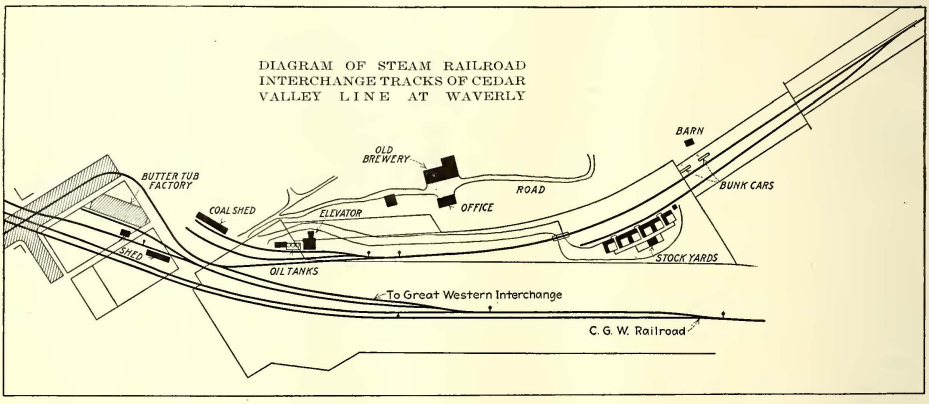
have been "spotted," he will have in hand a program of the necessary work and see that it is properly performed with all speed consistent with safety. As soon as the situation has been sized up, he should advise the dispatcher as to the approximate length of time he will be at the station, in order that the latter may have information on which to base his figures as to the movement of opposing trains. Usually it is the custom for a local crew to take dinner at some convenient place, and the conductor should make this arrangement in advance and notify the dispatcher.

In all cases the dispatcher should receive notification of all movements and any advance information as to prospective movements or delay to traffic, to enable him to fortify himself against delays of many kinds. Wrong information given him may in many cases cause trains to be "knocked down." In every case it must be remembered that the dispatcher is as much interested in having trains move promptly over any division as any other individual connected with the road.

Another type of interchange is that which is merely either a side track, or part of a wye between steam and electric lines, of one or two cars capacity. A typical example of steam railroad interchange, shown in the accompanying diagram, is that of the Waterloo, Cedar Falls & Northern Railway, which was one of the pioneer electric lines to compel steam railroads to interchange freight with electric lines. More than 70 per cent of the switching from steam roads entering Waterloo is performed by this line.

Many of the 155 factories of Waterloo are located on the electric belt line belonging to the Cedar Valley road. Moreover, a 60-mile branch of the electric line from Waterloo to Cedar Rapids forms a feeder for the steam lines entering Cedar Rapids. There the Cedar Rapids Terminal & Transfer Company receives traffic from the electric and steam lines, distributes the shipments and handles local switching. Thus by this transfer line the several steam roads entering Cedar Rapids are able to enjoy from the northern territory business which they were unable to receive prior to the construction of the Cedar Valley road.

DIAGRAM OF STEAM RAILROAD INTERCHANGE TRACKS OF CEDAR VALLEY LINE AT WAVERLY



Interchanging with Steam Railroads

A number of electric railways throughout the country enjoy full interchange privileges with the steam railroads. Among these lines are the Fort Dodge, Des Moines & Southern Railroad, the Niagara Junction Railway, the Toledo & Western Railroad, the Michigan Railway, the Interurban Railway (Des Moines), the Detroit United Railway, the Chicago, Lake Shore & South Bend Railway, the Waterloo, Cedar Falls & Northern Railway and a number of others. This service is highly desirable. In many cases interchange business has been found to be very profitable, and it is worth due consideration by all electric lines.

To handle steam railroad interchange, proper facilities must be laid out at important checking points on the electric lines. Usually these interchanges take the form of a steam road delivery track and an electric railway delivery track, having leads running from both the steam and the electric lines at each end of the interchange. The length of interchange depends entirely upon the car capacity demanded by the volume of business.

At Waterloo interchange connections are made with the Illinois Central, the Chicago, Rock Island & Pacific and the Chicago Great Western Railroads. At Waverly such connections are made with the Omaha Division of the Chicago Great Western; at Cedar Falls, with the Chicago Great Western Railroad, and at Cedar Rapids, with the Chicago, Milwaukee & St. Paul Railway, which handles all the cars to and from the Chicago & Northwestern, the Chicago, Rock Island & Pacific and the Illinois Central Railroads, for points served from Cedar Rapids as well as for industries in Cedar Rapids.

Roads doing the standard steam-road business understand, of course, that all interchange of equipment comes under the M. C. B. rules. In operating interchange service, therefore, it is very important that the electric railway also obey these rules.

Proper account must be made of all car repairs, as the rules hold the car owners responsible for repairs made necessary by ordinary wear and tear in service. The company handling the cars is responsible for damage done by unfair usage, derailment, etc., and must

TABLE I—FREIGHT MOTIVE POWER AND CAR EQUIPMENT DOING A MAN'S SIZE FREIGHT BUSINESS ON A 100-MILE ELECTRIC RAILWAY

Freight Motive Power Equipment											Freight Car Equipment				
			Motors		Service		Body		Trucks						
Number of Units	Type	Total Weight in Pounds	Gear Ratio	Hp.	Volt	Capacity in Tons	Class	Width	Length	Wheelbase	Wheel Diameter	Number of Cars	Type	Capacity in Pounds	Service	Body Length	Truck Wheels
1	Double-truck locomotive	120,000	16:57	250	650 1300	†800	Fast freight	9′ 1″	35′ 0″	7′ 6″	36″	20	Stock	60,000	General interchange freight	36′ 8″	33″
1	Double-truck locomotive	120,000	16:57	250	650 1300	†800	Fast freight	9′ 1″	35′ 0″	7′ 6″	36″	40	Gondolas	100,000	General interchange freight	40′ 0″	33″
1	Double-truck locomotive	120,000	16:57	250	650 1300	†800	Fast freight	9′ 1″	35′ 0″	7′ 6″	36″	50	Automobile box	80,000	General interchange freight	40′ 8″	33″
1	Double-truck locomotive	120,000	16:57	250	650 1300	†800	Fast freight	9′ 1″	35′ 0″	7′ 6″	36″	6	Refrigerator	40,000	L.C.L. merchandise	35′ 0″	33″
1	Double-truck locomotive	120,000	16:57	250	650 1300	†800	Fast freight	9′ 1″	35′ 0″	7′ 6″	36″	35	Flat	60,000	Interchange freight, stone, gravel, etc.	36′ 0″	33″
1	Double-truck locomotive	95,000	17:73	100	650	*500	Switching	9′ 8″	33′ 4″	6′ 6″	33″	2	Four-wheel cabin car		Main line		33″
1	Double-truck locomotive	83,400	16:82	75	650	*500	Switching	9′ 0″	30′ 0″	6′ 0″	33″	1	Four-wheel cabin car		Main line		33″
1	Double-truck package car	80,000	16:73	90	650 1300	*500	‡Freight—all lines	9′ 2″	53′ 2″	6′ 11″	33″	1	Eight-wheel caboose		Main line	42′ 0″	33″
1	Double-truck package car	80,000	17:58	100	650	*500	‡Freight—650-volt only	9′ 2″	53′ 2′	6′ 6″	33″	6	Box	40,000	On company lines only	34′	33″
1	Double-truck package car	56,000	17:69	40	650	...	Freight—650-volt only	9′ 0″	52′ 2″	6′ 3″	33″	13	Box	40,000	Bunk cars	34′	33″
1	Double-truck trap car	32,200	17:69	40	650	§60,000	L.C.L. freight	9′ 8″	41′ 0″	5′ 6″	33″						
1	Double-truck trap car	32,200	15:71	40	650	§60,000	L.C.L. freight	9′ 8″	41′ 0″	5′ 6″	33″						

† Continuous rating on 1 per cent grade; full speed, 1300-volts; half-speed, 650-volts.
* One-hour rating.
‡ Also used for special train movements requiring baggage space with coach.
§ Pounds.

provide the proper loading and handling for cars interchanged.

On the Cedar Valley road two inspectors are located at Waterloo and one at Cedar Rapids to facilitate interchange inspection. They look over all cars passing their respective interchanges and make out daily interchange reports to the master mechanic. If a car needs repairs, the inspector notes the trouble in the repair book, a record from which is sent to the master mechanic each month. Cars that cannot be repaired at the interchange, or those requiring heavy repairs, are "carded" according to M. C. B. rules and disposed of either by turning them over to the receiving road or by sending them to the Cedar Valley shops.

On the "rip" track in the shop yards all defective cars of the electric line are placed in first-class condition. Repairs are made according to the "defect" cards on the rolling stock. "Bad order" cards are placed on cars that should not be reloaded but sent home, if possible.

At interchange points trainmen inspect the cars. Their daily interchange report is sent to the master mechanic. If the train crew makes repairs (such as installing new air hose, knuckles, etc.), a trainmen's repair card is made out. This card for the master mechanic describes the repairs made.

In general, repairs are made by inspectors and trainmen as far as possible. If they cannot be so made but can be handled by one or two car repairers with tools, such employees are sent out and the car is not brought onto the "rip" track. Thus unnecessary movements are avoided.

Once every month there is a settlement due to interchange repairs and also a settlement on the per diem basis in accordance with the standard practice of steam railroads. (This has been abandoned during the government control.)

3000 Freight Trailers Needed

One of the most important needs of electric railways is sufficient freight rolling stock. This does not necessarily apply to the motive-power rolling stock, but to trailer cars. If from 2000 to 3000 electric freight trailer cars could be distributed over the electric lines, the electric railway freight situation would be considerably improved.

Many lines say that they have all the freight that can possibly be handled, and the overflow goes to the

TABLE II—GENERAL DIMENSIONS OF STANDARD FREIGHT CARS OF UNITED STATES RAILROAD ADMINISTRATION

	40-Ton Double Sheathed Box	40 and 50-Ton Steel Frame Single Sheathed Box	50-Ton Steel Gondola	50-Ton Composite Gondola	70-Ton Steel Gondola	55-Ton Hopper	70 Ton Hopper
Length, inside	40 ft. 6 in.	40 ft. 6 in.	41 ft. 6 in.	41 ft. 6 in.	46 ft. 6 in.	30 ft. 6 in.	39 ft. 6 in.
Width, inside	8 ft. 6 in.	8 ft. 6 in.	9 ft. 4½ in.	9 ft. 1⅝ in.	9 ft. 6 in.	9 ft. 5⅓ in.	9 ft. 5⅓ in.
Height, inside	9 ft. 0 in.	9 ft. 0 in.	4 ft. 8 in.	4 ft. 8 in.	3 ft. 0 in.	.....	.....
Length over striking plates	42 ft. 1⅜ in.	42 ft. 1⅜ in.	42 ft. 10⅜ in.	42 ft. 10⅜ in.	48 ft. 7 in.	31 ft. 11 in.	40 ft. 5 in.
Width over eaves	9 ft. 4 in.	9 ft. 4½ in.	.....	.....	.....	.....	.....
Width over all	10 ft. 2⅜ in.	10 ft. 2⅜ in.	10 ft. 2⅜ in.	10 ft. 2⅜ in.	10 ft. 3¼ in.	10 ft. 2¼ in.	10 ft. 2¼ in.
Height from rail to top of car at eaves	12 ft. 10⅜ in.	12 ft. 10⅜ in.	.....	.....	.....	.....	.....
Height from rail to top of car body	.....	.....	8 ft. ¾ in.	8 ft. 3⅛ in.	6 ft. 4½ in.	10 ft. 8 in.	10 ft. 8 in.
Height from rail to top of brake mast	14 ft. 1⅜ in.	14 ft. 1⅜ in.	8 ft. 7¾ in.	8 ft. 10½ in.	7 ft. 1⅜ in.	11 ft. 2½ in.	11 ft. 2½ in.
Height from rail to top of running board	13 ft. 6½ in.	13 ft. 6½ in.	.....	.....	.....	.....	.....
Distance center to center of trucks	31 ft. 1⅜ in.	31 ft. 1⅜ in.	31 ft. 10½ in.	31 ft. 10½ in.	37 ft. 7 in.	21 ft. 11 in.	30 ft. 5 in.
Height from rail to center of coupler	2 ft. 10½ in.	2 ft. 10½ in.	2 ft. 10½ in.	2 ft. 10½ in.	2 ft. 10½ in.	2 ft. 10½ in.	2 ft. 10½ in.
Height from rail to bottom of center sill	2 ft. 4½ in.	2 ft. 4½ in.	2 ft. 4½ in.	2 ft. 4½ in.	2 ft. 4½ in.	2 ft. 4½ in.	2 ft. 4½ in.
Cubic capacity—level full	.....	.....	1,820 cu.ft.	1,770 cu.ft.	.....	1,880 cu.ft.	2,508 cu.ft.
Cubic capacity—with 30 deg. heap	.....	.....	2,310 cu.ft.	2,230 cu.ft.	.....	2,235 cu.ft.	2,978 cu.ft.
Estimated weight	44,000 lb.	44,000 lb.	42,000 lb.	40,000 lb.	49,500 lb.	40,000 lb.	49,500 lb.

steam or motor truck lines. In many cases this is business gone forever. The loss could have been prevented if the electric lines had possessed adequate equipment. For example, Table I shows the freight motive power and car equipment used in handling a "man's size" freight business on a 100-mile electric line.

The pooling of freight trailer equipment would considerably assist in the extension of electric railway

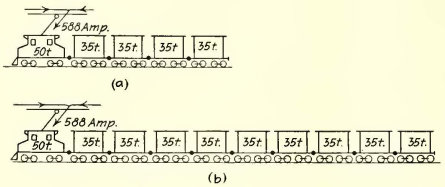


FIG. 1—SLOW-SPEED LOCOMOTIVE EQUIPMENT (b) OUTHAULS CAR-TYPE MOTORS WITH MAXIMUM GEAR REDUCTION (a)

freight haulage throughout the country. Moreover, it would aid in standardizing electric railway rolling stock. One of the drastic needs of such carriers is standardization of rolling stock, if they ever expect to do a universal freight business. This is true more particularly of freight than of passenger cars, as the latter are not used so much in inter-line service.

With an electric railway freight interchange pool in operation, the disease of localism in the case of many properties would be stamped out. This particularly refers to the deliberate refusal to apply couplers and other mechanical parts so that cars can be used in freight interchange over the various electric lines.

Table II gives the general dimensions of the United States Railroad Administration standard freight cars.

LAYING THE MOTIVE POWER GHOST

One of the ghosts to the average operating man contemplating freight haulage is that the power house and substation equipment will not permit it. This one bugaboo has in too many cases stood in the way of the development of a freight service that would be a great economic aid to the community served and a revenue builder to the company. Hence it would be well for all railway men to analyze their power conditions before permitting themselves to be frightened away from lucrative revenue and the possibility of rendering invaluable service.

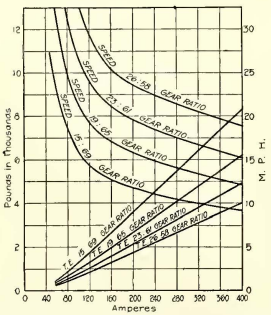


FIG. 2—CHARACTERISTIC CURVES FOR CHANGING GEAR RATIOS

Analysis will show that for freight service, whether the motive-power equipment is placed under a flat car or a regular electric locomotive, there must be some differentiation in the design from that for passenger propulsion. The use of passenger motive power equipment should be eliminated entirely in considering freight service. Speed is obtained at the expense of power, and the fact that many roads operate motor-car freight service on practically passenger time has led operating officials to believe that all freight service exacts a large amount of power. But freight trains need not move at passenger speeds.

This being the case, there are two ways for existing systems to develop freight service:

1. Equip freight motor cars with slow-speed locomotive motors capable of propelling the motor car and hauling from two to five trailers. This type of operation could in many cases be handled during the day, between passenger trains, through the provision of long sidings.

2. Carry on heavy drag freight operation with slow-speed motor equipped electric locomotives hauling standard steam railroad and interurban freight cars during the early hours of the morning.

During the off-peak hours on many systems there is practically no operation, and hence no earning on the

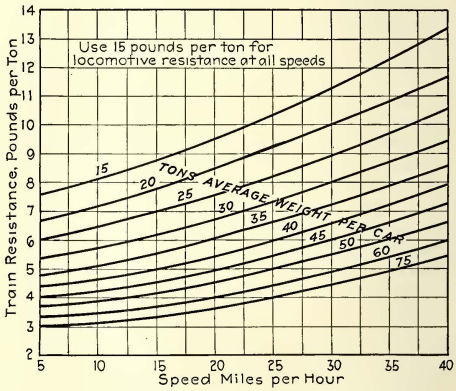


FIG. 3—FREIGHT TRAIN RESISTANCE CURVES

idle investment. Therefore, freight service in such cases when properly developed can increase the revenue and materially help the load factor. The use of slow-speed locomotive motors with their low power demand for relatively high tractive efforts has made freight haulage possible on many roads of limited substation and feeder capacity.

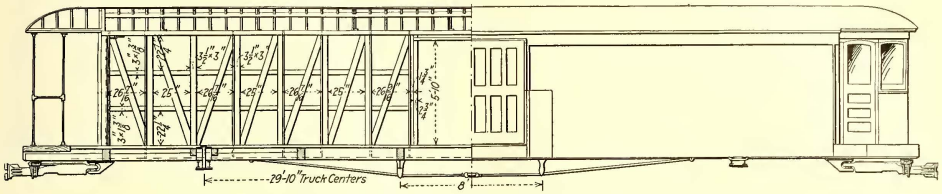
Fig. 1 indicates the superiority of the regular slow-speed locomotive motor equipment over car-type motors with maximum gear reduction. In *A* the 50-ton locomotive with four 100-hp. car type motors with maximum gear reduction can haul only 140 tons at 16.75 m.p.h., whereas the same locomotive (*B*) equipped with four 100-hp. regular slow-speed locomotive motors can haul 315 tons under the same conditions and power demand.

Many railways have equipment that could be pressed into freight service with little more than a change in gear ratio. This also applies to freight motor cars which now approximate passenger speeds but really are more desirable for hauling three or more trailers during off-peak hours at lower speeds.

In effecting this change, the characteristics of the motor must be considered. For slow-speed freight service generally, the maximum reduction gearing is most satisfactory. It must be remembred that with high-speed gearing the power demands are increased while the rating remains the same. With high-speed motors, however, the power demands increase with the revolutions per minute, and the motor heating, while higher, equalizes for the higher power requirements of this type of motor.

From the characteristic curves shown in Fig. 2 it will be noted that the speed varies inversely as the ratio of gear teeth to pinion teeth, and that the tractive effort varies directly as the ratio. With an increase in speed at any given current, the tractive effort proportionally decreases. The high currents required by high-speed gearing can be readily seen from these curves. In spite of this, many roads are operating freight equipment with motors geared for the same speed as that of their high-speed passenger cars. This is dearly paid for by excessive motor maintenance, by high energy consumption at the car, by high line losses, by overloaded substations in some instances, and last, but not least, by restricted freight hauling capacity. There are many cases of single freight car operation where several trailers could be handled by slow-speed motor equipment.

A freight motor car adapted for single-car operation or able to haul from three to five trailers is one of the most valuable types of motive power an electric railway can use. This provides single car rolling stock motive type, and drum or multiple-unit control. All freight motive power equipment must do some switching, and this often demands that circuits carrying heavy currents be broken, which is particularly damaging to control equipment. It is highly important that the motors be properly applied to meet the service requirements, and that a control be used which can stand the heavy duty imposed on any control equipment used in freight service.

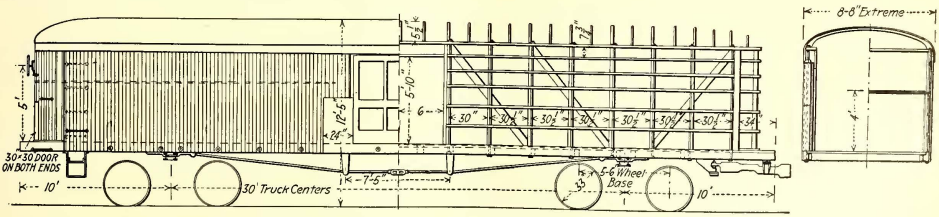


ELEVATION OF MOTOR FREIGHT CAR USED BY DETROIT UNITED RAILWAY

Often where single motor-freight car operation has been going for some time, and the freight business has been growing so that it becomes necessary to handle trains, a convenient method of expediting the movement of freight is to equip the motor cars with multiple-unit apparatus so that two motor cars coupled together and operated by one motorman can handle several trailers.

The Empire United Railways of Rochester handles such service, as it has in operation five multiple-unit freight cars equipped with modern railway motor unit switch control arranged to operate in trains. The plan of operation provides for two and three-car trains, thus approaching more nearly steam traffic conditions. The service rendered by this line is superior to that afforded by steam roads, and the cost of operation is such as to allow a profit at the steam road rates. The Northern Ohio Traction & Light Company is another electric line which uses multiple-unit equipped freight cars.

After the business of a road has become great enough through the building up of traffic by the use of motor car trains of one motor car and several trailers, or two



ELEVATION OF FREIGHT TRAILER USED BY DETROIT UNITED RAILWAY

where the service is of the dispatch nature, and where the service demands the handling of carload freight, the freight motor car type permits flexible operation. When operating a train the freight motor car can act as a peddler or merchandise car while the other cars, which are ordinary trailers of either interurban or steam railroad type, may be "set out" at any station.

The equipment of these freight motor cars usually includes four motors, preferably of the slow-speed locomotor cars operating in multiple-unit with trailers, locomotive operation becomes practicable. This is particularly true where a steam railroad interchange service has been developed, as it is very important that, irrespective of the length of the "cut" of cars left by the steam railroad on an interchange, the electric line have motive power to handle this expeditiously. If it does not, the electric interchange service receives a "black eye."

G. M. Woods in the ELECTRIC RAILWAY JOURNAL of June 1, 1918, in an article on "Freight Motive Power Equipment" goes into detail as to how many existing interurbans, with their present electrical equipment, can successfully handle freight by means of both freight motor cars and electric locomotives. He also explains how the present substation capacity of many of these lines can handle such service.

USING ELECTRIC LOCOMOTIVES

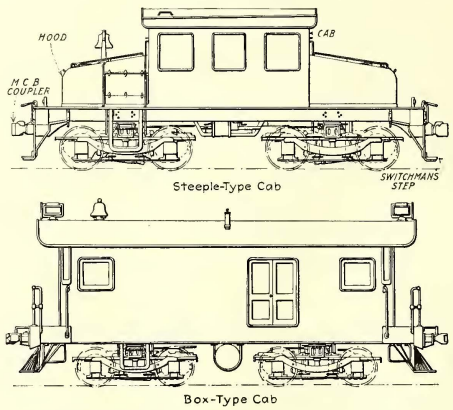
Two of the most important factors to be considered in handling freight by electric locomotive are the reliability of equipment and continuity of service. The first is of prime importance in that on many roads there are but one or two electric locomotives, and these must be in condition for service at all times regardless of the fact that they must be kept in operation as much as possible.

In designing locomotive equipment, five points must be kept in mind:

1. The weight, type, capacity and mechanical design must be suitable for the service requirements.

2. Motive-power apparatus must be selected that will meet the service conditions.

3. The apparatus on the locomotive should be mounted in such a way that each part will be permitted to operate to the best advantage, with the least danger of trouble.



DIAGRAMS OF STEEPLE AND BOX-TYPE CABS OF ELECTRIC LOCOMOTIVES

4. All apparatus should be accessible for inspection, maintenance and overhauling.

5. There should be no danger of the operator being thrown into contact with the live parts.

Standard interurban freight locomotives are usually of the "steeple" type, which is often preferable to the "box" in appearance and eliminates compressor noise. The cab proper is usually built of steel with rolled steel channels for underframe. A hardwood floor can be provided in the cab, while a checker-plate walking platform is used outside of the cab. All-metal bumpers should be used, the splintering so often found in wood bumpers with steel plates being thus avoided.

M. C. B. couplers mounted in bumper pocket castings are standard, but where trailing loads must be hauled around short radius curves, these couplers may be mounted on radial drawbars. Friction draft gear or spring draft gear can be supplied to meet severe conditions. When the weight of a given type of locomotive of a sufficient electrical capacity is less than the weight required from the standpoint of adhesion, additional weight can be added, principally by strengthening the various members instead of adding ballast.

The electric freight locomotive trucks are usually of the rigid-bolster equalized-pedestal type, possessing the advantages of a minimum number of wearing parts, no projecting springs and the provision of substantial means for transmitting the high tractive efforts required in freight service. The various members of the trucks are held together by tapered bolts in reamed holes. Swivel trucks with brakes actuated through a radius bar are standard, owing to the ease with which they negotiate short radius curves.

The preliminary determination of the minimum weight of locomotive for any given service may be made from the weight of the trailing load, average car weight, speed, grade and service—together with the probable train resistance values and a reasonable assumption of acceleration and adhesion factors. It is also necessary to know what the drawbar pull would be under the worst running and starting conditions of resistance.

Table III shows the weight of train that can be started on a given grade. "Train resistance" applies to the friction and windage of a train in motion; it is a variable rather than a constant quantity. The values that may be used for freight trains are shown in Fig. 3. Curve resistance is also a variable, but an average may be taken at 0.8 lb. per ton per degree of curvature.

Grade resistance requires 20 lb. per ton (2000 lb. for each percentage of grade against the load). In starting, the drawbar pull must exceed that in running by an amount sufficient to accelerate the train at the desired rate. If there are no rotating parts, a force of 91.3 lb. per ton is sufficient for acceleration at the rate of 1 m.p.h.p.s., but to allow for the effect of rotating parts it is customary to consider 100 lb. per ton as necessary for acceleration at the rate of 1 m.p.h.p.s. For other rates, the force required is in direct proportion to the rate of acceleration. Reasonable and common rates of acceleration for heavy freight service are 0.1 m.p.h.p.s. or 10 lb. per ton for pick-up and 0.25 m.p.h.p.s. or 25 lb. per ton for way freight.

DETERMINING LOCOMOTIVE WEIGHT

A simple formula for locomotive weight under known conditions is given on the next page.

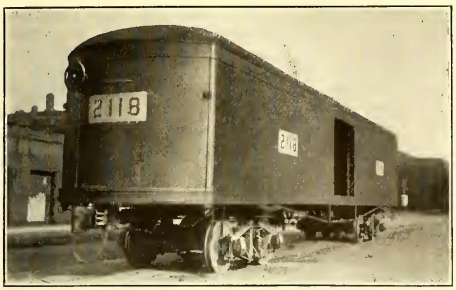
TABLE III—WEIGHT OF TRAIN THAT CAN BE STARTED ON A GIVEN GRADE

Assumed data:

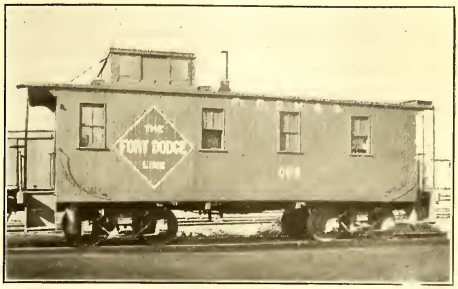
Train friction	10 lb. per ton
Acceleration	20 lb. per ton
Coefficient of adhesion	25 per cent

TONS WEIGHT OF TRAILING TRAIN

Weight of Locomotive Tons	Grade 1%	2%	3%	4%	5%
25	225	155	115	90	70
30	270	185	135	105	85
40	360	245	180	140	115
50	450	310	230	180	140
60	540	370	270	210	170
70	630	430	320	250	200
80	720	490	365	280	230
90	810	550	410	320	255
100	900	615	455	355	285



INTERURBAN FREIGHT TRAILER USED IN DETROIT UNITED INTERLINE SERVICE



STANDARD TYPE OF CABOOSE USED ON THE FORT DODGE LINE

W = Locomotive weight (tons) on drivers.
L = All resistance acting on locomotive, in pounds per ton.
T = Weight of trailing load (tons).
R = All resistance acting on trailing load, in pounds, per ton.
P = Assumed percentage of adhesion.

(a) $P(2000)W - LW = TR$

(b) $W = \dfrac{TR}{(2000\,P - L)}$

The adhesion of the driving wheels is variable, depending upon the weight of the rail, weather conditions, air surface of rail, etc. Adhesion frequently is 25 per cent of the weight of the locomotive when running and about 33 per cent of the weight of the locomotive when starting. On long grades, these figures may be reduced to 22 per cent for running and 27 per cent for starting. In the use of these percentages for adhesion, the total tractive effort for train and locomotive is employed and not the ratio of drawbar pull to locomotive weight on drivers, the latter practice being commonly followed in rating locomotives.

As an example: What is the minimum weight of electric locomotive, all on drivers, to handle a trailing load of 1000 tons gross in twenty-five cars on a road having a maximum compensated grade of 2 per cent for 2000 ft., and 1.5 per cent for 10 miles, a speed of approximately 15 m.p.h. being desired on the long grade?

Consider the starting conditions first. From Fig. 3 the train resistance is 5 lb. per ton, and the locomotive resistance is 15 lb. per ton. The resistance of the 2 per cent grade is 40 lb. per ton. Allow 10 lb. per ton for acceleration. Then the starting drawbar pull is: $(5 + 40 + 10)\ 1000 = 55{,}000$ lb. Let the locomotive weight in tons be W and assume 33 per cent adhesion. Then

$$\frac{25}{100}\ (2000)\ W - 55\ W = 45{,}000$$

or $445\ W = 45{,}000$ and $W = 101$ tons.

When starting on the long 1.5 per cent grade at 27 per cent adhesion, the drawbar pull is 45,000 lb.

$$\frac{27}{100}\ (2000)\ W - 55\ W = 45{,}000$$

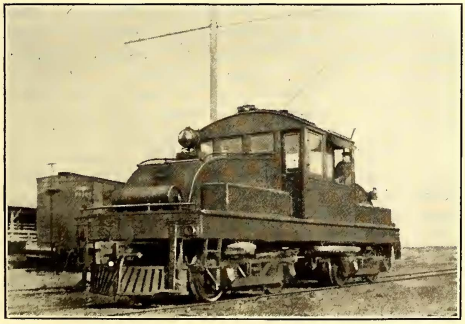
or $485\ W = 45{,}000$ and $W = 92.9$ tons.

When running at 22 per cent adhesion, the draw-bar pull is 35,000 lb., and

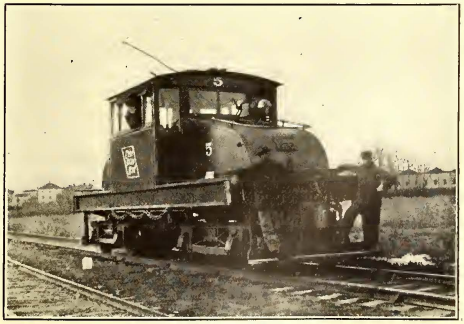
$$\frac{22}{100}\ (2000)\ W - 45\ W = 35{,}000$$

or $395\ W = 35{,}000$ and $W = 88.6$ tons.

Hence, for this set of conditions, the running adhesion on the short 2 per cent maximum grade is the determining feature, and the locomotive should weigh



60-Ton Road Locomotive



40-Ton Belt-Line Switching Locomotive

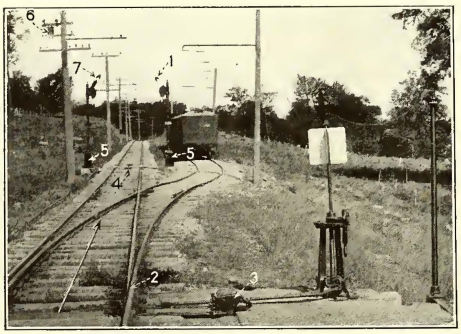
WATERLOO, CEDAR FALLS & NORTHERN RAILWAY

not less than 100 tons. Judgment must be exercised, however, in the practical determination of weight. For instance, the bare figures in the foregoing indicate that a 100-ton engine is required. Suppose, however, that the 2000-ft. 2 per cent grade is preceded by a long-level or down-grade run without stops so that it could always be taken "on the run." In such a case, the figures show that a 93-ton engine would be of ample weight.

The economical speed of a freight train depends a great deal upon the electrical equipment. "Drag" or "tonnage" freights may well be operated at 15 m.p.h., while despatch freight service can easily be handled by trains at 30 m.p.h. Speeds above this become not only uneconomical but dangerous, being conducive to increasing claims and damage to equipment. In switching service a maximum speed of 8 m.p.h. for yard work is economical and safe.

SIGNALING MUST BE PROVIDED

In order to operate freight service safely, a company must provide for proper signaling. The illustration below shows block-signal protection for freight operation. Signal No. 1 governs trains moving in the direction of the arrow, while signal No. 7 governs trains moving in the opposite direction.



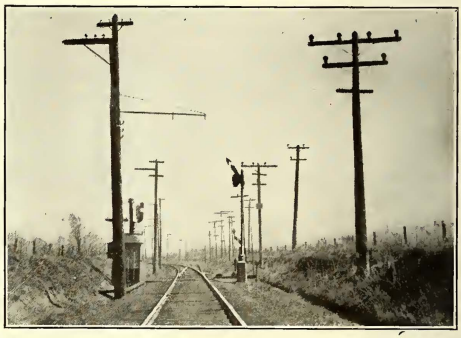
BLOCK SIGNAL PROTECTION FOR FREIGHT OPERATION ON ELECTRIC RAILWAY LINES

The freight cars shown in the siding are protected because signal No. 1 displays a "proceed" indication. This signal would be in the "stop" position if switch point 2 were not closed. This feature of protection is accomplished by the use of a switch circuit controller, 3, which is mechanically connected to the switch point. This in turn is equipped with contacts of such a design as to permit a fine adjustment, which causes the circuit controlling signal No. 1 to be taken over the contacts in switch circuit controller 3. Whenever the switch point 2 is not closed to within $\frac{1}{8}$ in. of its full stroke, the control circuit for signal No. 1 is interrupted.

This control of signal No. 1 not only guarantees protection to the cars in the siding but also protects cars on the main line (approaching the facing switch as indicated by the arrow) from unexpectedly running into switch 2 when the points are open. Signal No. 1 in the 60-deg. position as shown in the illustration indicates to the approaching car that the switch is closed. This shows the motorman that he may pass this point at full speed, having assurance that the switch is properly set and that the next block is clear.

Another important feature of protection is that which permits a train to approach the siding at high speed in either direction on the main line. The automatic signals are controlled by track circuits, which extend from signal to signal. By this means a clear signal guarantees that the main-line track is free from obstruction. Wherever there are sidings leading into the main line track, the track circuit is carried back into the siding to a "fouling" point. This guarantees that cars must be pulled into the siding so as not to "foul" a train on the main line before the signals on the main line will "clear." This is a strong point in favor of the use of automatic block signals where freight operation is contemplated. There is a tendency, especially where sidings are crowded, to allow cars to "foul" the main line.

The illustration also shows the location of the insulated rail joints which determine the limits of the track circuit as it extends into the siding. At the point opposite the two signals is located an impedance bond layout between the rails (at 4). The bonds offer practically no resistance to the return of the direct current propulsion currents, but they introduce an impedance to the alternating current which is used for the control of the track circuit apparatus.



SIGNAL PROTECTION FOR A BELT-LINE FREIGHT CUT-OFF ON THE I. T. S.

Signal apparatus, such as relays, transformers, lightning arresters, etc., are sheltered in the cases at the base of the signals, as indicated by 5.

At each signal location a main-line transformer, usually of 1 kva. capacity, is installed to step alternating current energy down from transmission voltage (anything from 2200 to 6600 volts) to 110 volts. This main-line transformer is indicated as 6. The 110-volt energy is used for the operation of the signal motors and also for the primary circuit of the track transformer. The secondary voltage of the track transformer is such that by the use of various combinations of taps, a variation in voltage can be realized anywhere from 4 to 15 volts.

Such is a brief description of some of the facilities that are needed for developing a real freight business.

Unfortunately, electric railway managements have been in the habit of providing facilities sufficient to meet demands six months or a year hence, while steam road practice anticipates from five to ten years and often more. This condition may be due to the more or less restricted finances of the electric railway industry, but it should be overcome in developing freight business.

It is commercially possible to obtain freight motive-power equipment to handle successfully any weight of train that freight conditions may demand.

Therefore, electric railway freight haulage is not only practicable but profitable, and it can be developed by the proper co-ordination of existing facilities, equipment, and executive and engineering talent.

Organization and Procedure of A. E. S. Committee Explained

In His Address Before A. I. E. E. Last Week C. A. Adams Explained Plans of New American Engineering Standards Committee

AT THE midwinter convention of the American Institute of Electrical Engineers, held in New York City last week, President Comfort A. Adams devoted his entire address to the subject of standards and standardization. After showing how chaotic is the condition of standardization practice he outlined the plan and scope of the work of the newly-formed American Engineering Standards Committee, substantially as follows:

This committee was formed by joint action of five national engineering societies (A. S. C. E., A. I. M. E., A. S. M. E., A. I. E. E. and A. S. T. M.), called the "founder societies," to provide machinery for the development of engineering and industrial standards, by the operation of which duplication would be avoided and co-operation between all interested organizations and government departments secured.

The A. E. S. committee machinery now proposed for the development of standards comprises these elements:

1. The committee proper, or "main committee," with three representatives from each of the five founder societies and three government departments, whose functions are chiefly those of organizing, co-ordinating and "steering."

2. Sectional committees, one for each group of standards with representatives from all organizations and government departments vitally interested in particular groups of standards. Their function is to prepare standards under the direction of the most vitally interested organization, known as the "sponsor body."

3. The "sponsor body" or "body" may be one of the founder societies, a government department, or one of the co-operating societies or organizations.

4. "Co-operating societies," intended to include all organizations interested in the production of standards and willing to co-operate.

When the development of a particular group of standards is proposed, the main committee assigns the work to the appropriate organization as "sponsor," or, if the situation seems to indicate that more than one organization is equally interested, to these organizations as "joint sponsor."

The sponsor then appoints the sectional committee subject to the approval of the main committee, this approval being merely to assure a comprehensive representation of all interests involved. Complete records of all interested organizations and of their standardization work will be kept on file and properly classified in the office of the main committee. This committee, or its secretary, will thus be able either promptly to suggest the proper representation to a sponsor on request or to approve or amplify the representation as provisionally proposed by the sponsor.

After a group of standards has been prepared and accepted by a sectional committee, it is submitted to the sponsor body for its approval and then to the main committee with a full report of its history. When approved by both the sponsor body and the main committee, the standards in question become "American Standards."

When the report of any sectional committee is being considered by the main committee, three members of that sectional committee are invited to sit with the main committee to report, discuss and vote on the standards in question as if they were regular members of the committee. Thus each sectional committee, and therefore usually each sponsor body, will be represented on the main committee when standards in which they are interested are being discussed.

The scrutiny of a standard by the main committee is to make sure that the proper procedure has been followed, that the vote of acceptance was nearly enough unanimous, and that the standard is consistent with other related standards. Consideration is also given to international relations, but the main committee is not expected to pass upon details.

After approval by the main committee the standard is published by the sponsor body, with the statement that it has been approved by the A. E. S. committee, and labeled "American Standard" with the appropriate descriptive title.

THE WHOLE PLAN IN A NUTSHELL

Briefly summarized this procedure is as follows:

1. Standard assigned by main committee to sponsor body.

2. Sponsor body appoints a thoroughly representative sectional committee, subject to approval of main committee.

3. Sectional committee prepares standard and submits to sponsor body, which then submits standard with its approval to the main committee.

4. The standard is then published by the sponsor body and labelled "American Standard."

The machinery thus provides for comprehensive co-operation and eliminates duplication of effort, but does not undesirably restrict the initiative of the several co-operating societies. With proper support and co-operation it should contribute largely to the industrial development of the country and become a potent factor in promoting international standardization and foreign commerce.

How Can the Public Be Convinced?

Replies to Questionnaire Sent Out by This Journal to Public Men Express Conviction That the Public Will Respond to a Frank and Honest Presentation of Facts If Good Service Is Provided and the Companies Ask for a Return on Only a Fair Valuation

ELECTRIC railways have encountered obstacles in procuring increases in fares to cover increases in expenses. The reasons are many, according to the replies drawn out by the questionnaire which the ELECTRIC RAILWAY JOURNAL recently sent out to more than 400 public service commissioners, mayors, representatives of chambers of commerce and other leaders interested in municipal affairs.

The first article on the subject, published in the issue of Feb. 22, showed that although only about 15 per cent of the total mailing list responded, a fragmentary but striking analysis of public thought on the various questions raised was possible. As shown then in detail, the difficulties experienced by the electric lines were laid generally at the door of lack of public understanding, politics, defects in the regulatory system, and utility sins of omission and commission. The mayors and the representatives of the chambers of commerce urged most strongly the importance of poor service and improper past acts as the controlling factors in the opposition of the public to higher fares.

What, then, should the railways have done? What should they do now? These questions, where the various public representatives had constructive suggestions to make in regard to improving the situation as they saw it, are answered in this second article. So far as the replies can be summarized in a sentence, it seems to be believed that the railways can convince the public of their needs by frankly stating all the facts, subject perhaps to public verification, asking only for a fair return on a reasonable investment and winning the public confidence through efficient and adequate service and a manifest desire to please.

Would it have been easier for electric railways to procure an adjustment of fares if they had more extensively advertised their increases in expenses and other facts of their situation?

This leading question definitely raised the issue as to whether or not the publicity work of the electric railways had been carried on with sufficient thoroughness. The predominating opinion was to the contrary, for thirty-two out of the fifty-eight replies expressed the belief that higher fares could have been secured more easily if the publicity had been more extensive. The mayors, however, were evenly divided in their replies, and several others expressed doubt.

In more than a few cases the idea was expressed that the public distrusts the railways and that service needs to be improved. Actions, it was intimated, are more important than words. This tendency of mind was well expressed by the following comment of one civicist:

Advertising would not have been sufficient. It was tried in many quarters and failed even when indorsed by authoritative approval of federal government officials. Public confidence can be gained only slowly and then by a genuine policy of public co-operation and public discussion and settlement of company affairs.

Other representative opinions by individuals in the various classes follow:

COMMISSIONERS

Undoubtedly, yes. The more public service companies take the public into their confidence the better for all concerned.

I am of the opinion that such a procedure would have a tendency to offset the effect of the efforts of the designing politician.

I am positive there should have been greater publicity.

Yes. Wherever the companies have taken the public into their confidence as to company affairs, the public attitude has been most notably affected.

Yes, if the advertising was properly conducted—through the medium of committees composed of private citizens. Public officials do not constitute a proper medium.

I do not believe so except in those cases where the company could show an unmistakable record for honest financing.

In some cases, yes—in others, no, because of excessive investment, obsolesence and poor service.

Somewhat perhaps, but not much. Publicity, however, may cause more injury than aid to the cause of proper settlement. Certain efforts have been a mistake. The difficulty is that in most instances the companies in the past have not been particularly careful in building up good-will, so that now there is suspicion of publicity.

Yes. The majority of the public is inclined to be fair if they have full knowledge of the facts and would be willing to grant such increases as were warranted.

If the policy of the railways had been as public in prosperous times as in hard times, there would be far less trouble. I believe the partial advertising during recent hard times has been an injury among some thinking people, as it is often manifestly only part of the truth and not all the truth.

An adjustment of fares would have been more easily obtained had the railways considered the interests of the community in the past and not simply operated in an arbitrary manner without regard to public opinion or necessity.

MAYORS

It would depend upon where they advertised. Advertising in the newspapers arouses resentment, because the public feels that the company's money should be put in better service and that advertising in the press is only a form of subsidy to secure newspaper support.

Publicity is what is needed and what these utilities have been so reluctant to give in the past. As a result there is a tendency on the part of the public to doubt their sincerity and accuracy.

No. The lack of confidence of the people must first be overcome. Even where all the figures were given, the people think they are "padded."

Yes, and the company should show more freely what part of the increase would go to pay wages, etc., if fares were increased.

Yes. The public must be advised. If not, their officials who allow increases will be discredited and defeated.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

The public generally discredits such figures.

Yes. They have always, with few exceptions, carried on their affairs in a "Public be damned" way, and the people rose up almost solidly when the opportunity offered and "smote the railways hard." None of them reasoned why but just got even.

That has helped some locally, but so long as the service is not improved the public will complain.

I am firmly convinced that the public of any American city will pay the railway any fare which may be necessary for the maintenance of good service, as soon as that public is convinced that it is not paying dividends on water, and more especially as soon as it is sure that real service is going to be provided. The thought that the American public is unwilling to pay any reasonable price for real goods and real service is bosh. On the other hand, the American public does not forget the place where it bought shoddy. Poor service will never be tolerated. In connection with the matter of service, I am still unconvinced of the impracticability of offering first and second-class service to take care of the varying wishes of the public. This has been a long established custom in foreign countries and might go a long way toward contenting the riding public. I realize that it would mean very considerable changes in the physical plant and equipment to bring this about. On the other hand, I am equally convinced that no intelligent and honest effort has been made to find out what the public wants, acquaint them with the cost of it and then furnish it to them. If there had been, the present deplorable condition could not have developed.

Yes. A comprehensive campaign of advertising should have been started years ago to take the public into the confidence of the carriers.

Yes, if the railways dealt fairly with the public and honestly gave information the public is entitled to receive. It appears like a case of camouflage of expenses.

The local company has done this extensively and the public is well aware of the company's claim, but I have heard no offer on the part of the company to submit to an examination of its books by an impartial expert accountant in behalf of the city, and consequently the public is somewhat skeptical as to whether the claims are justified.

If the roads could prove conclusively to the public that they are capitalized upon a fair basis, that the increased cost of operation was out of relation to the income and that in the future the cost of transportation would be reduced as expenses decreased, the general public would look more favorably upon the necessary increase at this time.

No. These facts were fairly well understood, but the public did not feel the problem to be vital. It felt that the question was one of how much profit went to the railways rather than—as it really was—one of life or death to them.

CIVICISTS

Most unlikely. The public suspects the statements are at best half-truths.

Yes. But the need is deeper than indicated. The nature of the normal expenses must be understood before the significance of the increases become impressive.

What fundamental facts should be presented to the public in order to convince it that increases in fares are necessary?

In order to secure suggestions as to how the character of electric railway publicity work might be improved, the foregoing question was asked. The answers tended to show the importance of giving explicit data in regard to the investment, operating expenses, increases in cost and the rate of return. The need of frankness and complete truthfulness was emphasized.

One mayor doubted that any facts can be successfully presented to convince the public in its present state of distrust, but other public men suggested that electric railway publicity give information such as follows:

COMMISSIONERS

The assurance through adequate legislative measures in special settlements, that the rights of the public will be properly safeguarded while at the same time justice is done to the companies. The past ill-will, unfortunately, cannot be forgotten or entirely overlooked in the present emergency.

A simple statement showing the increased cost of every article entering into operation and maintenance.

That there has been economic and efficient management, and that, in spite of these, revenues have not been sufficient.

A plain statement of expenses and a comparison with the expenses of former years.

An honest and sufficiently subdivided investment account capable of some checking. An honest and sufficiently subdivided operating cost account for say five years. An honest and sufficiently subdivided revenue account for all railway sources for five years. An honest and sufficiently subdivided cost of obtaining money to finance dividends and interest paid, and the necessary margin between revenue and operating costs to recompense investors.

Money invested, cost of giving service, adequate funds for maintenance and depreciation, disposition to give the best service under the conditions, proper treatment of the public by agents of the company and reasonable return for money invested.

First, that service cannot be maintained unless a fare increase is granted; second, that a financially embarrassed transportation system is a serious handicap to any community; third, that the financial integrity of a company must be retained, or bankruptcy and arbitrary fares will be forced upon the public.

The cost of the properties; operating and fixed charges and the net, expressed in percentage on the cost with an invitation or suggestion that the operating company urges verification.

Actual capital invested and reasonable rate of return; depreciation, operating expenses, etc., and actual return—and the fact that the money would earn more if invested in other enterprises.

Frank statement of income and operating and other expenses. A statement showing that service will have to be suspended unless relief is obtained.

The actual items of cost and especially a showing that the capitalization is proper and that fixed charges are just.

An honest valuation of the properties and a frank statement in detail of costs and earnings.

That the increase is actually needed in the operation and maintenance of the property and is not to be used to pay increased dividends; that bond interest and dividends will be paid only on a reasonably fair value of the property. This last is the more important.

Amount of owners' capital invested from the beginning, and the return paid thereon. Annual surplus above a reasonable return. Cost of annual maintenance. Increases in current costs.

A manifest desire to make the public a partner in the enterprise. Something on the order of the Chicago plan by which excessive investment or obsolesence can be written off and state or municipalities encouraged to participate in the cost of additions and betterments.

MAYORS

The real value of the property on which a fair return is to be earned; the amount that should be set aside for the proper upkeep of the property, operating expenses and taxes.

A frank statement of income, operating expenses, rate of return on investment and any other information to which the public is reasonably entitled.

A simple statement of receipts and expenditures.

First, comparison between the value of a 5-cent street car ride to the public and 5 cents worth of other commodities; second, increase in length of ride, speed of travel, and quality of service, with no change in rate of fare; third, increase in operating costs; fourth, increase in efficiency of operation with no prospect of further reduction in operating expenses.

The actual investment honestly and prudently made.

The decreased value of the nickel, and actual costs of operation.

The increases in labor and materials are a sound basis to prove that fixed charges represent a fair return on tangible equipment now in operation.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

An honest, concise, easily understood statement of earnings and costs by honest officials. Almost every statement issued appears cunning or the figures are so complicated that the crank in every community can pick them to pieces and make out a plausible case against the company.

I should emphasize the increase in wages as ordered by the government, and also the increase in cost of materials, taxes, etc. Wages in particular show that the money goes into local pockets.

Percentage of profit in past, increase of expenses at present, relation between expense and income, and salaries paid executives of companies.

Increased expenses, dwindling revenue and its causes. Any conditions operating to interfere with good service.

First, an honest valuation of the company's property; second, a full disclosure of the company's business opera-

tions, involving frequent complete examination and audit of its books by accountants employed by the city; third, an agreement by the company to submit to regulation and control by the city under a service-at-cost franchise.

The actual physical value of the property, the actual cost of operation and the rate of return, together with all other necessary facts.

First, the actual cost or investment in property regardless of securities outstanding; second, detailed operating expenses so as to show that no funds have been misappropriated, and that no abnormal salaries are being paid; third, the balance insufficient to pay the current rate of interest on the actual cost of the property and allow a reasonable sum for depreciation.

That service cannot be rendered at less than cost, and that cost includes a fair rate of return on the capital necessarily invested for the rendering of the service.

Increased wages necessary for employees; increased cost of rolling stock, supplies, general maintenance; taxes; need of increased facilities for improvements in service.

CIVICISTS

Costs of materials and labor; necessity of reserves for repairs and renewals; amortization of superseded property; provision against future obsolescence, and necessity of sufficient operating margins to maintain flow of new capital for betterments.

That all cards are placed upon the table. Whenever there is evidence of bad financing and a situation now existing has been brought about by bad financing, it is almost impossible to convince the public that fare increases are necessary.

That there is no watered stock.

Not facts so much as evidences to deal fairly with the public when the company has the upper hand.

(1) Willingness to readjust franchises so as to permit adequate public participation in benefits of monopoly and control over operating conditions. (2) Constructive and cooperative policy with employees. (3) Publicity of costs and expenses. (4) Limitation of profits. (5) Broadening of stock ownership. (6) Representation on boards of directors of disinterested citizens.

(1) Low rate of capital turn-over and normally small margin of profit. (2) Load factors. (3) Physical impediments to better service. (4) The efforts of the management from day to day to make adjustments for the betterment of the service should be advertised. (5) Traffic checks. (6) The service problem in general.

Distinction between revenues from transportation, electric light, power or other sources. Proof that higher fares increase net revenue adequately to justify their imposition on the community. The proposed increases are normally arbitrary, representing no more thought on the part of the company than is given by the public.

Do you believe that the resistance to higher fares comes from people who understand what is meant by fair value, fair return, operating expenses, maintenance and depreciation?

That the opposition to higher fares does not come from the so-called thinking part of the public was the general opinion of those replying to this query, only five answering "Yes." As one commissioner summed up the situation, however, the most determined and radically hostile resistance to higher fares is from the best informed when companies have not lived up to their contracts in the past and have given poor service. Moreover, as a business man pointed out, opposition often comes from men who understand railway economics but represent people who do not. Some replies follow:

COMMISSIONERS

Not in the main. I believe the average, thinking person is fair-minded and believes in the policy of live and let live.

Largely, yes. But of course the greater voting population would vote on the basis of their own convenience, comfort or profit.

No, not generally. In some cases opposition to higher fares may be justified.

Doubtless there is much ignorant opposition, but the regulatory bodies are helpless to deal adequately with the situation. The people who ought to have power and have not, understand the questions of fair value, etc., fairly well.

No, not where higher fare is justified.

Opposition comes from nearly all classes of people. If a man understands "fair return," "depreciation," etc., it only intensifies his opposition if he thinks the company has formerly earned more than a fair return, etc. To the ignorant the large sums involved seem to mean riches anyway. They do not understand the absolutely necessary large margin above operating expense necessary for return on investment.

No, usually from those who do not understand; also from a certain class who are always antagonistic to anything corporate.

MAYORS

No, I believe the public is willing to pay a fair return upon fair value, but the public must see that it is getting fair service to be satisfied.

Few electric railway patrons understand these terms, but there has been a great deal of public education along these lines within the last year.

Seventy-five per cent of the resistance is due to ignorance of basic principles of fair value, fair return, operating expenses, etc.

To a considerable extent, but most people do not understand and could not pass upon a financial statement in ordinary form.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

I think they all complain when they do not get service, even those who will admit that an increase is justified. I do myself.

Yes. The public has not been informed, so far as I have observed, as to the facts of fundamental costs and maintenance.

There is a well developed and intelligent public opinion in this city. A large number of people grasp the situation in general terms and ask for only a fair deal. They are willing to pay a higher fare if this is justified and shown to be necessary. On the other hand, there is a large group of socialists and their sympathizers, who are satisfied with nothing short of municipal ownership and operation, and want to force the company into bankruptcy so as to buy the property in for the city as cheaply as possible.

I think the public is better informed upon these subjects than is generally believed as the average intelligence is high. The public can be depended upon to act according to the known facts.

No; very few of the company's patrons know what these terms mean.

No. This class of people, however, does not know of the invested capital without an appraisal.

Yes, in part. But the great mass of the public opinion is "against" electric railways without analyzing anything.

CIVICISTS

Comparatively few of the general public understand these things. Those who do will probably not oppose the road that has been frank and has a good case.

I do not believe resistance is based upon analytical discrimination but upon a general attitude of hostility and lack of confidence in management.

No. But these are the people who understand the physical problems of furnishing electric railway service. They are sympathetic because they know from their own experience that the other fellow's business is likely to have complications as serious as those in their own.

Do you believe that it would be possible to overcome the resistance of the objectors by extensive information respecting fair value, fair return, operating expenses, maintenance and depreciation?

Only five out of the total fifty-eight answered this query negatively, the general reasons being the uncertainty of good results, the cost and public distrust. Thirty replies were affirmative, while several others answered "partly." Six additional affirmative answers had strings attached in that publicity alone was deemed to be ineffective if there was a lack of fairness and of good service. Eleven replies contained the caution that

a part of the public would not be convinced by any means.

The leading answers were as follows:

COMMISSIONERS

Very largely — except from the class which does not care what happens to public utilities, if it only happens. Happily that class is restricted.

Such publicity might be in a measure effective, but there are always protestants who do not want to be shown or convinced.

Somewhat; but the company first has to show a willingness to participate in the readjustment instead of letting all concessions fall on the public; and, above all, it has to come in with clean hands as to capitalization and fixed charges.

Such information would overcome all unjust opposition except by the demogogue.

Not unless the public can first be satisfied as to the capitalization of the company. In my opinion, this is a vital step and a prerequisite to any campaign of education.

No, because this engenders contest and uncertainty in the public mind.

Of course, education is proper, but, in my opinion, publicity regarding general policy will serve much better than the discussion of the needs of a particular company.

If the public is fully informed, it will be inclined to do what is fair. There will always be some whose minds are closed against any presentation.

Yes, if completely presented—for several years back and with a demonstration that public utility investment and revenue are on a radically different basis from those of a grocery store, factory or department store, where the turnover is two, three or more times a year as compared with 20 to 40 per cent for utilities.

The more reliable and trustworthy the information, the less resistance will be made.

MAYORS

Where the company has given poor service for some years, the public will be satisfied only with a change in management, because the public will reason that more money paid to a management that has failed when the returns were ample will not assure any better success in the future.

Not all objectors can be convinced, of course, but in general the public has shown a disposition to be fair with the companies when the situation was fully explained.

No. The advertising cost would be prohibitive and the results problematical. The answer of the public now is: "Let the city take over the company."

All resistance can thus be overcome except such as is due to prejudice and bitterness from the past.

Yes, if the company could show upon a fair basis that it needed the increase.

Yes, to a large extent, if facts are made plain. Most people want to be fair.

Yes, if the utilities could show fair value.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

Maybe—and a new generation.

Yes, if the information is given in an understandable way. In other words, elementary education is needed.

Such information alone would not be sufficient so long as the service was inadequate. Under good conditions it would be of great value. Most of us are reasonable beings.

Yes, but it is hard to get a respectful hearing from the great mass of voters. They are unthinkingly opposed to privately-owned public utilities and do not want to be convinced.

Yes, largely, if the diffusing of this information was begun prior to the establishment of the deep-seated prejudices that now exist.

Yes, if the company makes an honest effort to practice sound economics.

Further information would be necessary along the lines of future intentions and requirements of the company toward the public.

No. The average statements are one sided and do not merit confidence as a rule.

It would thus be possible to rob professional agitators of much of their thunder.

CIVICISTS

Possibly, but such education is probably possible only with local leaders of thought indirectly affecting public sentiment.

Perhaps, but not if the financial history of the company is bad.

To some degree, but this is not the main point.

Positively, yes. Let the industry—nationally and locally —employ up-to-date merchandising methods and it will "sell" itself readily to the public, at the same time eliminating latent defects in its goods.

Yes, if accompanied by a proposal for a unification of transportation facilities, steam and electric, urban and interurban, trolley and jitney, and a strategic disposition of the services which would insure the upbuilding of the community and its increasing prosperity.

What selling points occur to you as making the strongest appeal to the public in an effort on the part of electric railways to increase fares?

In the opinion of one commissioner, the service of a public utility, which has a monopoly, does not "sell" in the sense that the product of a private commercial enterprise is sold, and "selling points," in the ordinary commercial sense, should not be emphasized. The other public representatives, however, in general recognized the usefulness of merchandising principles between the electric lines and the public, and they were frank to point out what sort of sales talk would be most effective in putting across the idea of a higher fare.

The general tenor of the replies was that nothing counts for more than do facts, presented with frankness and honesty, and an effort to give efficient and adequate service. Other detailed suggestions were made, as can best be seen from the following specimen replies:

COMMISSIONERS

"Can you, property owners and residents of Red Gap, dispense with your electric lines? Is it worth while to YOU to have them operated efficiently? Can their continuance be expected, can good service be rendered, unless their owners are fairly compensated? Think it over. Let's be fair with each other," etc. In brief, an appeal for a square deal supported by facts.

Increases in the wages of employees constitute the strongest selling point. The public is willing to pay a fair and just rate if it believes the wage earners are being treated fairly and the additional revenue is needed for this purpose and not for increased dividends.

The actual facts plus a showing of willingness on part of the company to share the burdens of readjustment plus a civic attitude plus an effort to give service.

Clean cars, prompt service, obliging and courteous employees.

The fair cost of rendering service and the increase of cost attending the furnishing of more service—the cost of more men, more cars and more power to provide adequate capacity to handle "peak loads" of traffic.

Complete accounting, proper service, essentiality to the community, frank and specific acknowledgment of obligations to the public, and recognition of right of employees to bargain collectively.

The adoption of an operating and financial policy in which the public is represented and has a voice.

The value of the service to the patrons: dispatch, commercial reliability and efficiency. A railway should seek no increases which are not justifiable, and it should make the service efficient.

Decrease in business, especially to pleasure resorts, by reason of the advent of the automobile.

The sum totals of wages, salaries, fuel and supplies, taxes and insurance, miscellaneous expenses (detailed somewhat) for several years, and maintenance; revenues, number of cars operated, number of paying passengers carried for some years; all expenditures for additions, etc., by years.

(1) Service; (2) extensions; (3) improvement in equipment, and (4) a promise that a return to the old schedule, or even a better rate, will be favored when conditions warrant.

MAYORS

The strongest selling point is that the increased fare is adequate to maintain adequate service. The excuse for the existence of electric railway lines is the furnishing of service

rather than the earning of profits. When the company-created "fetich" of the nickel is eliminated from the public's mind, it will be willing to pay a reasonable price for good service, but it will still be very suspicious that the old adage will still prevail: "When the devil was sick, the devil a monk would be; when the devil got well, a devil a monk was he!"

There are two classes of citizens on this proposition—the ones who would respond to the "fair value, fair return" argument, and those who distrust the company and will listen to none. I can think of no "selling points" except perhaps a nation-wide movement to readjustment franchises so as to give more city control and profit sharing.

The wages formerly paid and those now paid under the recent order.

The actual necessities—upon the basis of fair value under competent management.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

Safety, speed, comfort and convenience.

Principally the truth, something most companies know nothing about. Most companies would gain half the battle if the management were changed. The people will not believe the men who have fooled them for years.

I should use a comparison of the increases in the cost or various foods, clothing and other everyday necessities as compared with the cost of riding on the electric lines. I would also compare present costs of operation with costs of five years ago.

If the railways can convince the riding public that they are trying to inject into the conduct of their business some of the same desire to please that Israel Braunstein manifests when he wants to sell a second-hand suit of clothes, the problem will be solved and their proposition will be sold. The trouble is that during the past indefinite number of years (when the electric railway sun was shining) the companies did not take the public into their confidence, and now that they are in distress, the dear public is not easy to woo.

Better equipment and reliable and more adequate service.

Laying all their cards on the table, and giving good service even at a temporary loss.

Absolutely honest statements backed up with facts that can be clearly proved, and the general necessity of the electric roads to the welfare of the community.

Frankness and fairness.

The most effective selling point is an understanding on the part of the public that low fares mean inferior service.

Better service in every phase; need of revenue to pay better wages and obtain higher types of employees; need of better rolling stock and general equipment; need of paying fair return on its investment.

Public necessity of good service, including convenience schedules, good cars, etc.

The fact that the welfare of the railways is closely linked with the business prosperity of the community.

CIVICISTS

The fact that prosperity of the road with reasonable margin of profit is essential to maintenance of service and future extensions thereof.

The need for good transportation as being the arterial system of a city and fundamental to its growth and progress.

The offering to cities a chance to run their own railways, which might convince them that it costs money to run a public utility.

The imagination of the public must be kindled. Here is a great money-making (for the public), pleasure-dispensing, health-giving, home-creating institution which with cooperation can be made to double and treble its dividends (to the public) of profits, pleasure, health, homes, etc. Tell the public that the company is an instrument to be used, and that it should be aided. If a friendly atmosphere is created, a fare increase will come whenever needed.

The best selling point is a guarantee of adequate maintenance and depreciation, with a provision for a fund to provide for municipal ownership without any joker such as was imposed in Chicago.

The third and last article dealing with the replies to the questionnaire sent out by this journal will cover questions concerning guarantee of return, public ownership and similar fundamental points. This will be published in a later issue.

Program for the Mid-Year Meeting on March 14

THE mid-year meeting and banquet of the American Electric Railway Association will be held in New York City on Friday, March 14. The technical sessions will be held in the Engineering Societies' Building, 29 West Thirty-ninth Street, beginning at 10 a.m. The program appears below.

[1]

Report of Committee on Readjustment

BY P. H. GADSDEN, Chairman.

Discussion of Report:

(a) Valuation

BY P. J. KEALY, President Kansas City Railways, and H. H. CROWELL, Vice-President Michigan Railway.

(b) Rate of Return

BY EDWIN GRUHL,
Assistant to President,
North American Company.

(c) Maintenance and Renewal Reserves

BY A. L. DRUM,
A. L. Drum and Company, Chicago.

[2]

The State of the Industry

(a) Modern Regulatory Plans and Theories

BY A. MERRITT TAYLOR,
President,
Philadelphia & West Chester Traction Company.

(b) Capital and Electric Railways

BY FRANCIS H. SISSON,
Vice-President,
Guaranty Trust Company of New York.

(c) From the Regulatory Viewpoint

BY HON. WILLIAM D. B. AINEY,
Chairman Public Service Commission,
of the Commonwealth of Pennsylvania.
and HON. CHARLES E. ELMQUIST,
President National Association
of Railway & Utility Commissioners.

THE annual banquet will be held in the evening at the Waldorf-Astoria Hotel. The speakers will be President J. H. Pardee of the Association, Hon. Warren G. Harding, United States Senator from Ohio; Hon. Lindley M. Garrison, former Secretary of War and now receiver of the Brooklyn Rapid Transit System, and B. A. Hegeman, Jr., representing the manufacturer members of the Association.

A special invitation is extended to the ladies to listen to the speaking in the evening. Mrs. Pardee, assisted by a committee of ladies, will act as hostess. A dinner for the ladies will be served in a separate room, but when the speaking begins the ladies will occupy the boxes in the galleries of the main banquet room so that they may hear the addresses. After the conclusion of the addresses there will be dancing in the Astor Gallery. A committee, with N. M. Garland as chairman, has been appointed to look after the comfort and convenience of the lady guests.

Ethical Aspects of the Situation*

The Writer Analyzes the Causes of the Fare Trouble and Suggests Remedies—He Believes That the Fallacy of a Fixed Fare Has Won Widespread Recognition and Believes the Railways Are "At the Dawn of a Better Day"

BY R. T. SULLIVAN
General Manager, Mahoning & Shenango Railway & Light Company, Youngstown, Ohio

WHY are electric railway companies so generally hated and distrusted?

That is a question that is constantly recurrent to the minds of all of us who are engaged in electric railway transportation. Furthermore, it must be admitted, the question fairly states the case, for the first impulse of the public, with few exceptions, is to oppose all things that the street railway company purposes doing, to look behind any given situation for an ulterior and sinister motive. Too often this first impulse becomes a lasting belief, and not only are the development and efficiency of the railway system seriously affected, but the very growth of the community concerned is retarded. Generally, the interurban systems find themselves in better case than do those of the cities. Nevertheless, the finger of suspicion is pointed at them in the same manner, though less frequently, perhaps, and, in principle, what may be said of the city transportation systems may be applied equally to the railways devoted to transporting the people from one community to another. This is not a new question. In fact, it is older than many of us are in the business to which it applies. But it comes to us with peculiar force and insistence at this time because of the griefs and worries—yes, even business tragedies—through which we have passed in the last year and because of the serious situation confronting us of the transportation industry now at the dawn of the world's reconstruction period.

> THE most important development in the street railway world in many years is the present widespread recognition of the fact that the nickel is not a potent talisman that will produce a street car ride for the possessor in any and all circumstances.

LESSONS TAUGHT BY THE WAR

The lessons of the war are for the electric railway industry as for all other enterprise, and several of them have a direct bearing upon the theme of our discussion to-day:

1. It has been more thoroughly demonstrated than ever before that the electric railways of the country are a vital industry—that any failure on their part to function properly is a serious retardation of the industrial and commercial life of the nation.

2. The crust has been cracked on the hoary illusion that a street car ride should be had for a fixed sum—for a nickel—despite the length of the ride, the conditions under which it is given, or the cost of giving it.

3. Public trust and community co-operation are essential to the proper and efficient development of local transportation systems.

The national government early in the war recognized the vital nature of our business, and the President and others stressed the fact that adequate development of the industrial resources of the country for the purposes of making war rested largely on our humble street cars. Whether the government should have gone farther and should have taken over the control of the electric lines as well as the steam roads it is futile to discuss now. Perhaps, since, as the English say, we have "muddled through" the war period somehow, and since we know not whither government control of the steam roads may be drifting, we should be content that things are as they are.

Our towns and cities also came to a somewhat tardy but general realization of the vital nature of the street railway industry, and many and insistent were the demands for service and more service to carry industrial workers to plants engaged in essential war work. Whether such service was possible or wholly impossible mattered little to those making the insistent demands.

Shall we let this popular recognition of our problems drop where it was when the armistice was signed? Electric railways are just as important to commercial development and community growth as they are to the mobilization of the nation's man-power for war-making output. Should we not then exert our very best efforts to solidify and increase this recognition of the railways' vital character to the end that it may bring to us constructive consideration as an offset to destructive criticism?

NECESSITY FOR FLEXIBLE FARE RECOGNIZED

As to the widespread recognition that has been won for the fact that the nickel is not some potent talisman that will produce a street car ride for the possessor in any and all circumstances, probably there has been no other such important development in the electric railway world in many years. A recent survey showed that in 348 cities increases in street car fares had been made. In this list all excepting six of the forty-eight states were represented. The urban population of the United States is estimated to be approximately 43,000,000, of which 23,000,000, or something more than half, are paying increased fares.

That is an imposing array. It justifies the assertion

*Abstract of paper presented at annual meeting of Central Electric Railway Association, Cleveland, Feb. 27, 1919.

that the fallacy of a fixed and unaltered fare has won widespread recognition. But the points of particular interest to our discussion are that in many places it is recognition of a war emergency only and not an admission that the costs and prices of the electric railways vary and should vary in accordance with economic conditions; and further that it has required untold work and argument to bring the belated and grudging assent to increased fares.

The fact remains that there are many thousands of persons to-day who concede that electric railways are affected by increased costs in the same manner as the merchant and the manufacturer and should be allowed to advance their prices for rides, but who, two years ago, would have smiled in derision at the mere thought of such a thing. That is a distinct gain. It is the application by outside observers in large numbers of ordinary business sense to an enterprise which was not before accorded that business logic. Is it not then an opening through which we can win further and more lasting application of ordinary business rules to our affairs? Is it not a companion piece to the recognition of the vital nature of our industry to be developed in like manner?

Public Trust Must Be Won

Then that third lesson of the strenuous times which have passed but from which we shall be a long time recovering—the need of public trust and community co-operation. Why are electric railway companies so generally hated and distrusted? What remedies can be applied to overcome or mitigate this feeling? Usually the first thing that pops into mind is that the electric railway is "a woman with a past." "The public be damned" policies of former years are sometimes referred to with a wave of the hand as if this somewhat nebulous statement was final and conclusive, or the "watered stock" bugaboo is trotted forth with a flourish.

I am not going to assert that these charges of past misdeeds are groundless, but I do believe that frequently they are too readily acceded to by electric railway men, whether the shoe fits or not. Certainly they are imbedded in the popular mind whether or not they have application to the property that may be under consideration. Roseate dreams of the pioneers in electric railway work which led them to assume that everything over and above operating expenses was profit without regard to the wearing out of the property and the tremendous rapidity with which the industry developed certainly have given color to popular ideas of huge profits and stock juggling, as have mergers and combinations, some malodorous and some purely on a business basis. But the fact remains that there are many properties in this country that have no actual taint of the past clinging to them, and it is a further fact that supervision of corporate activities by state regulatory bodies for some years has amply safeguarded the people against such abuses on the greater number of properties, if not on all.

Nevertheless these popular beliefs have come down to all of us, pretty much alike, and with them have come a variety of ills, such as extraordinary taxation, paving requirements, street cleaning and sprinkling obligations, bridge maintenance and the like, all manifesting the effort of the people through their local governing bodies to get back a part of the money paid for car rides, all based on the thought that the profits of the business of transporting the people through the streets were too great to be fair.

Public regulatory supervision over fares and service has not removed these burdens, nor have time and drastic legislation surrounding the issues of bonds and stocks done away with the suspicion and distrust.

Then what shall we do in this situation? For one thing I believe we should not be so ready to plead guilty for our predecessors to uncommitted sins of the past, and I believe that we should combat with the logic of graphic figures new and old impositions on the pockets of the street car riders. So many new cars balanced against a certain number of miles of street paving will have a strong appeal to most car riders. They use the cars, but the paving is for automobiles and other vehicles. Then, too, the steady presentation of the cost of the improvements and replacements to the public as opportunity offers, showing what becomes of the money the car rider pays and how new capital is used, certainly will help gradually to wear away some of the old mistrust and suspicion as to where the money goes.

You have done these things, you say. Well, the suggestion is not offered as a novelty. Keep on doing them and do them more consistently. This distrust of financial methods has been a long time growing, and it will require time to wear it away.

Inherent Handicaps in Methods of Financing

Then undoubtedly much of the antipathy of the ordinary individual to the electric railway company is due to the fact that every such corporation is the embodiment of capital—that capital which so seldom presents itself to the mind of the "man on the street" in its true aspect of the conglomerate of the savings of the multitude, but always as the ogre of untold wealth gathered into the hands of the few—that capital which he has been taught to despise by the office-seeker and the muckraker.

Unfortunately there are inherent in the public utility business several factors which encourage this attitude of mind and frequently lead to the allegations of "outside ownership" in a manner which, to say the least, is damning with faint praise. These factors include the means of financing to which a public utility usually is compelled. A mercantile establishment is ordinarily looked upon as a local enterprise, made so by the use of a local name regardless of where the stock is held, and an industry, if not largely owned where it is located, at least has its chief touch with the people of the community by affording employment to a large number of them, and it sells to them little or nothing directly. Thus both the manufacturer and the merchant have local favor while the street railway, or other utility, usually has its stock and bonds widely held while it is gaining its sustenance from the local field.

Again, the industrial and mercantile enterprises, with their turnover of capital at the rate of from two to six or more times a year, frequently can finance improvements or additions out of surplus, while the utility, with its turnover of capital only once in

four, five or six years, and the heavy demands on it for extensions and new capital expenditures, must always and with great frequency raise the needed amounts by new issues of stocks or bonds. Both because of the volume and usually low dividend-paying qualities of these securities, the local money supply in most instances is not sufficient to absorb them and, like the municipal bonds, they have to seek the money where it is—New York or some other money center.

This gives rise to the condition of so-called "outside ownership" and the feeling on the part of the people as a whole that the only interest the utility has in the community is to get as much as possible out of it.

How to Care for This Situation

Two thoughts suggest themselves as means of meeting this situation, in part at least. One is care in making public full financial statements, and the other is consistent effort to secure the greatest possible number of local stockholders. To be sure, the freedom with which the financial statements of a company may be spread broadcast is a question to be answered in the light of each company's situation, but usually there is too great timidity in offering these salient facts concerning the corporation for the scrutiny of the public. Certainly, where the facts are open to all, the financial affairs of the company lose much of their mystery and less frequently are the basis for attack.

As to the sale of securities to the local investor, small or large, certainly this seems logical and correct in principle. How far this is possible for railway companies in the present condition of affairs is a problem, but combined properties and electric light and power companies have found that the results of the local sale of their preferred stocks have been excellent, not only as a logical method of financing, but as one of the best means of reaching a solid basis of understanding with the people they serve.

> IN the conduct of our business we are denied the usual methods of the merchant and the clerks who are his points of contact with his patrons in making the purchase of our commodity a pleasant incident. Yet ours is a selling business—the selling of rides—and the closer we can approximate mercantile methods the smoother will become our contact with the people whom we serve.

Two Causes for Distrust of Utilities

But the genuine cases of scandal involving street railways, of maladministration of the properties and of "stock manipulation" have not been so general or so frequent as to account entirely for the prevalence of the suspicion and distrust directed against the transportation utilities. Other elements are involved, one of which is the practice of candidates for political office to a greater degree than twenty-five years ago to talk directly to the public, and the extent to which demagogues in such talks denounce corporate wealth, often selecting the local railway as a butt for their denunciations, irrespective of the facts.

A companion to this political form of attack is "muckraking." The original muckraking, which was founded upon careful investigation and a conscientious effort to present the facts, has done its quota of good; but magazine muckraking begot that more modern form of scandal mongering which is termed "yellow journalism" and though, fortunately, the "yellow journal" is much in the minority among the newspapers of the land, its effect has been widespread. Together with the condemnation of business corporate so freely dispensed from the political rostrum, it has gradually brought into being what might be termed a distinct type of news writing, a type that gives precedence to the flashy, though unimportant detail, over the important, but solid, substance.

Relations with Newspapers

I am firm in my belief that the newspapers as a whole do not get nearly so much credit as they deserve for the earnest efforts made to present facts correctly to their readers. Nevertheless there is hardly a newspaper, especially in the smaller cities and towns, no matter how carefully edited or conscientiously directed, which does not have to depend in the hurly-burly of getting to press on time not only upon the veracity but on the judgment of comparatively young, irresponsible and uninformed reporters. Thus many ill-considered items are printed and much unintentional misrepresentation results. Perhaps others might dispute the assertion, but I doubt whether any form of business suffers so frequently or so keenly from this type of news as the traction company. And not even the long-range "horror gun" of the Hun could hurl a denial or correction far enough to overtake the evil thus inflicted.

Then what are the street railways to do to offset or prevent this unfair criticism in politics and in the ordinary channels for public information? Certainly here is a field for thoughtful, well-considered and persistent publicity. All that is printed is not publicity, and the value of publicity is not to be measured solely by its volume. Self-congratulatory statements that smack loudly of the press agent simply clutter up the galleys of the newspaper composing room, or the waste basket. They do little good if they are printed. But honest-to-goodness facts about the local electric railway business will help materially to meet the situation.

In the first place, much of the criticism hurled at the railways by the small office seeker is not based upon any fundamental idea that he really knows whereof he speaks. It is usually a very general accusation, sometimes coupled with the statement that the facts are hidden and cannot bear the light of day. If the facts concerning the company, its service and its business are already in the possession of the people, much of the ground is swept from under the feet of such assailants, and even if they are not adduced till after the charge has been made they often will stop the repetition of the canard or offset some of the evil that it has done. Uninformed critics do not like to face facts.

As to the common troubles of incorrect statements in the newspapers, the situation is somewhat easier.

In the great majority of cases where a misstatement is printed the reason for it is that the writer of the item did not have the facts and did not have initiative enough to dig for them. If a consistent effort is made to supply the facts, the chances are strongly in favor of them being used by any reputable newspaper. If something happens or is impending, try to beat the misstatement into print with the facts—do the reporter's digging for him and usually he will appreciate it. Sometimes you will be too late, but try again and keep on trying, and after the reporters get to know that the facts are available for them they will come after them or wait for them before breaking into print. But beware of discolored facts, for as surely as a burned child avoids fire so will a reporter who has once been misled look askance at any information coming from the same source again.

As to whether your facts should be placed before the people in news items, in paid advertisements or in pamphlets in the cars depends upon circumstances. The one thing of which I feel confident is that if the public is not to be misled by false or incorrect statements they must be supplied with the truth and the facts. To wait till the storm breaks is a bit tardy to think of repairing the roof, and so it is unfortunate if you cannot see your way clear to a consistent policy of publicity till you find yourself in a tight place.

How to Make the People Believe

It is just as well, also, to endeavor to give a human, natural tone to the utterances that go to the people, whether they be advertisements or comments for the news columns. At an electric railway convention a commanding figure in the industry complained with regard to publicity that "the people will not believe us." Now stop a minute and analyze that.

People do not ordinarily accept anything as the embodiment of the whole truth. Assuredly they will accept as true something stated as a fact in which they may not be greatly interested and which is not of a controversial nature, but if we expect them to accept as the last word a statement issued in the somewhat stilted form that usually marks the official statement handed out at a time of difficulty, or when something is wanted, we are more credulous than we have any reasonable right to expect them to be. On the other hand, if they are accustomed, when things are going right and nothing is needed or wanted, to hear from that same source in a natural, human way, then we may expect a number of them to believe all that we have to say and a still larger number to believe the greater part of our statements.

This is all the truer if we endeavor to be persons rather than figureheads, if we are known to the people with whom we do business in some other capacity than that of president, manager, or superintendent of the electric railway company. A real, vivid interest and activity in community affairs wholly detached from the transportation of the people not only is wholesome for us as men but gives us a personality that does much toward offsetting the impersonal nature of our work, in so far as it affects the car rider.

Nor can this be made, so to speak, a "one-man job" for the organization. Rather every man who is capable of representing the company with the proper spirit should be encouraged to take a part in the various and varying interests exemplified in the social and business organizations of every town. It is quite probable that some might not enter with enthusiasm into a "hot dog" supper of the Twenty-ninth Ward Social Club, or the bowling tournament of an athletic club, or again be interested in the technical discussions of an engineering society. Yet there is someone in every organization of any size who does have a real interest in about every type of activity that a worth-while organization will promote, and if such interest is encouraged, then the company has a way opened for it, in time of need, to reach receptive and friendly minds in about every group in the community where public opinion is molded. Furthermore these employees will be efficient representatives of the company at all times in casually winning consideration for the railway's plans and motives if they are kept well informed through the medium of company clubs, periodical bulletins or the like.

Our actual business contacts with the people are almost exclusively through the medium of ticket sellers, ticket takers at prepaid areas and the motormen and conductors on the cars. With very few exceptions they are not under anything like constant supervision of those who have a broad conception of the service we are selling to the riders. Thus we are denied the usual methods of the merchant and the clerks who are his points of contact in making the purchase of our commodity a pleasant incident. Yet ours is a selling business—the selling of rides—and the closer we can approximate mercantile methods the smoother will become our contact with the people whom we serve. So-called "welfare" work among employees, the methods of conducting schools for motormen and conductors and the like would in themselves furnish the subject matter for prolonged discussion. Yet it is in activities like these that we may find the answer to the very knotty problem presented by our widely scattered points of contact.

Two Other Points to Overcome

Closely allied, in so far as it affects the public attitude, with the undesirable nature of our points of contact are two other factors in making the people so generally hate us and distrust us. One is, of course, that the economical transportation of the people in any given community is a natural monopoly, and the other is the diametrically opposite views that must be taken by the rider and the company of what constitutes good service. Our customer is buying an individual ride. The service is either good or it is "rotten," to his way of thinking, in accordance with whether he can board a car at the time he chooses to ride and be carried to his destination in a fair degree of comfort, with expedition and without delay. Though he is buying an individual ride, we are selling a general service. We cannot think of each individual as such. We must pay strict attention to the best possible service for the greatest number. Hence, perhaps, a transfer of passengers from one car to another short of their destination, or some other untoward happening that results in discommoding a few for the benefit of many. The many for whom we may take this step in operation don't know it and don't

care, but you are mighty certain to hear from the few who were inconvenienced.

In this case of the individual ride against the general service, one of the most powerful things in swinging the jury of public opinion against the railway company is the "rush hour." Naturally there are thousands of persons in any fairly large community who do most of their street car riding in the morning and evening during the peak-load periods. Just as naturally their opinion of the quality of the service given throughout the twenty-four hours of the day is based upon these two short periods when they do most of their riding. Holiday crowds or pleasure seekers rarely "kick" about crowded cars, but men and women going to and from their work day after day in similar crowded cars are bound to become a bit nasty about it.

Some Things That Can Be Done

But what are we to do about these matters? How can we ameliorate these conditions and how can we overcome the prejudices founded upon them?

Frank and well-considered publicity telling the facts about the service, newspaper advertising and advertising in the cars for the same purpose and occasional talks on railway problems before civic bodies will help. In some cities it has been possible to gain the co-operation of employers of large numbers of persons through the staggering of the hours of employment so that the peak loads may be flattened out. Where this has been done it has proved beneficial.

There also has come in for wide consideration and for adoption in a number of cities comparatively recently what is commonly known as the "service-at-cost" franchise. Under this plan the rider knows that the amount he must pay for his ride is dependent upon the cost of the service. He knows that the cost of the service is largely in proportion to the amount and quality of service. Whether there shall be more service at a higher rate or less service at a lower rate becomes virtually his own problem. Under a fixed fare the company may sweat blood to get by without it being in the least a matter of concern for the rider. He may growl about the service as much as he pleases, it costs him nothing. Under an automatically flexible fare he does have a direct interest—in a sense he is a partner—and his own interests curb his passion for unlimited service when he realizes that he will have to do his part toward footing the bill.

Don't Bother the Passenger too Much

In this same regard there is another matter which I am going to advance somewhat timorously for your consideration. It is almost axiomatic that the easier a person is parted from his money the less likely he is to object, and the more complicated the transaction of paying for what he gets the more certain is he to object to paying. If that means anything to us it is that the simpler and easier we make the matter of paying street car fares, the more convenient and comfortable we make the access to our cars and the passenger's progress to the point of parting with his money, the less likely are we to hear complaints both about the amount of the fare and the quality of the service.

Is it not true that sometimes when we seek to make sure that we are receiving all that is properly coming to us we make the process of paying fares too complicated to permit of the passenger parting pleasantly and easily with his money so that he will be pleased with the purchase of a ride? The passenger's part in the transaction should be fully developed and considered when a new method of collection or of checking loads is planned, and frequent changes in methods of fare collection and the like should be avoided. True, in time people become accustomed to almost anything, but the oftener the manner of paying is changed, the oftener the amount of the payment is brought actively to the mind of the car-rider and the oftener the question arises why anything at all should be paid.

> THERE is reason for optimism. We are at the dawn of a better day. True, the months that have passed have left some casualties along the way. That is the havoc of war, let us say, but we who have come through, somehow, must keep our faces to the front like good soldiers and win out for an industry that is just as vital to our country in peace as in war.

There is still another form of clamor against the railway company with which we all are acquainted. This is the insistence upon extensions of the railways into sections of a city about to be plotted into building lots and placed on the market. There was a time, in the days of perpetual franchises, when the idea of building lines for the future possible profit might be viewed with a degree of equanimity, but that is not true in these days of short-time franchises and high costs of construction and operation. Yet the thought is deeply imbedded in the popular mind that there is bound to be a large profit in a street railway whether anybody rides or not, and there are always glowing estimates of the rapidity with which traffic will build up in this new section—estimates, it goes without saying, that are seldom borne out in the experience of traffic checkers.

Perhaps here, too, if it is fair and equitable otherwise, the service-at-cost plan may be helpful, for it will identify the people's own interests directly with those of the company in the economy and efficiency of electric railway operation. Another plan that sometimes is helpful is to take the matter up with the real estate developers upon a co-operative basis. In some instances where the enterprise has been sound and of sufficient magnitude the developers have consented to pay the construction cost upon the agreement of the company to operate the line, or have guaranteed the operating costs for a period of years sufficient to permit of the building up of a fair amount of traffic. Such co-operative effort is sound policy as it distributes the burden of cost and places a part of it where it belongs—upon those who will be immediately and directly benefited by the improvement.

One more suggestion in this effort to consider some of the aspects of our business for which we are seeking

remedial measures. Is it not a fact that much of the difficulty of the electric railways in placing themselves upon a better basis of understanding with the communities they serve is due in large measure to the lack of a definite and continuous policy? Is this not equally true of the average individual company and of the industry as a whole?

Many of the problems with which we are wrestling exist because someone who has preceded us did not have the vision to see, or else he cared little, what would be the effect of his actions upon a situation that probably or certainly would arise in after years. Likewise the contracts and agreements and promises into which we enter to-day are going to have their future effect on the affairs of the properties we manage, and we should give careful thought to the years to come so that we may be doing as little as possible for some present benefit that will inflict future and perhaps permanent injury.

Now is a good time to consider this phase of our business. Never before has such a large part of the people we serve realized either the importance to them or the difficulty to the company of the carrying on of transportation. Never before have we had nearly so much of a hearing on the relation of our costs and the price of a ride. Many persons have been wrung from skepticism to a fair appreciation of some of the important troubles of the electric railway men, and more of them can be won to that viewpoint.

We must use this wider interest in our business and better view of our problems as the opening to a stronger accord between the public.

Outlook Is Favorable

We have passed through the most tremendous times the electric railway industry has ever known. We are just now beginning to turn our attention once more to matters of operation which two years ago were in our daily thoughts but which have been lost to view by the weightier matter of finding a way to continue operation at all. In common with every other body of patriotic men we have had only one thought—the winning of the war and how we, of a vital industry in the line behind the line, might do our utmost to that end.

One of the results of this war will be the springing up of a crop of experts and here again the industry may reap benefit from their activities. New ideas and new methods are bound to be developed and we must be prepared to take advantage of those which are good. One way in which we can do so is to develop our own experts on our own properties, for the best expert I know of is an enthusiastic and ambitious man in one's own organization who follows the lead of the best opinion and experience as set forth in the technical journals and has the initiative and "pep" to apply them constructively to our own local problems.

In these and in other ways the future holds something for us. There is reason for optimism. We are at the dawn of a better day. True, the months that have passed have left some casualties along the way. That is the havoc of war, let us say, but we who have come through, somehow, must keep our faces to the front like good soldiers and win out for an industry that is just as vital in peace as in war.

One-Man Car Service Started in Brooklyn

Trial Operation Was Begun with Three Safety Cars, and Others Will Be Added to Completely Equip Test Lines

THREE new one-man safety cars furnished by the American Car Company of St. Louis, Mo., were put in operation on one of the suburban lines of the Brooklyn Rapid Transit System last Sunday. Three more of this type, together with six to be furnished by George H. Tontrup of St. Louis, Mo., will be tested later. If the trial meets with the approval of the Public Service Commission and the service is acceptable to the public, it is planned to purchase a total of 150 one-man cars for use on lines in the outlying sections of Brooklyn.

The present trial is being conducted on a line running from the Sixty-fifth Street terminal of the Fifth Avenue Elevated Line to Fort Hamilton, a distance of 2 miles. Most of the passengers use this line as a means of connecting with the elevated road and the surface cars run into the elevated station up an incline so that no additional fare or transfers are required in making the transfer. The morning rush-hour service consists of picking up the load and taking it to the terminal, while during the evening rush hour the load received at the terminal is distributed. There is one transfer point to surface cars at the foot of the terminal incline. To provide for the present schedule on this line seven cars are used, three of which are one-man cars and the others are double-truck closed cars which is the type previously used in this service. The weight of the one-man cars is 14,500 lb. as against 31,000 lb. for the closed cars, and the one-man cars seat thirty-four passengers to thirty for the other type. The one-man cars thus have less than half the weight per seated passenger of the cars of the older type.

Previously the service was operated with a seven-and-one-half-minute interval during rush hours and a ten-minute interval during non-rush hours. With the introduction of one-man cars this has been reduced so now a three-and-one-half-minute interval is maintained during rush hours and a five-minute interval at other times. This increase in service should result in an additional increase in the number of passengers carried, as many who previously walked the short distance to and from the terminal rather than wait a few minutes for a car will now take to riding with the short headway. A complete trip in one direction requires twelve minutes and there is a three-minute layover at each end of the trip. This is sufficient for the operator to change ends, move the fare box, take register readings, and fill out his record cards for the trip. With the present service an average load during rush hours consists of from thirty-five to forty-five passengers, and during non-rush hours from eight to twelve is an average load. The wages for the operators of the one-man cars have been increased 5 cents per hour over the rate which they previously received as motormen. This increase in rates makes the work popular so that the most efficient motormen are anxious to operate these cars. The cars are equipped with the full complement of the now-familiar safety devices.

Fifty-Fifty for Car Rider and Taxpayer

Massachusetts Commission Recommends Such Plan to Meet Deficit of Bay State System from Five-Cent Fare—Also Asks Aid from Taxation for Other Lines

IN LAST WEEK'S issue the ELECTRIC RAILWAY JOURNAL referred briefly to the fact that the Massachusetts Public Service Commission on Feb. 15 recommended the use of taxation to reduce the burdens of car riders in the State. This recommendation was made after an investigation requested by the Legislature on Jan. 24. From the full report now available the following details can now be added:

The first part of the investigation covered the Bay State Street Railway and was made jointly with the public trustees of this system. The company, it is said, was operated during the calendar year 1918 at a total deficit of $2,918,500, the legislative act of that year being taken as a basis for comparative purposes. The total deficit for the year ended June 30, 1920, the first year of public-trustee operation, is estimated at $1,817,900. The situation will make necessary further increases in fares, but the commission and the trustees believe that higher fares will be likely to increase congestion in the city centers and otherwise seriously impair the company's usefulness. Furthermore, they believe that any wholesale abandonment of routes would be a public misfortune.

Under the Bay State public control act, the trustees have no option but to collect the entire cost of service from the car rider. Wage increases, however, have increased operating costs far beyond those prevailing when this legislation was enacted. Because of the changed conditions, the commission and the trustees "are forced" to these conclusions:

> It is no longer equitable to require the car rider to pay the very high fares which will be necessary and the car rider should be relieved, through taxation, of a moderate portion of the cost of service. In view of the unquestionable benefits which accrue to taxable property from adequate electric railway service at reasonable rates, we believe that such an arrangement will not impose undue burdens on the taxpayer.
>
> We therefore recommend for enactment an amendment to the Bay State public control act. This amendment provides that the first 5 cents of the cost of service per passenger shall be paid by the car rider and that any costs beyond 5 cents per passenger shall be paid 50 per cent by the car rider and 50 per cent by general taxation. A commission would apportion the tax among the communities served and the initial payment by the taxpayer would be made in the autumn of 1920. In our opinion, the enactment of this amendment will prevent Bay State fares from going above the present level, and both fares and taxes will be gradually reduced as the trustees are able to decrease operating costs. We believe also that it will enable the trustees to continue in operation most of the lines which the receiver has petitioned the court for authority to discontinue.

In regard to the general electric railway situation in Massachusetts, which the commission reports upon by itself, various financial statistics are shown, some of which are given in Table I. The commission finds depreciation allowances insufficient and suggests that the annual sum of 1.8 per cent of the cost of permanent investments in addition to the maintenance expenditures be taken as a minimum requirement. It also says that it is necessary to make provision at least for the payment of all dividends on preferred stock and a return upon the legitimate investment represented by common stock substantially equivalent to what the companies were able to pay under normal operating conditions up to a maximum of 5 per cent. With adjustments for these items and for certain tax eliminations, it is found that additional revenue of $2,195,950 is required for the lines (excluding the Boston Elevated Railway, the Bay State Street Railway and the Massachusetts Northwestern Street Railways). Details of this deficiency are given in Table II.

In discussing how this deficiency would best be met, the commission says in part:

> The present system, which throws the entire cost of service upon the car riders, apparently rests upon the assumption that the individual riders are the only persons who have any legitimate interest in the maintenance of good local transportation facilities. The fallacy in such an assumption is so obvious that it scarcely needs to be pointed out. In addition to the benefits received by individual electric railway patrons, there is a very large community benefit which can be measured by the losses in industry, trade, real estate values and other forms of community wealth which would result if all electric railway facilities were suddenly blotted out.
>
> For this benefit, up to the present time, the community has paid nothing and has succeeded not only in unloading its legitimate part of the transportation burden upon the shoulders of the car rider, but also in making him pay, in addition, a portion of the cost of general municipal improvements through the imposition of special taxes and public charges. The only justification for the existing system is the fact that the burden is so widely distributed that fares in the past have been relatively low and their payment has involved no special hardship.
>
> But when the car riders are compelled, as a large proportion of them now are through reductions in fare zones and increases in the unit of fare, to pay increases of fare varying from 100 per cent to 400 per cent, the inequality of the present system is thrown into strong relief. The burden is one that the car rider not only ought not to pay but, to speak broadly, cannot pay under present economic conditions.

TABLE I. STATISTICS OF MASSACHUSETTS ELECTRIC RAILWAYS FOR CALENDAR YEAR 1918*

	All Railways	All But Boston and Bay State Systems
Capital stock	$84,823,200	$33,412,300
Capital stock and premiums	89,266,374	34,789,565
Passenger revenue	42,817,200	12,905,847
Other operating revenue	2,546,849	1,010,473
Total operating revenue	45,364,050	13,916,320
Conducting transportation	16,292,878	4,525,011
Depreciation	2,538,031	249,361
Other operating expenses	21,994,833	7,267,018
Total operating expenses	40,825,743	12,041,391
Net railway revenue from operation	4,538,307	1,874,928
Taxes	2,007,182	691,292
Operating income	2,531,124	1,183,635
Non-operating income	221,560	73,567
Gross income	2,752,684	1,257,203
Deductions for gross income	8,229,833	1,646,227
Deficit	5,477,148	389,023
Estimated deficit for 1919	4,725,580	267,779

*In the case of certain individual companies the figures are based on actual returns for eleven months and estimated returns for one month.

The first step to be taken, the commission says, is to relieve the companies of the incubus of the special taxes and public charges, and it submits the draft of a bill intended to accomplish that result. In its opinion, however, relief of this character will go only a short way towards meeting absolutely essential revenue requirements. The commission is convinced that direct community contributions through the tax levy is the only practicable way out of the present transportation difficulties. The plan which the commission submitted jointly with the trustees for the Bay State system is said to be perhaps as fair a method as can be devised, but owing to the diversity in fare zones and methods of collection on the lines of the various companies, its general application to all the electric railways of the Commonwealth would be impracticable.

In evolving a suitable general plan, the commission says in part:

We believe that the most urgent need of the present electric railway situation is to take measures that will not only save the public from the further increases of fare which are now imminent, but will permit the gradual reduction of present fares to a more moderate level. Instead of the present rigid system under which the entire cost of the service must be borne by the car rider, irrespective of where the application of that principle may lead, those charged with the responsibility of establishing or regulating fares should be allowed sufficient discretion to enable them to fix fares which are consistent with the general public interest.

It is easier to understand the principle which should govern than to state it by any concise and specific formula. It may, however, be expressed by requiring fares to be fixed which will meet the cost of the service in so far as this may be done without unduly hampering or discouraging the free movement of traffic and the economic development of the communities served or otherwise injuriously affecting the general public interest.

If fares established upon that basis do not yield sufficient revenue to meet the legitimate requirements of the company, the balance should be met by an addition to the tax levy up to a reasonable maximum, which we suggest should be $2 on each $1000 of assessed valuation. Any such appropriations should be coupled with public control.

We submit the draft of a bill embodying this general plan. It was necessary, in making provision for the assessment of taxes, to meet the situation resulting from the fact that about seventy cities and towns are served by two or more electric railways. As one of such companies might accept the act and the others not, we have suggested that the tax in such cities and towns be apportioned upon the basis of track mileage. With this adjustment we believe that the tax should be apportioned to the various cities and towns served on the basis of valuation. This method is based upon the ability of the several communities to pay, which is the principle underlying all taxation. An apportionment on the basis of the number of car riders, which is the method adopted in the special Bay State and Boston Elevated acts, seems to us illogical and unsound, as it is not those who ride but those who fail to ride who are responsible for the present deficits.

The practical effects of this general plan for all companies except the Boston Elevated, Bay State and Massachusetts Northeastern companies are shown in Table II. Provision for the assessment of the revenue deficiency is already made in the Boston Elevated act, and a separate plan for the assessment of such deficiency in the case of the Bay State system has been presented. The other exception is the Massachusetts Northeastern Street Railway, which is an interstate road incorporated in both Massachusetts and New Hampshire with its lines interlacing across the boundary between the two states. If it should be thought desirable, some feasible method might possibly be found for accomplishing the same general results in the case of that company, but this could probably be done only through a special act.

TABLE II. ESTIMATE OF CONTRIBUTION TO BE NEEDED FROM TAXES IN MASSACHUSETTS

1918 deficit for all lines except Boston, Bay State and Massachusetts Northeastern companies		$364,293
Additional allowance for depreciation		892,914
Return on stock		1,254,898
Total deficit		$2,512,105
Excise and franchise tax		316,154
Additional revenue required		$2,195,950
Assessed valuation of districts served by the twenty-one railways included	$1,317,855,145	
Average additional tax per $1000		$1.24

How the Tax Rate Would Vary

It is said that four companies (East Taunton, Linwood, Lowell & Fitchburg and Union) fully meet the revenue requirements defined in the act without any tax contribution. These companies would not be affected by the act, as they would have no inducement to accept it. In the case of all the other companies there would be a deficit to be met from the tax levy amounting in the average to $1.24 per $1,000 of valuation. Seven companies (Berkshire, Blue Hill, Boston & Worcester, Concord, Maynard & Hudson, Milford, Attleborough & Woonsocket, Nahant and Lynn) would require the maximum tax of $2, and even that amount would be insufficient to meet their estimated revenue requirements. In the case of three important roads (Springfield, Holyoke and Middlesex & Boston) the rate would be approximately $1. The rate for the Worcester Consolidated would be $1.78, and the rate for the other roads would vary from $1.96 for the Northern Massachusetts down to $0.17 for the Interstate Consolidated.

The plan suggested is intended to be merely a measure for tiding over the present emergency. The legislation suggested is therefore to be effective only until Dec. 31, 1922. In the commission's opinion, any temporary plan and, indeed, any permanent plan which falls short of public ownership will not fully restore electric railway credit. It is believed that the plan suggested, however, should at least improve credit and by making better provision for depreciation should assist in the rehabilitation of the properties and thus make possible better service as well as lower fares than would otherwise prevail.

Meeting of Oklahoma Association

THE Oklahoma Utilities Association held its annual convention at Oklahoma City, Okla., on Thursday, Friday and Saturday, Feb. 6 to 8. One of the papers presented at the meeting was on the present status of the electric railway industry. The author, J. W. Shartel, vice-president and general manager Oklahoma Railway, reviewed the prosperity which the interurban lines had brought to the communities in Oklahoma but said that the conditions surrounding electric railway construction now made further development impossible. The electric railways need greater revenue, but the public seems indifferent to their condition. Automobiles will not solve the question of city transportation, partly because they are inherently more expensive, partly because of the room which they occupy on the street and partly because they cause many accidents. The speaker recommended rigorous traffic regulations for automobiles, increased schedule speed for electric cars and higher fares.

C. E. R. A. Meets in Cleveland

President Coen Says Future Looks Brighter for Electric Railways Than a Year Ago—J. F. Collins, Michigan United Railways, Was Elected President for Ensuing Year—Association Decides to Resume Annual Boat Trip

THE annual meeting of the Central Electric Railway Association was held in the new Hotel Cleveland, Cleveland, Ohio, on Feb. 27 and 28. Papers were presented by J. T. Sullivan, general manager Mahoning & Shenango Railway & Light Company, on "Ethical Aspects of the Street Railway Situation," by G. H. Kelsay, electrical engineer Union Traction Company of Indiana, on "Power House Economies," and by A. B. Cole, publication department Westinghouse Companies, on "Freight Haulage." An abstract of Mr. Sullivan's paper is published elsewhere in this issue, and a report of the proceedings on Feb. 26 is given below. An account of the proceedings on Feb. 27 with abstracts of the papers by Messrs. Cole and Kelsay will be published next week.

There was a good attendance at the meeting, some 300 members being present. F. W. Coen, vice-president and general manager Lake Shore Electric Railway and president of the association, presided. At the opening of the morning session A. R. Corlett, representing Mayor Davis of Cleveland, presented the association with a large key, symbolizing the freedom of the city.

President Coen Says Future Looks Brighter

In his presidential address Mr. Coen reviewed the unusual conditions under which electric railways had operated during the past year. Increased income, he said, has been necessary, and those in authority have in general met the situation by granting additional rates where they had the ability. The utilities are not yet on the basis that they should be, but as a whole the future looks much brighter for them than it did a year ago. There are too many different political bodies telling the electric railways what to do. Some centralized authority would more likely be free from prejudices growing out of local conditions.

In each state, according to Mr. Coen, there should be one body with authority over railway properties on the one hand to determine construction, operation and service requirements and on the other to prescribe such rates as may be necessary to cover operating and maintenance costs and a return on the investment. The speaker had no quarrel with the jitney and auto-truck if they supply transportation needed by the public, but they should be compelled to fulfill the requirements of common carriers. The war has taught many lessons of co-operation which should be applied on electric railway properties. The public also should be told of the unjust burdens which are now being imposed on the railways.

In conclusion, Mr. Coen expressed a feeling of optimism—a belief that the cloud which has overhung the industry for many years shows a silver lining and that better things can be expected if the railway's case is presented fairly and continuously.

The annual report of A. L. Neereamer as secretary and treasurer of the Central Electric Railway Association for the year ended Dec. 31, 1918, was then presented. An abstract follows:

During the past year the association has held three meetings as follows: Dayton, Ohio, Feb. 28 and March 1; Cedar Point, Ohio, July 17 and 18; Indianapolis, Ind., Nov. 21 and 22. The interurban railway membership of this association as shown in the report for the year 1917 consisted of sixty-eight interurban lines, operating 4927 miles, and two city lines. During the year we have lost five interurban lines and 113 miles; the membership for the year ending Dec. 31, 1918, being sixty-three lines operating 4814 miles. This is the net result shown above for the reason that we secured one new line, and one of the larger lines separated into two companies which would make the total loss in interurban lines seven.

During the year 1917 we had 140 supply members and in the year just ended 126, a decrease of fourteen.

The receipts and disbursements for the year 1918 are as follows:

Receipts:		
Cash on hand	$1,608.95	
Receipts	7,219.24	
Disbursements		$7,866.97
Cash on hand		968.12
	$8,828.19	$8,828.19

You will note from this statement that while the cost of all material has greatly increased, the operating expenses have been kept down to the minimum.

During the first portion of the year there was considerable work done for the committee on military efficiency and defense, and the data sheets and records were completed so far as reports could be secured from the member companies. The work of this committee of course ceased with the signing of the armistice on Nov. 11, 1918.

Investments were made during the past year as follows:

Third Liberty Loan	$500.00
Fourth Liberty Loan	500.00
Paid on running stock of the Railroadmen's Building and Savings Association	75.00
Total	$1,075.00

For the information of the members I am submitting herewith a statement of the expenses of the Central Electric Railway Accountants' Association:

Total expenses for the year	$20.31	
Received from sale of pamphlets	00.00	
Balance	$20.31	
Dues at $5 per annum from two lines not members of the Central Electric Railway Association	10.00	$10.31

The secretary and treasurer also submits herewith a statement of current assets and liabilities of the association for the year just ended:

Current Assets:			
Cash on deposit		$962.12	
Investments—Liberty Bonds	$1,500.00		
Railroadmen's Building and Savings Association	3,031.56	4,531.56	
Due from members		266.68	
Liabilities			$0,000.00
Balance			5,760.36
		$5,760.36	$5,760.36

An explanation of the items covering stationery and printing and the miscellaneous charge against the Central Electric Traffic Association, a statement is submitted herewith of the expenses and receipts of that association for the year 1918:

Received from sale of tariffs	$865.54	
Traveling expenses		$158.06
Stationery and printing		746.30
Postage		40.00
Telegraph and telephone		16.89
Freight and express		9.90
Legal expense		35.00
Due from member companies	62.02	
Deficit	43.59	
	$1,006.15	$1,006.15

The financial affairs of the association are now in the best condition they have been since its organization and this situation is only achieved by careful watching of each and every expense, buying at the proper time on the market and only at such times as is absolutely necessary to have supplies in the office. We were very fortunate in the purchase of some of the stationery, of which we use a great deal, in a large quantity before a very marked advance in price.

In closing this report the secretary and treasurer desires to thank the officers, committees and members for the assistance given him in the discharge of his duties during the past year.

At the conclusion of the report an amendment to the by-laws raising the dues of the supply members of the association to $10 a year was adopted. Thirty-four applications from supply men were received and acted on, making membership largest in history. An amendment making past presidents ex-officio members of the executive committee was also approved. S. D. Hutchins then outlined proposed boat trip, on July 8 to 11, from Toledo to Benton Harbor, and Chicago was then approved by the meeting. A telegram was then read from J H. Pardee containing the greetings of the American Association and urging united action in the present railway crisis and attendance at mid-year meeting in New York on March 14.

Mr. Sullivan then read his paper on the "Ethics of the Street Railway Situation," which appears on page 413 of this issue. There was no discussion.

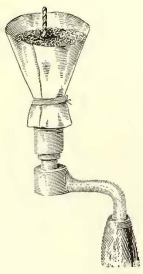
OFFICERS ELECTED

On Friday morning the following were elected officers for the ensuing year: President, J. F. Collins; vice-presidents: R. I. Todd, Indianapolis and A. C. Blinn, Akron.

Executive committee; F. D. Carpenter, Lima, H. A. Nicholl, Anderson; F. W. Coen, Sandusky; C. L. Henry, Indianapolis; F. R. Coates, Toledo; C. N. Wilcoxon, Michigan City; S. W. Greenland, Fort Wayne; W. S. Rodger, Detroit; F. J. Haas, Evansville; A. C. Van Driesen, Toledo; J. R. Farrell, of the General Electric Company, Indianapolis; L. G. Parker, of the Cleveland Frog & Crossing Company, Indianapolis.

A. L. Neereamer was later re-elected secretary and treasurer by the new executive committee.

Inexpensive Guard Prevents Dropping of Shavings and Drilling from Overhead Work

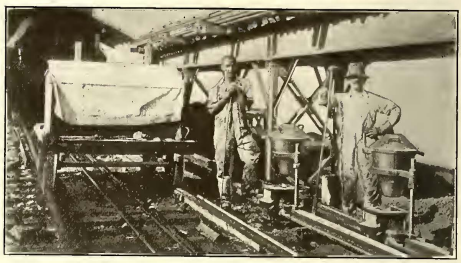


TO PREVENT drillings from dropping into the eyes of the workmen when drilling overhead and to keep the machinery below free from dirt and grit, the guard shown in the accompanying illustration has been found very effective. This guard can be constructed of cardboard or even newspaper. It is simple and inexpensive and its use may save a great amount of trouble.

A funnel of suitable size is placed over the drill and the bottom is wound with string to make a close fit around the bit-stock. The grit and chips from the work are collected in the funnel and after the work is done it can be easily removed and cleaned out.

Welding Third-Rail in Cuba

THE welding of third-rail has received very little attention in the United States except on recent rapid transit lines. The practice has been used quite extensively abroad, however, and an accompanying illustration shows such a weld being made in Cuba. This weld of the conductor rail was made by the Spanish-



WELDING THIRD-RAIL AT FELTON, CUBA

American Iron Company at Felton, Cuba, with thermit. Some of the welds were made under very difficult circumstances as the wind was blowing at a rate of about 20 m.p.h. and frequent showers occurred. In some cases it was almost impossible to keep the preheating torch in operation. In this case the entire rail section was welded.

London Underground's Pictorial Souvenirs for Its War Workers

As a token of appreciation of those employees, new and old, who were "carrying on" while their predecessors were at the front, the Underground Railways and the associated London General Omnibus Company have issued a series of lithographs entitled "Playing the Game." Each lithograph is of an employee sketched from life in the performance of his or her duties with an auxiliary photo-derived drawing below where appropriate of the corresponding service on the battle grounds. For examples, the drawing of the lorry-makers (for war work) is accompanied by a picture of a line of auto trucks wending their way along a French highway; the shell turners are paired with a scene depicting the use of their output; the women painters are accompanied by camouflage artists, etc. Bus conductresses, lift girls and others are reminded in like manner of the war service of the men they were employed to replace. The bus driver shown in one plate actually transported soldiers through France, while the plate layer or trackman is a veteran of Mons.

These sketches are auto-lithographs, being drawn by the artist directly on the stone. Each employee has received a copy of the sketch depicting his or her line of work, and complete sets of twelve have been made up for the officials of the companies mentioned, under the direction of the advertising department.

It is reported that there is in process of formation in Great Britain an association for the reduction of industrial accidents. Presumably this will be formed along the lines of the National Safety Council whose work has been so successful in this country.

First 1917 Census Figures Out

Reports for Electric Railway Lines of Six States Show the Heavier Burden of Expenses in Later Years

IN THE CASE of six states preliminary figures of the forthcoming quinquennial report on electric railways have been given out by Director S. L. Rogers of the Bureau of the Census, Department of Commerce. The statistics all indicate the tendency of operating expenses to increase more rapidly than operating revenues.

The statistics relate to the years ending Dec. 31, 1917, 1912 and 1907, but only those for the decade are reproduced in the accompanying table. The totals include electric light plants operated in connection with electric railways and not separable therefrom, but they do not include mixed steam and electric railways or electric railways under construction.

During the decade 1907-1917 and the five-year period 1912-1917 Vermont showed substantial gains in the number of passengers carried and in revenues from railway operations. The marked increase in operating expenses for 1917, however, resulted in a decrease of 69.1 per cent in net income as compared to 1912, although there still remained a gain of 57.4 per cent over 1912.

The statistics for Arizona and New Mexico, it is said, show general increases at each successive census. Those for Idaho and Wyoming show small gains in trackage, equipment and income for the semi-decade 1912-1917, but they are far below the gains made during 1907-1912.

The figures for Mississippi show substantial gains during the decade 1907-1917, but the growth was chiefly confined to the first half of the period, the railway revenues in 1917 being slightly less than in 1912 and the operating expenses materially greater. In the case of Colorado, there were marked losses for 1917 as compared to 1912 which more than offset the gains made in 1912 as compared to 1907. Oregon suffered decreases in traffic and income for 1917 as compared with 1912, with marked increases in operating expenses and overhead charges, in contrast with large gains for the preceding semi-decade 1907-1912.

Connecticut Engineers Meet

THE thirty-fifth annual meeting of the Connecticut Society of Civil Engineers, held in New Haven on Feb. 18 and 19, was the largest gathering in the history of the association. William R. Dunham, Jr., engineer maintenance of way Connecticut Company, has been president during the past year.

During the two-day session two topics of electric railway interest were presented to the association. One was a paper read on the afternoon of Feb. 18 on "Street Railway Track Reclamation" by H. J. Tibbet. The other was an address at the annual banquet by J. K. Punderford, vice-president and general manager Connecticut Company, in which the speaker described the difficulties under which electric railways are contending. Charles J. Bennett of Hartford was elected president for the ensuing year.

PRELIMINARY 1917 STATISTICS OF CENSUS BUREAU FOR ELECTRIC RAILWAYS IN SIX STATES

	Vermont		Arizona and New Mexico		Idaho and Wyoming		Mississippi		Colorado		Oregon	
	1917	Per Cent Increase Over 1907	1917	Per Cent Increase Over 1907	1917	Per Cent Increase Over 1907	1917	Per Cent Increase Over 1907	1917	Per Cent Increase Over 1907	1917	Per Cent Increase Over 1907
Number of companies (all operating)	9	.....	*b* 6	.....	*g* 6	.....	11	.....	15	.....	8	.....
Miles of line	92.60	*20.7	*c* 57.49	*e* 52.0	*h* 120.01	*j* 179.1	*l* 112.36	40.8	337.15	63.4	416.28	145.9
Miles of single track	107.95	*13.2	*d* 63.84	*f* 56.3	*i* 127.70	*k* 188.7	*l* 122.79	42.1	499.87	57.5	596.23	135.3
Miles of single track in state (*a*)	125.47	10.7	.....	.....	.....	.....	124.47	43.7	.....	.....	603.13	132.9
Cars	156	*1.9	66	65.0	88	.....	187	34.5	817	29.5	1,431	113.6
Passenger	112	*11.1	62	59.0	68	.....	169	36.3	564	19.0	744	59.7
All other	44	33.3	4	300.0	20	.....	18	20.0	253	61.1	687	236.8
Electric locomotives	.....	.....	.....	.....	.....	.....	2	.....	7	.....	22	.....
Number of persons employed	311	16.9	224	138.3	204	.....	627	29.8	2,402	38.2	3,057	151.4
Salaries and wages	$259,205	65.6	$221,711	.....	$189,209	.....	$392,600	47.6	$2,126,531	47.7	$2,976,798	178.6
Total horsepower	8,394	54.0	989	*16.2	.....	.....	16,035	48.3	58,139	166.8	113,950	.....
Steam engines:												
Number	1	.....	1	*75.0	.....	.....	20	.....	26	.....	12	.....
Horsepower	200	*92.6	525	*55.5	.....	.....	16,035	48.3	55,739	180.0	33,950	.....
Water wheels:												
Number	14	.....	.....	.....	.....	.....	.....	.....	8	.....	24	.....
Horsepower	8,194	198.0	.....	.....	.....	.....	.....	.....	2,400	27.6	80,000	.....
Internal combustion engines:												
Number	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horsepower	.....	.....	464	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kilowatt capacity of dynamos	7,727	58.5	665	*45.9	.....	.....	12,575	82.2	39,770	191.7	64,880	.....
Output of stations, kilowatt-hours	11,601,930	180.7	1,526,960	35.8	.....	.....	20,022,367	37.0	98,227,472	133.3	218,086,315	.....
Current purchased, kilowatt-hours	10,152,558	.....	4,010,388	.....	6,587,229	.....	3,279,254	.....	13,281,070	.....	15,066,427	.....
Passengers carried	9,268,385	24.2	9,488,467	202.6	5,036,166	234.1	12,215,749	18.4	102,882,744	9.8	91,926,694	43.8
Revenue	8,738,378	23.0	8,969,329	206.0	4,736,414	256.9	10,730,801	18.1	84,623,896	15.2	67,222,935	36.7
Transfer	483,389	35.2	403,128	159.6	207,759	32.1	1,191,255	11.5	16,785,922	*8.6	22,229,134	83.0
Free	46,618	.....	116,010	145.5	91,993	297.8	293,633	82.9	1,472,926	*20.9	2,474,625	6.4
Revenue car mileage	1,865,039	3.0	1,729,926	48.2	1,796,833	365.5	3,990,556	42.5	17,021,284	16.6	22,528,731	49.9
Railway operations—revenues	$596,983	35.3	$446,218	.....	$521,988	†	$617,527	23.5	$4,728,732	39.9	$4,999,601	83.0
Auxiliary operations—revenues	229,586	.....	146,795	.....	.....	†	583,515	83.6	1,051,044		2,102,832	.....
Non-operating income	48,489	277.0	20,320	.....	2,194	†	24,670	*72.1	46,736	*86.7	184,711	*79.4
Income from all sources	$875,058	92.6	$613,333	171.8	$524,182	†	$1,225,712	35.2	$5,826,512	30.0	$7,287,144	100.9
Operating expenses	$599,446	91.0	$456,542	184.7	$375,858	†	$890,006	66.5	$3,404,817	62.8	$4,240,891	158.9
Deductions from income	239,724	103.8	123,947	.....	132,786	†	455,148	83.6	2,211,329	73.7	3,674,831	270.2
Net income	$35,888	57.4	$32,844	.....	$15,538	†	*$119,442	.....	$210,366	*81.1	*$628,578	.....

* Decrease or deficit. † Figures not available.

(*a*) Excluding track lying outside of state but operated by companies within state, and excluding track in state operated by outside companies.

(*b*) Arizona, four companies; New Mexico, two companies.

(*c*) Arizona, 46.87 miles of line; New Mexico, 10.60 miles of line.

(*d*) Arizona, 52.89 miles of single track; New Mexico, 10.95 miles of single track.

(*e*) Arizona, increase in miles of line, 64.9 per cent; New Mexico, 12.8 per cent.

(*f*) Arizona, increase in miles of single track, 72.0 per cent; New Mexico, 84. per cent.

(*g*) Idaho, four companies; Wyoming, two companies.

(*h*) Idaho, 98.24 miles of line; Wyoming, 21.77 miles of line.

(*i*) Idaho, 104.65 miles of single track; Wyoming, 23.05 miles of single track.

(*j*) Idaho, increase in miles of line, 128.5 per cent; Wyoming had no mileage in 1907.

(*k*) Idaho, increase in miles of single track, 136.6 per cent; Wyoming had no mileage in 1907.

(*l*) Including 4 miles of line and single track not operated.

Getting Good Results in Lubrication of Air Compressors

Careful Selection of Lubricating Oil, Proper Quantity to Use and Cleaning Cylinders and Piping Are Important Factors

By H. V. CONRAD
Mechanical Engineer and Secretary of the Compressed Air Society, New York City

TO SECURE satisfactory lubrication of air compressor cylinders friction of moving parts should be reduced to a minimum and the carbonization of the oil should be eliminated as far as possible. For the proper reduction of friction the oil chosen should have sufficient body to sustain the weight of the moving parts and to form a seal between the piston rings and the cylinder walls and still not absorb excessive power in the overcoming of the viscosity of the oil itself. Carbonization of the oil allows the accumulation of deposits of carbon which are sticky in the early stages of their formation but hard and flinty later. Such deposits accumulate on the cylinder valves, in the cylinder passages, in the pipes and eventually in the air receiver.

The formation of excessive carbon deposits may be due to (1) ill-advised use of oils of too great viscosity which do not atomize readily and therefore remain too long upon the hot cylinder walls, thus breaking down to sticky carbon deposit; (2) use of too great quantities of oil which have the same effect as the use of too heavy an oil as far as the carbonization is concerned; and (3) failure to provide a proper screen over the air intake of the compressor.

Quantity of Cylinder Lubricant Necessary

For average normal conditions the oil should be a medium-bodied pure mineral oil of the highest quality, not compounded with fixed oils such as animal or vegetable. It should be carefully filtered in the final process of manufacture. Quite a range of oil composition is permissible for lubricants suitable for this work which are manufactured under the above conditions. Primarily a distinction must be made between those oils having a paraffin base as distinguished from those having an asphaltic base.

From an operating standpoint strictly some lubricant manufacturers claim there is no distinction between the two classes of lubricants as to their desirability provided the process of manufacture is carefully carried out. If any carbon should be formed, however, such carbon deposited by the asphaltic base oils is of a light fluffy nature and is easily cleaned out, whereas that deposited by the paraffin base oil is very adhesive and characterized by the hard flinty nature.

Quantity of Lubricating Oils Necessary

The quantity of lubricating oil necessary for the air cylinders of compressors cannot be stated in exact terms due to the varying viscosity of different oils, the heat of compression and the size of the cylinder. It may be stated in general, however, that after the cylinders have acquired smooth and polished surfaces the quantity should be reduced to the lowest limits to avoid the possibility of the accumulation of carbon and sooty deposits within the system due to use of excessive quantities of oil.

A leading authority on compressor engineering states: "The best way to determine the proper amount of lubrication is to take out the valves from time to time and examine the cylinder. If the parts feel dry the lubricators should be adjusted to feed a little more oil, whereas if oil lies in the cylinder and its parts show excessive oil thereon, the quantity set by the lubricators should be reduced. By thus examining the machine a few times the proper amount of oil can be determined to suit the characteristics of the particular lubricant used and the conditions under which the machine operates."

Periodical Cleaning Is Necessary

The best of lubricating oils will cause the deposit of enough carbon in the compressor system to necessitate the periodical cleansing of it. For the removal of carbon a good cleansing solution is made of one part soft soap to fifteen parts of water. The suds should take the place of oil for a few hours and be fed into the air cylinders about once a week either by means of a hand pump or through the regular lubricator at a rate of about ten times as rapidly as that of the oil. Air valves should be inspected periodically and these will indicate whether more or less frequent applications of the soap suds should be made. After soap suds have been used the drain cocks of the air receiver, and of the intercooler in case of compound machines, should be opened to draw off any accumulated liquid. Oil should be used again for a half hour before shutting down the machine in order to prevent rusting of the cylinder and fittings. Kerosene, gasoline or lighter oils should never be used in an air cylinder for any purpose whatever because of their volatile nature under heated conditions.

Glasgow's Extraordinary Gear Life

DURING seventeen years of electric operation, the number of gear wheels scrapped by the Glasgow Corporation Tramways, due to all causes and regardless of the makes furnished, has approximated the extraordinarily low figure of 1 per cent per annum. The chief defects which necessitate scrapping are given by the management as follows:

1. The splitting of hubs at the keyway. This defect is largely due to the fact that the wheels were designed originally for $3\frac{3}{4}$-in. axles. Subsequently the bore of the hub was increased to $4\frac{1}{8}$ in. to fit the increased size of the axles which the Tramways had found it necessary to use. This change, of course, weakened the hubs.
2. Broken teeth.
3. Cracked arms or spokes.
4. Distorted rims.
5. Worn-out teeth, which are responsible for the scrapping of approximately 0.1 per cent of gears per annum.

Careful maintenance and lubrication are assigned as the reasons for the great longevity of Glasgow's gears. By careful maintenance are understood frequent and systematic inspection and overhaul; the selection of the best bearing metal procurable; strict attention to the fit of armature shaft and axle bearings; maintenance of the mesh of the wheel and pinion to the full depth of the teeth and lubrication with oil.

Recent Happenings in Great Britain

England Proceeding to Orderly Reconstruction—Traffic Increases Rapidly—Many Inquiries for Cars

(*From Our Regular Correspondent.*)

With the beginning of the year the new British government began to manifest activities in various directions in connection with the work of reconstruction after the war. Among other things, we are promised a Ministry of Ways and Communications, with Sir Eric Geddes, lately First Lord of the Admiralty and formerly a noted steam railway manager, at the head of it. Hitherto there has been no such ministry in this country, and such of its functions as were performed were carcied out as part of the duties of the ried out as part of the duties of the partment has been responsible for supervision of railways and tramways so far as they have been supervised, while automobile road vehicles have been under the care of the local government board and of the home office. Presumably it is intended that all sorts of vehicular traffic, whether on rails or on the highways, shall come under the purview of the Ministry of Ways and Communications. The change should put a stop to overlapping and effect greater efficiency in administration.

Inexpensive Light Railways Proposed

During January the Ministry of Reconstruction made public a scheme for providing the agricultural districts with a system of cheap light railways intended mainly for the benefit of farmers and rural industry. To distinguish these lines, which are to be of only 2-ft. gage, from all others, it is proposed that they should be called "agrails," which may be regarded as short (very short) for agricultural light railways. It is proposed that an "agrail" board should be set up, which in conjunction with the local authorities should devise schemes and get them authorized by the ordinary procedure before the light railway commissioners. The cost of construction, which would be kept down as much as possible, would be borne partly by the Development Commissioners and partly by the local authorities. The lines when built would be leased to operating companies. Generally, in fact, the Belgian system of light railways, so widely and favorably known before the war, would be followed. Either steam or electric traction will be employed according to local service. Passengers will be carried, but the main purpose is to convey goods. The lines are to be laid as far as possible on roadside wastes, but where necessary they will be constructed on the roads themselves or on private land. The cost of compulsory land acquisition is to be cheapened.

A Tip from the U. S. A.

The scheme looks promising. It reminds one also of the efforts which are being made in the United States to cultivate good traffic on existing interurban electric railways. In this country we have next to no interurban electric railways and the suggested "agrails" would serve a useful purpose. Among the reasons why cheap light railways are preferable to motor lorries or trucks is that the latter wear out the country roads and that the owners of them are likely in the future to be called on to pay much more for road maintenance than they have in the past. Already, however, the automobile interests are protesting against the scheme and maintaining that road motor lorries would be preferable. I am strongly reminded of a very forcible leading article on corresponding contentions which appeared in your pages a year or two ago under the title "The Mantle of Ananias."

Legislative Program Proposed

Possibly before these lines meet the reader's eye the British government will have submitted proposals to Parliament for dealing with the whole of the railways and with the production of electric power for all purposes. The Prime Minister told a deputation of railway employees in January that legislation of this sort would be passed as soon as possible, and therefore he asked them to suspend their further demands for improved conditions of labor. Whether the government proposals will amount to out-and-out nationalization or whether there is to be a more modest scheme of state ownership and unification with leasing to operating companies remains to be seen.

Value of Unification Realized

Among reports by government committees there have been none recommending complete railway nationalization, but the great advantages of a unification of the railway systems of the country have been pointed out. One story goes that the new Ministry of Ways and Communications will simply be given powers to deal with the matter. That may mean further inquiry and delay. As regards the generation and distribution of electric energy for all purposes, there have been two important reports, recommending a national scheme requiring only a few power stations, but these to be of an enormous capacity, and the formation of one general and a number of district boards for carrying out and administering a scheme calculated to produce an enormous saving in coal, the electrification of steam railways, and the development of industries of all sorts by a cheap and abundant supply of electric power. What relative authority the state, the local authorities and private enterprise will have in the matter remains to be seen when the government proposals are tabled. Such proposals will be the carrying out of general promises given by the Prime Minister during the recent general campaign.

In any event the day of small extravagant electric power stations, many of them owned by municipalities, will be ended. Municipal authorities, of course, regard the scheme with a jealous eye, but the railways and the industries generally will probably welcome it. The possible economies are enormous.

Electrical Industries Reviving

The revival which is already taking place in British electrical industries is indicated by the fact that according to a semi-official statement electrical manufacturing firms in Great Britain had under construction at the end of 1918 plants representing 700,000 kw., which is equal to more than 30 per cent of the capacity of the plants now in existence in the country. So far as tramways are concerned, January saw a beginning of the coming demand for new rolling stock. Quite a number of tramway undertakings are in the market for cars and also for motor omnibuses. These could not be secured during the war, but manufacturing for civilian purposes is now being rapidly resumed. As soon as supplies are abundant the demand for rails will be very heavy, as a great proportion of track is quite worn out. Prices, however, do not promise speedily to come down. Talking about prices, I notice that the government is offering to sell stocks of aluminum (which it accumulated while the war was in progress) at £150 a ton.

Labor Situation Serious

In the end of January the labor situation alike in England, Scotland and Ireland was very menacing. There were extensive strikes in the shipbuilding and engineering trades and efforts were being made by the agitators to draw tramway employees into the whirlpool. The latter, however, if they do not break away from their trade union leaders—rather a prevalent practice nowadays—were not in a position to strike immediately, because the unions and the company and municipal tramway authorities were negotiating over a demand by the employees for a forty-four-hour week. The nominal cause of all or most of the strikes was a demand for shorter hours, but there was a revolutionary sentiment abroad. Some of the strike leaders were political extremists of a dangerous type. The tension of the war and of war work having relaxed, it is difficult to say how far some of the working classes may be led.

Meanwhile traffic on the electric tramways in all parts of the country continues almost overwhelming in its volume, and it can only be by degrees that sufficient men and rolling stock can be secured to deal with the sudden and extraordinary demand which has arisen.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

Favors City Ownership

Cleveland Mayor Not Satisfied with Results Under the Much-Heralded Service-at-Cost Plan

Mayor Harry L. Davis advised the City Council of Cleveland, Ohio, in a communication read at the regular meeting on Feb. 24, of his conviction that the city should purchase the property of the Cleveland Railway. A resolution, providing that the question should be submitted to a vote of the electors on Nov. 4 was introduced and referred to the street railway committee.

Renewal of Franchise Necessary

The company's franchise must be renewed by May 4 next for a period of not less than fifteen years, the time the present franchise has yet to run, or the company may take over the control of operation from the city and fix a rate of fare that will insure dividends and a renewal fund for the time it will continue to operate the road. Mayor Davis proposed a renewal for a period of one year, so that the question of municipal ownership may be submitted to a vote and, if carried, the property may be purchased at an early date. J. J. Stanley, president, has stated that the company will not accept a renewal for a short period, as nothing of the kind is provided for in the Tayler franchise.

In his communication the Mayor says that the present franchise has shown a number of advantages, but there have also been many disadvantages. Among the latter he notes as the most serious the tendency of a fixed return to produce a lukewarm attitude on the part of the owners, lack of incentive toward efficiency and a desire only to look after the upkeep and thus insure their own security.

Payment Out of Earnings Suggested

The company, he says, has refused proposals for extensions in outside territory, one of the things that is required by the growth of the city. Divided responsibility as to expenses and the city's lack of power as to wages and working conditions have produced awkward results that have become apparent in the last year. Under municipal ownership, the people will be able to regulate the rate of fare, decide upon extensions, and, in fact, have the road operated as they want it. It is suggested that the payment for the property be made out of the earnings, instead of by the issue of bonds.

The Tayler ordinance provides that the city may take over the property by paying the company $110 a share for the stock. On the outstanding stock, aggregating $27,780,000, this would amount to about $30,560,000. In addition a bond issue of $5,495,000 would have to be assumed, making in all, with the addition of a deficit of $500,000 in the interest fund, $36,555,000.

As yet there has not been much comment on this suggestion.

For several weeks murmurings in regard to amendments to the Tayler franchise have been heard. For the most part these have referred to additional power of control for the city. Company officials have not made any public comment on this as yet.

The company has been planning to spend between $3,000,000 and $4,000,000 for improvements and extensions, in order to furnish a more efficient service. Mr. Stanley said, however, that the company cannot go ahead with its plans unless the franchise is renewed in accordance with the terms of the Tayler grant.

Colonel Byllesby Defends Private Ownership

In a telegram to the Oklahoma Utilities Association in convention at Oklahoma City, Col. H. M. Byllesby, president of H. M. Byllesby & Company, Chicago, said:

The trend of events in the utility situation is one which should command our most earnest, thoughtful and active attention. It seems to me that only two courses are open to the utility business; first, that the laws be so adjusted as to enable these companies to make such a fair return upon their investment as will enable them to find capital continuously for the further extension of their enterprises which the growth of the community served and the improvements in the art render increasingly necessary. These laws and regulations at the hands of commissions or other properly authorized bodies should encourage in every proper way the spirit of enterprise and provide some profitable return beyond the mere bare interest on the cost of the properties in order to bring to bear the very best inventive and enterprising capacities of all those engaged in this business.

If the laws and regulations cannot provide for this situation then it seems to me that the only alternative for the various communities is that they take over the properties at a fair and suitable compensation to the owners, as I am confident that at bottom no real American wishes to rob anyone or to take possession of any property without making due, proper and fair payment therefor. This latter course is one which I sincerely trust will not be adopted as it involves all the evils which years of experience have shown always attach to governmental operation of enterprises of this nature.

The very best results to the community, to those who pay for the service rendered, will as always be found in private ownership, where this ownership, while being regulated along proper lines, is still allowed full scope for the exercise of ingenuity and enterprise; and in order to do this they must be allowed, as I have previously stated, not only a standard return for the capital invested in other enterprises of any nature at all similar, but in addition to this some fair, reasonable allowance to compensate for the exercise of painstaking continuous industry, ingenuity and enterprise.

Mr. Witt Declines

Flatly Refuses Buffalo Designation Which Would Have Made Him a Partisan Representative

Peter Witt, Cleveland, Ohio, has declined to serve as the representative of the city of Buffalo on the board of arbitration which will attempt to formulate a plan whereby the International Railway, Buffalo, will be placed under municipal control. Mr. Witt declined the designation of the City Council for three reasons; first because of his present work for the Philadelphia (Pa.) Rapid Transit Company; second, his tentative engagement to undertake work of a similar nature for another city, and, third, because he was asked to be the city's partisan representative on the board instead of being asked merely to serve as an impartial member of the board. James E. Allison, Jr., St. Louis, will be the company's representative on the board. So far there has been nothing like agreement on the part of the representatives of the city with respect to a successor to Mr. Witt.

Hope in Arbitration

How long the International Railway can continue to operate under a 5-cent fare is beginning to be a serious question with company officials. The arbitration proceedings hold out some hope that a permanent agreement can be reached between the city and the company, but a clause in the arbitration agreement provides that either side can reject the final report of the board. Thus after months of delay it would be possible to disregard the final valuation of the company's properties within the city to be used as the basis of an agreement whereby the city will participate in control of the railway.

On May 1 the company will have interest to pay on its 5 per cent refunding and improvement bonds. Whether or not it can again borrow sufficient money to pay the interest is a question.

Behind in Its Taxes

The International Railway is now face to face with still another problem. It must raise $323,049 to pay municipal taxes. Of this amount $259,330 represents the special franchise tax and $63,718 the tax on its real estate within the city of Buffalo. The municipal authorities have served notice on the company that unless the taxes are paid March 1, a penalty of 5 per cent will be added and its property advertised for sale. The taxes have been due since July 1, 1918. Under the law unless the taxes are paid, the property can be sold by the city to the highest bidder on May 1, 1919.

A $211,000,000 Port Plan

Electrification Would Play an Important Part in Mr. Lindenthal's Proposal for New York

Gustav Lindenthal, consulting engineer and builder of the Hell Gate Bridge at New York, presented before the New Jersey-New York Port and Harbor Development Commission on Feb. 13 his solution for the transportation problems between New York and New Jersey entering into the general port development project.

The plan proposed by Mr. Lindenthal would entail an expenditure of more than $200,000,000. It would have as its dominating feature the long-discussed North River Bridge, between the New Jersey shore and Manhattan, at Fifty-seventh Street. It includes a proposed solution of the West Side problem presented by the New York Central Railroad tracks, to take the form of an elevated railroad. It proposes also a great classification yard in New Jersey, in the meadows back of the cities along the Hudson shore, and a union passenger terminal in Manhattan, at Fifty-seventh Street and Tenth Avenue.

ESTIMATES OF COST OF THE COMPONENT PARTS OF THE PROJECT	
Double track belt railroad, from near Perth Amboy to Undercliff terminal on the Hudson, with switchyards at intersection with railroads, about 35 miles long	$20,000,000
Classification yard in Jersey meadows and approaches to North River Bridge	15,000,000
Multiple track high level bridge over North River	75,000,000
West Side elevated railroad in Manhattan, eight tracks, with stations and market halls, 4½ miles long	15,000,000
A pair of tunnel tubes under North River at Battery Place to Communipaw	12,000,000
Connection with New York Central going north at Fifty-seventh Street	5,000,000
Union station in Manhattan	25,000,000
Moving (conveyor) platforms under Fifty-seventh Street	5,000,000
A pair of tunnel tubes at Greenville, with yards and approaches	14,000,000
Audubon tunnel and bridge over Harlem River, including right-of-way	5,000,000
Power plant equipment and locomotives	20,000,000
Total	$211,000,000

There would be a marginal railroad along the West Side of Manhattan, with a freight discharging and loading station every half mile; a belt railroad in New Jersey similar to that proposed by the Port Commission's engineers, but taking in Perth Amboy and having a tunnel connection with Staten Island, this link leading to another tunnel connecting with Long Island and enabling the linking up of railroads north and south of Manhattan.

Other features of the project are a freight tunnel from the Battery to Jersey City, forming a loop over which, by gravity, freight cars brought over the proposed high level general traffic bridge could be sent back to the mainland. Another loop would take the proposed marginal railroad entirely around Manhattan, and a short connecting railroad to link the New York Central's main line with its Futnam and Harlem divisions northwest of the city, in suggested. The Manhattan loop and the Futnam-Harlem link, however, are only tentative features.

Mr. Lindenthal pointed out that while the present time is not propitious for construction, on account of the high prices of material, the work of studying and preparing plans should commence at once, likewise the negotiations with the railroads, which will have to be shown that the plan will produce ultimately a very large saving over present methods.

Further Negotiations Futile

Detroit Commission Rejects Counter Leasing Proposal of Railway—Will Map Out a Future Course

Mayor Couzens and the Street Railway Commission of Detroit, Mich., have rejected the rental proposal in a letter to Frank W. Brooks, president of the Detroit United Railway. Mr. Brooks had offered a plan for the company that the city rent the lines at an annual rental of $2,010,000 a year, based on the company's valuation of $33,500,000. This was in the nature of an alternative for the purchase proposal from the city which was regarded by the company as unfavorable. The following communication has been sent to Mr. Brooks.

At a meeting of the Board of Street Railway Commissioners, held in the Mayor's office to-day (Feb. 22) at 10 a. m., it was directed that the following reply to your proposal of Feb. 18 be addressed to you:

This commission has carefully considered your letter of Feb. 18. It will be useless, apparently, for us to discuss with you the question of valuation of the property because you advise us that your company, unanimously, concludes that the price we offered you was "wholly inadequate," and you further make the comment that a fair valuation of the property would involve fixing the reproduction value of the property on the basis of the average price of material, labor, etc., over a period of five years immediately preceding this date. That is, of course, your opinion of a fair valuation, but that is not our opinion, because the property has not been replaced or anywhere near so in a period of five years. We are firmly of the opinion that the offer we have made is entirely fair and adequate.

As we stated to you during our meetings, the amount of money that you have put into the property is not a factor in discussion, because you elected to put it in on the streets of Detroit at your own risk, where your franchises had expired and, therefore, of necessity had to take your chances, and if since then your property had deteriorated in value through obsolesence and depreciation, the city should not be asked to compensate you for it. This, so far as valuation is concerned.

Secondly, we have considered your suggestion of leasing the property to the city and, in view of the past experience the city has had, we must respectfully reject the suggestion in its entirety.

Thirdly, we have also considered your final suggestion to proceed under an arrangement to be made to construct the several extensions and beg to advise that under no circumstances are we willing to consider any such plan.

In view of the fact that the many efforts of the city to reach amicable adjustment with the Detroit United Railway during a period of more than twenty-five years have resulted in nothing tangible and your rejection of the city's last offer to purchase its property, it seems to the commission that further negotiations will be futile.

The commission announced that on Feb. 25 it expected to make public a statement about its future action.

New Deal in Akron

Franchise Proposal Which Includes Fare Increase Meets with Favor of City Officials

Director of Service Morse of Akron, Ohio, has presented recommendations to the City Council for a revised franchise for the Northern Ohio Traction & Light Company, with a rate of fare of six tickets for 35 cents and 6 cents cash, provided that an agreement be reached on service and betterments. When the earnings reach 7 per cent on the appraised value as set out by Hagenah & Erickson in their recent report, the rate of fare is to be reduced.

Mayor I. S. Myers said the plan appears to be workable and that he will sign it, if passed. The city, he said, needs extensions and better service. The measure may be repealed if it is found that the expected results are not being secured. Officials of the company, it is said, have tacitly agreed to the proposed plan, which is set out as follows:

1. Six-cent fare with six tickets for 35 cents.
2. Appraisal of power plant and electric power stations to be made at city's expense, to fix rates for current.
3. N. O. T. to pay the city $5,500, covering the cost of the Hagenah & Erickson survey.
4. Surface survey to be made at joint expense of city and N. O. T. to (a) Recommend changes in rerouting, number of cars, schedules, etc. (b) Recommend regulation of jitneys. (c) Recommend extensions.
5. That N. O. T. make a monthly report to the city of its earnings, according to the system used by Hagenah & Erickson.
6. Repairs of paving and street opening within N. O. T. "devil strip," to be made by the city and charged to the company.
7. Future track construction of N. O. T. to be of the best standard practice and must be approved by the city, N. O. T. to pay the costs of city inspection.
8. Extra cost of street cleaning due to N. O. T.'s use of sand shall be charged to the company.
9. N. O. T. to replace tracks in 1919 as follows: (a) East Market Street from Case Avenue to Cambridge. (b) West Market Street from Corson to Portage Path. (c) Repair South Main Street track from Long Street to Ira Avenue and Thornton to Crosier.
10. (a) Build a single or double-track line on West Exchange from Five Points to Delia Avenue. (b) Renew the present line on Manchester Road from South Street to the corporation limits.
11. Whenever company reports for three consecutive months show earnings of 7 per cent, the company shall proceed immediately on construction work on extensions as recommended as a result of the surface survey. This 7 per cent shall be on appraised value of the system of $4,810,840, as reached in the Hagenah & Erickson report.
12. The company shall set aside 3 per cent of gross earnings monthly into a sinking fund which shall be used for betterments and replacements, so that the property will not be allowed to run down.
13. When reports show that the company has earned in excess of 7 per cent for three consecutive months the rate of fare shall be adjusted downward to bring it to a 7 per cent basis. If it develops later that the new rate does not produce sufficient revenue to earn 7 per cent, the rate may be readjusted upward again. Any excess over 7 per cent earned by the company is to go into the sinking fund.
14. The service director, with the approval of the Mayor shall appoint a commissioner of street railways who shall be paid by the city not to exceed $5,000 a year, and the city reimbursed for this salary by the traction company. The N. O. T. shall provide free office room and clerical help for him.
15. The city to reserve the right to repeal the measure after one year in case it is not satisfactory, in which case the N. O. T. will operate under the present franchise agreement.

Likes One-Man Car

Secretary of Bridgeport Chamber of Commerce Indorses Operation by Connecticut Company

The Chamber of Commerce of Bridgeport, Conn., thinks well of the safety-car line put in operation on Feb. 2 and described in the issue of this paper for Feb. 15. In a recent letter replying to an inquiry from the Chamber of Commerce of Norfolk, Va., M. B. Russell, assistant secretary of the Bridgeport Chamber, says in part:

While the Birney type one-man car has been in operation in Bridgeport for a comparatively short time, it now seems as if it would be in a fair way of solving our very serious transportation problem, and I think that no city having a similar problem would make a mistake in adopting it, especially where streets are narrow and congested. The cars here are running on one line, which comprises a portion of the wealthier residential section, and at the other end the working population, to a very considerable extent, and it has already built business in both sections. Cars are operated on a five-minute headway and are making an average rate of 8½ m.p.h. One mile of the route is through what we believe to be the most densely congested traffic in New England.

The cars are exceedingly elastic in traffic, as they stop quickly and start with the same speed as a jitney, if not faster. This operation is practically cutting the former headway in two and the public seems to be mighty well pleased with the cars. The employees of the Connecticut Company are also pleased with the cars, having bid in all the runs and are so enthusiastic over them that motormen and conductors of long service have applied for assignment to this line when more cars are added. The company is paying the men 5 cents an hour more for the operation of these cars, which will mean a better grade of employees. The operation of the cars has improved business on the line, and a rather unique testimonial came to my attention the other day from a man who had formerly used his automobile in going to and from his office in the center of the city. He states that he finds the Birney cars quicker and more comfortable as a means of transit and he now leaves his car in the garage and uses the Birney car. It seems good policy where the installation of these cars is anticipated to replace the large cars in the ratio of three for two and that attention should be given to the matter of public co-operation to the extent of having the exact change ready for payment of fare. This has been accomplished here through a public educational campaign, with very excellent results and the trolley company has had to put on additional help to carry the silver to the bank, whereas formerly it came in the form of bills, which without further comment is an indication of the added earning capacity of these cars. They have apparently not increased the accident rate and by the quickness of operation have to a considerable extent alleviated traffic congestion of other vehicles.

Returned Soldiers Demand Recognition

Toward the end of January, the city of Winnipeg, Man., passed through a very unusual and unpleasant experience. On Jan. 27 returned soldiers to the number of 2000 under the cry "Out with the alien enemies" drove all those suspected of Bolshevism to cover and did $30,000 damage to general property. Then followed a general demand upon all employers of labor by the returned soldiers for the discharge of alien enemies in their employ.

The heads of all the large industrial firms in the city were approached by the returned men. The ultimatum was to clear out all the alien enemies within forty-eight hours. As many hundreds of such men are employed in Winnipeg, the situation became very threatening. Finally the returned soldiers and the employers got together with the result that by Feb. 4 returned men were being placed in positions in all industries as rapidly as possible.

Not once during the heat of the moment did the returned men have anything to say against the Winnipeg Electric Railway, the largest individual employer of labor in the city. This was undoubtedly due to the educational campaign A. W. McLimont, general manager, had launched prior to the outbreak by the returned men. On Jan. 25 Mr. McLimont issued a poster which was placed prominently on railway premises and advertised elaborately in the local newspapers. At the same time Mr. McLimont gave orders for the flying of a returned soldiers' flag from the top of the company's building. The figures 300 are in blue, and represent the number of returned soldiers in the company's employ. The border of the flag and the maple leaves are in red, while the background of course is white.

Through the advertising and other publicity, the returned soldiers knew exactly where the Winnipeg Electric Railway stood with regard to its employees, and its treatment of the returned men. A full page in the *Public Service News*, the organ of the railway, distributed on the street cars, was devoted to a review of the efforts of the Winnipeg Electric Railway to take care of the returned soldiers. It pointed out that no fewer than 118 former employees who enlisted had been reinstated. Another huge flag hangs over the door to the company's downtown offices. The one being flown from the flag pole is illumined at night by a powerful floodlight.

Cincinnati Preparing for Work

Representative Federman has prepared a bill which, if made a law, will temporarily release the city of Cincinnati, Ohio, from the payment of a rental of $32,000 a year for the use of the bed of the old Miami & Erie Canal as a part of the roadbed for the rapid transit loop. It is probable that construction work would have been begun on the rapid transit line before now, had it not been for the intervention of the war. The payment of rental has imposed a burden upon the city, from which its officials feel that it should be relieved.

W. C. Culkins, director of street railways, has asked the Cincinnati Traction Company to reduce its running time on several of the long routes and also to shorten the layovers. It is said that cars are held at the ends of some of the routes for thirteen minutes, when the union contract in no instance calls for more than seven.

The Cincinnati Traction Company has agreed to purchase 2 miles of track belonging to the Interurban Railway & Terminal Company, between Norwood and the northern boundary of Kennedy Heights. The price is $36,000. This was done in order that the company might comply with the city's request for an extension of service to Pleasant Ridge and Kennedy Heights. Negotiations are now in progress as to terms for operating interurban cars over this section of track and the business the interurban line will lose through the sale to the city line.

All Is Harmony in Boston

The trustees of the Boston (Mass.) Elevated Railway after a conference with leaders of the union on Feb. 20, issued a "joint statement" declaring the trustees and the union men were in perfect harmony, were working for the best possible operation of the system, and would continue so to work.

The statement issued after the adjournment of the conference reads:

At a meeting held this morning between the trustees and Messrs. Vahey, Higgins and Timmins, representing the carmen's union, the parties were in entire harmony.

The statement of the chairman of the board of trustees before the legislative committee said nothing more than that the trustees would endeavor, when any question arose, to make an equitable adjustment on the wage question with their employees.

Both parties are now bound by an award of the National War Labor Board, which will end when peace is declared by executive proclamation. Until that time, neither party can take up the wage question.

They are all assured it will be taken up in a fair and just way whenever an opportunity arises, if it does.

The trustees made no suggestion that the wages should be changed from the War Board award. The relations between the trustees and the employees are perfectly harmonious, and the men are working in entire co-operation and sympathy with the efforts of the trustees to give better service under the public control act.

Public Service Accepts Collective Bargaining

The Public Service Railway on Feb. 26 announced its acceptance of the principle of collective bargaining, as approved by the National War Labor Board. Notices to this effect were sent to the employees of the several departments. The plan to be followed is similar to that used by the Philadelphia Rapid Transit Company.

To secure closer co-operation the company is giving the employees an equal voice in the settlement of grievances or questions pertaining to working conditions. All such matters will be handled by committees, one-half the members being elected by the employees and the other half named by the company. Arbitration is provided in the case of a deadlock, and if the arbitrators cannot be agreed upon, the Public Utility Commission of New Jersey, where the company operates, is to be asked to act, its decision to be final.

The company also announced a new Co-operative League to take the place of its present welfare plan. Membership will carry with it $1,000 life insurance and sick benefits of $2 a day for not exceeding ninety days in a year. The league will be directed by a co-operative council made up equally of employees and company representatives. Membership in the league is voluntary, and no restrictions are imposed upon affiliation with any union.

News Notes

Service Resumed in Butte.—Service on the Butte (Mont.) Electric Railway, which was suspended on Feb. 10, when the men refused to take out their cars because of alleged threats by striking miners, was resumed on Feb. 15.

State Will Report on Electric Railways.—Both Houses of the General Assembly of Connecticut have passed a bill providing for the appointment of a commission to inquire into the electric railway situation in the State and make a report early in April.

Preparing for Service-at-Cost.—The city of Muskogee, Okla., will soon vote on an amendment to the city charter providing for a public utilities board of five members, to be elected by the people to serve without pay and to have control of all public utilities. This is said to be an initial step toward securing service-at-cost franchises for the utilities.

Viaduct Contract Signed. — Mayor Cowgill of Kansas City, Mo., has been authorized by the Council to sign a contract with the Kansas City Railways under which that company will operate its cars over the Inter-City Viaduct. The rental agreed upon for Kansas City's share of the viaduct was $3,360 a year. The contract will run until Dec. 19, 1922.

Increase for Municipal Railway Employees.—An increase of 50 cents a day to trackmen and car repairmen of the Municipal Railway, San Francisco, Cal., has been approved by the public utilities and finance committees of the Board of Supervisors. The increase will add $23,739 to the annual payroll of the municipal lines. Trackmen have been receiving $4 a day and repairmen $4.50.

Favors Loan for Mexican Rehabilitation.—Elmer R. Jones, newly-elected president of the express firm of Wells, Fargo & Company of Mexico, says that Mexico needs about $400,000,000, mostly for the rehabilitation of railroads and tramways and harbor development. He believes the value of commerce between the United States and Mexico in a single year would justify the loan.

Wage Hearing Concluded. — The hearings on the application of the employees of the Pacific Electric Railway, Los Angeles, Cal., for increased wages were concluded on Feb. 11. It is estimated that the transcript of the testimony will contain 680,000 words. The typewritten summary was to have been completed by Feb. 21. Ten days are then allowed for the attorneys of the railway company to submit a written brief.

Licenses for Motormen Opposed. — Labor and the transit companies of New York State on Feb. 19 opposed the Link bill which provides for the State licensing motormen on surface, subway and elevated railroads, and, further, for compulsory arbitration of labor differences. One representative of the railways said that the law now demanded that the companies employ only competent men, and that if the bill were made a law the companies would simply refuse to accept responsibility for the men employed.

Would Label Cars for Identification. —A committee of the Senate of New York is working on a modification of Senator Charles E. Russell's bill which seeks to establish the ownership of a street, elevated or subway car upon which a personal injury is received. Senator Russell introduced a bill which would force a corporation to carry the name of the operating company (the company that is held responsible in negligence actions) on every car. A compromise bill is being worked which would require the corporations to file schedules of all cars with car numbers in the county clerk's office.

Arrests in Dynamiting Case.—Operatives from the Department of Justice have arrested Curtis J. Rees and Lawson W. Millwee, following an investigation of the dynamiting of the carhouse of the Kansas City (Mo.) Railways on the night of Dec. 29, when several persons were injured. The two men were arraigned before United States Commissioner Arnold, but declined to enter pleas before having had time to consult attorneys. The specific charge against the men was conspiring to violate the federal explosive act, a war statute prohibiting the possession of explosives without a federal license.

Would Elect Jersey Commissioners.— Election of the public utility commissioners by the people instead of appointment of them by the Governor is provided for in a bill which will be introduced in the Senate of New Jersey. The measure proposes the creation of six utility districts, each of which will be under control of a commissioner, who will be elected by the people living in that district. The bill provides that the new elective board members shall have the same qualifications, powers, privileges and compensation and be subject to the same limitations as govern the present appointive board.

Will Reinstate All Its Men.—Every star in the service flag of the Connecticut Company, New Haven, Conn., will be "made good," says a statement issued from the executive offices of the company. When the armistice was signed there were 524 employees of the Connecticut Company in the military and naval service of the United States. This was about 12 per cent of the entire personnel of the company. Up to Feb. 21, 118 of these men had been returned to their old jobs. Their old jobs, or other work, are waiting the return of the remaining 406 employees of the company who are still in the service.

Fewer Women Employees in Brooklyn.—Since November when the armistice was signed there has been a decrease of 229 women employees in the service of the Brooklyn (N. Y.) Rapid Transit Company. On the surface car lines in November there were 222 and now there are only 144, a drop of seventy-eight. On the elevated and subway, eastern division, there were 141 and at present only ninety-five and on the elevated and subway, southern division, there were 475 and a few days ago 370, a decrease of 105. This does not necessarily mean that they all quit, as the women are subject to the same regulations as men in regard to discipline and efficiency.

Electrification Bill Killed.—The Senate of Washington recently killed a bill designed to give the Chicago, Milwaukee & St. Paul Railway permission to electrify its line over the tracks of the Columbia & Puget Sound Railroad, from Cherry Valley into Seattle. For this distance, the Milwaukee uses the Columbia Company's tracks under a contract providing that, for a certain sum, the Milwaukee may operate its steam trains over the rails. When the contract was made the Milwaukee officials had no idea they would later want to electrify the lines. The smaller road has asked the sum of $12,000 a mile before granting permission to electrify. The Milwaukee refused this proposition and introduced a bill in the Senate, giving the company power to condemn the line of the other railway. The Senate committee asked the indefinite postponement of the bill.

Compromise on Commission Proposed.—Senators Foley, Walters, Sage and Thompson conferred recently on the proposition of what to do with the two Public Service Commissions in New York State. It was agreed, although not definitely, to permit the Governor to name a member of the First District Public Service Commission who should complete the subway system as planned and who would in effect be a rapid transit commissioner. Other than this it is understood the commission for the first district as at present constituted will stand. The law is to be amended in several particulars. The republicans insisted on retaining the two commissions.

Program of Meeting

New York Electric Railway Association

The president and executive officers of the New York Electric Railway Association have decided not to hold a quarterly meeting of the association this year, which heretofore has been held in the month of March.

This action was taken on account of the financial stringency confronting the electric railways throughout the State, and the further fact that a meeting of the New York association at this time would come too close to the mid-winter meeting of the American Electric Railway Association.

Financial and Corporate

Operating Expenses Soaring

Western Group Shows Big Decline in Net, but One Eastern Group Has Increase

The outstanding features of the operating returns of electric railways for November, 1918, as reported to the information bureau of the American Electric Railway Association, are the accelerated rise in the cost of operation and the depressing condition of affairs prevailing in the Western District. While the revenues, with the exception of the Western District, showed an encouraging increase as compared with the corresponding month of 1917, the margin of profit thus created was more than eaten up by the abnormal increase in operating expenses. The result was a further decrease in the net earnings and operating income.

The decline of the influenza epidemic, which had such a disastrous effect upon the October earnings, was reflected in the return to an almost normal increase in revenues throughout the country with the exception of the Western District. A slight actual decrease in the volume of business showed the lingering of the plague in that section of the country.

Costs Outdistance Revenues

The United States as a whole showed an increase of 8.11 per cent in operating revenues as compared with November, 1917. Operating expenses increased 18.88 per cent, and as a consequence net earnings fell off 13.80 per cent. Among companies reporting taxes the showing was not quite so favorable; the net declined 18.77 per cent, taxes increased 1.59 per cent and the operating income fell off 25.53 per cent. The operating ratio for the country increased from 67.22 in November, 1917, to 73.92 in November, 1918. For companies reporting taxes the increase was from 70.20 to 77.59.

The showing of the Western District was by far the most unfavorable. Accompanying the decline in the operating revenues noted above was a more than average increase in the expenses, 25.53 per cent, producing a falling off in the net of 50.76 per cent. This district also suffered the largest increase in taxes. For companies in the West reporting taxes the returns showed a falling off in revenues of 2.22 per cent, an increase in expenses of 25.97 per cent and a decline in net of 51.32 per cent. Taxes increased 3.96 per cent, producing finally a decrease in the operating income of 62.33 per cent. The depressing state of affairs in the West is further shown by the operating ratio, which for the general group rose from 63.89 in 1917, to 81.85 in 1918, a high record even for the West.

Eastern District Better

In the Eastern District the outlook was more favorable. The net earnings fell off 2.50 per cent, it is true, but when it is remembered that the district was probably still suffering in some degree from the epidemic, these figures become distinctly favorable. The increase in operating expenses was below the average increase for the country, while the increase in revenues was above it. If the companies reporting taxes were considered by themselves, the result would be an actual improvement for the month. The net earnings of these companies increased 1.13 per cent, taxes remained stationary and the operating income increased 1.62 per cent.

In the Southern District the most remarkable feature was the extraordinary increase in operating expenses, 43.52 per cent. Although the district showed the largest increase in revenues, this advantage was more than wiped out, and the net earnings declined 24.11 per cent. The disproportionate increase in expense was also shown in the operating ratio, which increased from 55.81 per cent in 1917 to 70.49 per cent in 1918.

The returns are shown in detail in the accompanying table. They are classified according to the following geographical grouping: Eastern District—East of the Mississippi River and north of the Ohio River. Southern District—South of the Ohio River and east of the Mississippi River. Western District—West of the Mississippi River.

Financial Applications Passed

The Public Utilities Commission of Illinois has received and acted upon a large number of petitions recently, most of which relate to the financial operations of the electric utilities of the State. The Jacksonville Railway & Light Company (Illinois Traction System) has been authorized to issue $183,000 of first mortgage 5 per cent gold bonds. The Illinois Central Traction Company (Illinois Traction System) has been authorized to issue 6 per cent cumulative preferred capital stock to the amount of $245,000 and general mortgage 6 per cent gold bonds to the amount of $254,000. The Chicago, Ottawa & Peoria Railway (Illinois Traction System) has been authorized to issue $576,000 of first consolidated and refunding mortgage 5 per cent gold bonds. The Northern Illinois Light & Traction Company has been authorized to issue $90,000 of general mortgage 6 per cent gold bonds.

COMPARISON OF REVENUES AND EXPENSES OF ELECTRIC RAILWAYS FOR NOVEMBER, 1918 AND 1917

Account	United States				Eastern District				Southern District				Western District			
	Amount, November, 1918	Per Mile of Line 1918	Per Mile of Line 1917	% Increase Over 1917	Amount, November, 1918	Per Mile of Line 1918	Per Mile of Line 1917	% Increase Over 1917	Amount, November, 1918	Per Mile of Line 1918	Per Mile of Line 1917	% Increase Over 1917	Amount, November, 1918	Per Mile of Line 1918	Per Mile of Line 1917	% Increase Over 1917
Operating revenues	$10,836,375	$1,812	$1,959	8.11	$8,252,403	$2,121	$1,925	10.18	$750,538	$1,525	$1,342	13.62	$1,833,434	$1,598	$1,631	*2.02
Operating expenses	8,005,883	1,218	1,448	18.88	5,976,070	1,536	1,325	15.92	529,116	1,075	749	43.52	1,500,697	1,308	1,042	25.53
Net earnings	2,830,492	594	512	*18.80	2,276,332	585	600	*2.50	221,422	450	593	*24.11	332,737	290	589	*50.76
Operating ratio, per cent	1918, 73.92; 1917, 67.22				1918, 72.42; 1917, 68.83				1918, 70.49; 1917, 55.81				1918, 81.85; 1917, 63.89			
Av. No. miles represented	1918, 5,530; 1917, 5,530				1918, 3,890; 1917, 3,891				1918, 492; 1917, 492				1918, 1,147; 1917, 1,147			
COMPANIES REPORTING TAXES																
Operating revenues	$7,136,136	$1,834	$1,698	8.01	$4,848,582	$1,916	$1,717	11.59	473,089	$1,838	$1,649	11.46	$1,814,464	$1,630	$1,667	*2.22
Operating expenses	5,536,038	1,423	1,192	19.38	3,721,182	1,470	1,276	15.20	329,943	1,344	924	45.45	1,484,913	1,334	1,059	25.97
Net earnings	1,600,098	411	506	*18.77	1,127,401	446	441	1.13	143,146	494	725	*31.86	329,551	296	608	*51.32
Taxes	496,257	128	126	1.59	339,824	133	133	0.00	39,452	161	162	*0.68	116,981	105	101	3.96
Operating income	1,103,841	283	380	*25.53	787,577	313	308	1.62	103,694	333	563	*40.85	212,570	191	507	*62.33
Operating ratio, per cent	1918, 77.59; 1917, 70.20				1918, 76.72; 1917, 74.32				1918, 73.12; 1917, 56.03				1918, 81.84; 1917, 63.53			
Av. No. miles represented	1918, 3,890; 1917, 3,890				1918, 2,531; 1917, 2,531				1918, 246; 1917, 246				1918, 1,113; 1917, 1,113			

*Decrease.

Cincinnati Falls Back

Inclement Weather and Loss of Men to Government Reduce Receipts $273,263 From Previous Year

The gross receipts of the Cincinnati (Ohio) Traction Company for the calendar year 1918 showed a decrease of $273,263 or 4.8 per cent as compared to those of 1917. Operating expenses and taxes increased, and the net earnings under the newly revised partnership agreement with the city were only $229,987 for 1918 as compared to $885,668 for 1917.

It is well to point out that in the early part of 1918 weather conditions reduced riding to a great degree. Moreover, during the year the absence of 20,000 or more men in various branches of war work was felt.

The following statement of operation of the Cincinnati Traction Company for 1917 and 1918 includes the earnings and expenses of the Millcreek Valley Lines:

	1918	1917
Gross receipts—C. T. Co.	$5,468,176	$5,741,440
Gross receipts—M. C. V. lines	271,814	285,407
Total	$5,739,992	$6,026,847
Operating expenses—C. T. Co	$3,481,813	$3,220,833
Operating expenses — M. C. V. lines	218,003	217,888
Total	$3,699,816	$3,438,721
	$2,040,176	$2,586,126
Taxes, except city of Cincinnati — C. T. Co.	$486,331	$419,700
Taxes, except city of Cincinnati—M. C. V. lines.	21,334	17,584
Total	$507,665	$437,284
	$1,532,510	$2,150,842
Rentals—C. T. Co.	$1,134,337	$1,134,337
Rentals—M. C. V. lines	100,600	100,600
Totals	$1,234,937	$1,234,937
	$297,573	$915,905
Interest on equipment notes	$47,021	$29,050
Interest on floating debt	20,564	1,186
Total	$67,585	$30,236
Net earnings under ordinance	$229,988	$885,669

Only one change was made in the directorate at the recent annual meeting. C. J. Livingood was elected to succeed Julius Fleischmann, who retired because of his leaving Cincinnati.

Common Stock Bankers' Shares

Henry L. Doherty & Company, New York, N. Y., and Montgomery & Company, Philadelphia, Pa., as syndicate managers, are forming a syndicate to underwrite 200,000 Cities Service Company common stock bankers' shares.

Each ten bankers' shares represent one share of Cities Service Company common stock which will be deposited with the Bankers' Trust Company as trustee under a depositary agreement. Dividends paid in common stock on the deposited shares will be sold and dividends on the bankers' shares will be paid monthly in cash, the first dividend to be paid April 1 to bankers' shares of record of March 15. The issue of these bankers' shares was made in response to a general request that some method be devised whereby Cities Service Company common stock would be obtainable in smaller units than the shares of $100 par value, which are now selling above 340.

New Bay State Control May 1

It is expected that the board of public trustees will take control of the Eastern Massachusetts Street Railway, the successor company to the Bay State Street Railway, on May 1. The Bay State Street Railway reorganization plan is dated Jan. 9. The public control act directs the trustees to cooperate with the security holders in arranging the transfer of the Bay State property to the new company, and requires their approval of the amount of capital of the new company. According to the Boston *News Bureau* the new company will probably have about $50,000,000 of capital, which on a 6 per cent basis would call for an annual interest and dividend charge of $3,000,000.

One of the formalities to be complied with before the Bay State Street Railway property can be sold to the new company is an affirmative vote of two-thirds in interest of each class of Bay State Street Railway stock. Another is a requirement of the act that Bay State Street Railway security holders must put up $1,000,000 for securities of the new company to be used in rehabilitation of its lines or for other corporate purposes; also provision must be made for sale of serial bonds to the amount of $2,500,000. Arrangements for this financing will be included in the reorganization plan.

Correction Regarding Portsmouth, Dover & York Railway Service

C. H. Nottage, assistant to the general manager of the Portsmouth, Dover & York Street Railway, Portsmouth, N. H., has written to correct a statement made recently in this paper about the company abandoning service. Mr. Nottage says:

In the issue of the ELECTRIC RAILWAY JOURNAL dated Feb. 8, under the heading of "Into Hiding for the Winter," I notice that the Portsmouth, Dover & York Street Railway is out of business until April 30, 1919.

With due respect to the editor of the York *Transcript*, I wish to correct this statement, for we are maintaining our regular schedule from Portsmouth to Dover and from Dover to South Berwick and Portsmouth to Kittery Point, serving the Navy Yard at Kittery, Me., and two shipbuilding plants, one at Portsmouth and one at Newington, N. H. The branch that is not in operation is from Rosemary Junction to York Beach.

W. G. Meloon, the receiver, says:

We have no intention of discontinuing operation of the York line permanently, which should be evident to the York *Transcript*, as during the last year we joined the town of York in entirely rebuilding a 600-ft. bridge across the York River on the Dover and York Beach division and also the draw over the York River on the Portsmouth and York Division.

The order of the court reads "from Jan. 20 to May 1, 1919." The property is being improved and we have to make unusual efforts to handle the large number of Navy Yard and shipyard workmen.

Boston Deficit $219,629

Cost Per Passenger on the Boston Elevated Railway in January Was 8.97 Cents and Receipts 8.17 Cents

The financial report for January, 1919, made public by the trustees of the Boston (Mass.) Elevated Railway, shows a deficit of $219,629 as compared to a deficit of $149,903 for December, 1918. The cost for each passenger carried during the month was 8.97 cents, of which labor cost constituted 4.13 cents. The revenue passengers numbered 27,517,066, and the receipts per revenue passenger were 8.17 cents.

$3,292,294 Deficit in Seven Months

The deficit for the seven months ended Jan. 31, 1919, was $3,292,294. The total receipts for this period were $13,702,326. The total cost of service was $16,994,620. The cost of service as compared to the corresponding seven months of the previous year showed an increase of $5,471,075. The chief items entering into this increase are as follows:

Wages	$2,251,445
Coal (8246 tons additional)	59,229
Coal (increased cost)	346,083
Insurance	43,752
Depreciation	969,000
Contracts, material and other operating expenses	615,785
Rent of subways and tunnels (Dorchester tunnel)	287,297
Dividend — rentals under the act	775,232

The statement of the Boston Elevated Railway for the month of January is as follows:

RECEIPTS AND COST OF SERVICE OF BOSTON ELEVATED RAILWAY TO JANUARY, 1919

Receipts:	
From fares	$2,189,323
From special cars, mail pouch service, express and service cars	7,552
From advertising in cars, on transfers, privileges at stations, etc.	24,244
From other railways for use of tracks and facilities	4,366
From rent of buildings and other property	7,923
From sale of power and other revenue	10,550
Total receipts from direct operation	$2,243,958
Interest on deposits, income from securities, etc.	4,600
Total receipts	$2,248,558
Cost of service:	
Maintaining track, line equipment and buildings	$196,445
Maintaining cars, shop equipment, etc.	230,514
Power (including 28,020 tons of coal at $5.815, $162,949)	239,881
Depreciation	167,000
Transportation expenses (including wages of car employees, carhouse expenses, etc.)	800,395
Salaries of administrative officers	6,895
Law expenses, injuries and damages and insurance	98,619
Other general expenses	76,752
Total operating expenses (of which $1,135,210 represents wages)	$1,816,501
Taxes, proportion	77,351
Rent for leased roads (exclusive of subways)	216,098
Proportion of rent of subways and tunnels to be paid to the city of Boston (exclusive of Cambridge Subway owned by company)	124,828
Interest on Boston Elevated Railway bonds and notes	111,104
Miscellaneous items	2,325
Proportion of dividend rentals under acts of 1918	116,997
Accrued interest on unpaid taxes	2,983
Total cost of service	$2,468,187
Net loss for January	$219,629

Before a Special Master

St. Louis Receivership Case Will Be Conducted Before Former Supreme Court Judge

Henry Lamm, Sedalia, Mo., former Judge of the State Supreme Court, has been appointed by United States District Judge Dyer as special master, to take testimony in the receivership suit of John W. Seaman and other stockholders against the United Railways, St. Louis, Mo. The exact time and the place for the hearing have not been announced.

The appointment of a special master to hear the receivership case has been in prospect since Judge Dyer recently announced that he would not himself hear the testimony, as he did in the former case of the same character. Judge Dyer dismissed that case, by sustaining a demurrer.

After dismissing the original suit for a receivership and an accounting, Judge Dyer gave the petitioner leave to amend and refile the petition, and this was done. When the attorneys for the United Railways offered dilatory motions, Judge Dyer gave them four days to make an answer to the receivership petition, and this answer was filed on Feb. 7.

The chief allegations in the receivership petition were that the company's contracts for water power from the Keokuk dam cost $400,000 a year in excess of a reasonable charge; that the practices of the company's legal department were wasteful, especially in the mill tax litigation; that the claim department is unreasonably costly; and that a system of interlocking directorates makes the company operate for the sole benefit of the North American Company, New York, N. Y., which controls the United Railways through that company's common stock.

A supplemental bill was filed in court recently, setting forth reasons for the appointment of a receiver, in addition to those contained in the petition already before the court.

Third Avenue Earnings

Revenues Are Back to 1913 Basis, But Expenses Are $1,000,000 More Than in That Year

The strike of 1916 on the lines of the Third Avenue Railway, New York, N. Y., and the competition of subway and elevated extensions so abnormally distorted the operating figures for the fiscal years ended June 30, 1917, and 1918, that a comparison of results in the last two years would be of little value.

It may be remarked, however, that subway and elevated competition and other causes have reduced operating revenues practically to the 1913 basis, but the increased cost of labor and materials has increased operating expenses for 1918 approximately $1,000,000 above those for 1913.

For the first six months of the fiscal year ended June 30, 1918, it was found that there had been earned above operating expenses, taxes and interest on underlying bonds $494,386. To preserve the company's credit in the face of constantly decreasing earnings combined with large and continued increases in the cost of operation, it was deemed necessary and advisable to set this amount aside to secure the proper, safe and adequate maintenance, equipment and operation of the road and to preserve its earning capacity.

INCOME STATEMENT OF THIRD AVENUE RAILWAY FOR YEARS ENDED JUNE 30, 1917 AND 1918

	1918	*1917
Operating revenue	$10,234,988	$8,972,648
Maintenance of way and structures	$1,186,997	$998,770
Maintenance of equipment	860,333	709,637
Depreciation accruals	.....	225,962
Power supply	940,255	781,086
Operation of cars	3,047,828	2,726,243
Injuries to persons and property	830,974	862,804
General and miscellaneous expense	468,532	983,338
Total operating expense	$7,334,919	$7,287,840
Net operating revenue	$2,900,069	$1,684,808
Taxes	836,098	794,450
Operating income	$2,063,971	$890,358
Interest revenue	158,847	164,925
Gross income	$2,222,818	$1,055,283
Deductions for interest, rentals, etc.	2,679,322	2,677,609
Deficit for the period	$456,504	$1,622,326

* This period includes, and the figures reflect, the period of the strike in 1916.

For the last six months of this fiscal year, there was earned above operating expenses, taxes and underlying interest, the sum of $175,910. This was less than 1 per cent, the minimum amount that can be declared payable as interest under the adjustment income mortgage. Furthermore, the reasons which influenced the directors to set aside the reserve of the previous six months for contingencies had become still more urgent, and, accordingly, the above amount was set aside for the same purposes.

The Receiver's Dilemma

The second installment of back wages due on Feb. 1 to the employees of the Rhode Island Company, Providence, R. I., under an amended decree of the War Labor Board, has not yet been paid. It amounts to $72,000. The third installment, which is also the final payment, is due on March 1. Receiver Frank H. Swan has petitioned the Superior Court for permission to make the payment due on Feb. 1, but to date the court has rendered no decision. A conference was held recently between Receiver Swan and the attorney and representatives of the union in the office of Presiding Justice Tanner of the Superior Court, as a result of which the union men are not appearing too sanguine of receiving the money due.

In addition to the sums due the employees for back wages, the Rhode Island Company owes the United Traction & Electric Company a balance of $47,500 on rentals due on Dec. 24 and also $180,000 due on Feb. 24, payment of the latter usually providing the funds for the payment of interest on bonds of the United Traction, but it is a foregone conclusion that the interest will not be paid at present.

Taxes due the city of Providence and the State of Rhode Island are other accumulated debts which confront the receiver and tend to increase the difficulties which he must solve with the aid of the court.

Financial News Notes

Would Issue Improvement Bonds.—The Georgia Railway & Power Company, Atlanta, Ga., has filed an application with the Georgia Railroad Commission for permission to issue $633,000 of refunding and improvement mortgage bonds, which are part of a total authorized issue of $30,000,000.

Dismantlement Completed.—Thomas Flynn, who some months ago bought the property of the Bluffton, Geneva & Celina Traction Company, which formerly operated between Bluffton and Geneva, Ind., has shipped the rails and other iron and steel material to Shreveport, La., where they will be used in the construction of a new railroad.

Plans to Reorganize Claremont Company.—A bill is pending before the Legislature of New Hampshire proposing to grant a charter to the Claremont Street Railway, which is to take over the properties of the Claremont Railway & Lighting Company. In the meantime the company is being operated by a receiver. It is expected that it will be some weeks before the reorganization will be effected.

Utah Lines Consolidate.—At a recent meeting of the stockholders of the Utah-Idaho Central Railroad, Ogden, Utah, an agreement to consolidate the properties of the Utah-Idaho Central Railroad and those of Cache Valley Railroad, contained in a resolution adopted by the board of directors on Dec. 27, was ratified. The present officers were retained but the board of directors was reduced to nine members. A total of approximately 17 miles of trackage is added to the Idaho Central lines by the consolidation.

Preparing for Bay State Reorganization.—Friendly proceedings, designed to facilitate the reorganization of the Bay State Street Railway, Boston, Mass., now in the hands of a receiver, have been begun in the Federal Court in that city by the Old Colony Trust Company and the American Trust Company. The trust companies have filed bills in equity seeking foreclosure of the 4 per cent refunding mortgages of the Old Colony Street Railway and the

Boston & Northern Street Railway, which were merged into the Bay State Company in 1911. Judge Morton ordered the bills consolidated and set Feb. 28 as the date for a hearing.

Reorganization Declared Operative.—The reorganization committee for the Oakland & Antioch Railway, Oakland, Antioch & Eastern Railway and San Ramon Valley Railway, Oakland, Cal., has announced that the reorganization plan published in the ELECTRIC RAILWAY JOURNAL for Jan. 12, page 103, has been declared fully operative. The plan has been signed by fully 85 per cent of the security holders of the various classes, and the committee says it will proceed to carry the plan out in full. The plan, heretofore announced, provides for the formation of a new corporation to be known as the San Francisco, Oakland & Sacramento Railway, which will take over the reorganized properties.

Bondholders Adjust Differences.—An agreement has been reached between the rival committees representing holders of the 4 per cent collateral trust bonds of the International Traction Company, Buffalo, N. Y. Under the provisions of the agreement the local committee headed by Harry T. Ramsdell, president of the Manufacturers & Traders' National Bank, purposes to turn over the bonds it holds to the protective committee of which Elliott C. McDougal, president of the Bank of Buffalo, is chairman. All bondholders are now advised to turn over their securities to the protective committee. The interest payment due on Jan. 1, 1919, on the traction company's 4 per cent bonds was not met and the bondholders on March 1 will be in a position to start foreclosure proceedings.

St. Joseph Valuation Figures.—A study of the valuation by engineers for the Missouri Public Service Commission of the property of the St. Joseph Railway, Light, Heat & Power Company, reveals the book valuation to be $11,714,197 and $5,737,800 to represent the bare reproduction cost of the physical property as estimated by the engineers. Both valuations include not only the property of the railway in St. Joseph, but also of the heating, lighting and power plant. The valuation placed upon the railway property by the engineers is $2,181,800. This represents the estimated cost of reproduction, less depreciation. As there are 48.84 miles in the St. Joseph system the average value per mile is $70,000 according to the estimate of the engineers.

Abandonment Prevented at Present.—The Court of Appeals on Jan. 24 rendered an important decision in the case of the city of Bowling Green and Warren County against the Southern Traction Company preventing the defendant from disposing of its plant as junk. The court held that the railway is not compelled to operate its cars at a loss; that if the system, operating economically and efficiently, would not produce a fair income to its owners, the company could sell its plant and remove its rails and wires from the streets. If it could be determined, after a year under a receiver, that the system could not be operated except at a loss, the owners would then have a right to dispose of the property as junk, provided the streets were left in as good condition as when the rails were laid.

Securities for Reorganization Approved.—The Public Service Commission of Indiana has authorized the Evansville & Ohio Valley Railway and the Evansville Railways to issue securities in the amount of $2,150,000 as follows: $75,000 of 5 per cent thirty-year first and refunding bonds; $750,000 of general mortgage thirty-year income bonds; $150,000 of ten-year 6 per cent notes; $200,000 of 6 per cent preferred non-cumulative stock; $300,000 of common stock. The reorganizers asked for a common stock issue of $1,000,000 but this was lowered to $300,000. First mortgage bonds to provide funds to rehabilitate the property will be issued only under special separate authorization of the commission. The plans for the reorganization have been reviewed previously in the ELECTRIC RAILWAY JOURNAL.

Financial Readjustment Not Contemplated.—Reports that a readjustment of the New York city transit situation is imminent, involving the granting of higher fares through legislative action, the refinancing of the local operating companies and the liquidation of the Interborough Consolidated Corporation, the holding company, have been denied by Theodore P. Shonts, president of the Interborough Rapid Transit Company. Mr. Shonts said: "There is no truth whatever in the story published regarding the readjustment of the Interborough affairs and the abolishment of the Interborough Consolidated Corporation, the holding company. We have no intimation of any plan of this character. We are asking for increased fares, not that we want to make any big profit, but want sufficient returns to warrant revenues on the basis which was promised us when we became a partner with the city."

No Action on Interborough Dividend.—The directors of the Interborough Rapid Transit Company, New York, N. Y., took no action on Feb. 25 regarding the quarterly dividend which was due for consideration. Interest on the Interborough - Metropolitan Company 4½ per cent bonds is dependent upon the dividend declaration of the Interborough Rapid Transit Company. It has been suggested in unofficial quarters that the April 1 interest payment on the Interborough-Metropolitan bonds might be paid out of surplus of the Interborough-Consolidated Corporation, but an advertisement in the New York papers of Feb. 28 noted the formation of a protective committee for the holders of the Interborough-Metropolitan Company collateral trust 4½ per cent bonds. This committee was formed in order that bondholders might be in a position to take concerted action if occasion should arise. The committee asked for deposit of bonds on or before March 31 with the Guaranty Trust Company.

Electric Railway Monthly Earnings

AURORA, ELGIN & CHICAGO RAILROAD, WHEATON, ILL.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Dec., '18	$189,780	*$177,213	$12,567	$38,844	†$26,277
1m., Dec., '17	185,517	*139,407	44,110	35,625	8,485
12m., Dec., '18	2,140,210	*1,874,699	265,511	439,252	173,741
12m., Dec., '17	2,158,478	*1,557,664	600,814	428,516	172,298

ATLANTIC SHORE RAILWAY, SANFORD, ME.

1m., Jan., '19	$11,605	$10,937	$668	$508	$160
1m., Jan., '18	10,832	12,994	†2,162	484	†2,646

BROCKTON & PLYMOUTH STREET RAILWAY, PLYMOUTH, MASS.

1m., Dec., '18	$6,125	*$8,250	†$2,125	$1,441	†$3,566
1m., Dec., '17	8,910	*10,038	†1,128	1,318	†2,446
12m., Dec., '18	101,429	*116,317	†14,888	16,833	†31,721
12m., Dec., '17	124,316	*124,778	†462	14,755	†15,217

CAPE BRETON ELECTRIC COMPANY, LTD., SYDNEY, N. S.

1m., Dec., '18	$51,173	*$37,181	$13,992	$6,632	$7,360
1m., Dec., '17	46,120	*27,356	18,764	6,535	12,229
12m., Dec., '18	513,005	*392,410	120,595	78,506	42,089
12m., Dec., '17	464,081	*298,247	165,834	78,652	87,182

EASTERN TEXAS ELECTRIC COMPANY, BEAUMONT, TEX.

1m., Nov., '18	$95,506	*$63,397	$32,109	$14,535	‡$17,879
1m., Nov., '17	75,990	*39,308	36,682	12,109	‡27,465
12m., Nov., '18	1,105,724	*641,632	464,092	161,992	‡312,552
12m., Nov., '17	928,068	*512,588	415,480	134,441	‡297,874

* Includes taxes. † Deficit. ‡ Includes non-operating income.

JACKSONVILLE (FLA.) TRACTION COMPANY

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Dec., '18	$98,461	*$76,999	$21,462	$17,050	$4,412
1m., Dec., '17	69,590	*44,919	24,671	15,866	8,805
12m., Dec., '18	945,568	*709,667	235,901	199,065	36,835
12m., Dec., '17	698,123	*469,712	228,411	188,896	39,515

NORTHERN TEXAS ELECTRIC COMPANY, FORT WORTH, TEX.

1m., Dec., '18	$249,511	*$167,163	$82,348	$27,283	‡$64,647
1m., Dec., '17	294,207	*147,871	146,336	28,950	‡126,969
12m., Dec., '18	2,929,759	*1,883,833	1,045,926	337,788	‡823,138
12m., Dec., '17	2,582,113	*1,445,663	1,136,450	348,744	‡816,455

PENSACOLA (FLA.) ELECTRIC COMPANY

1m., Dec., '18	$50,756	*$41,520	$9,236	$9,293	†$57
1m., Dec., '17	35,081	*20,282	14,799	7,829	6,970
12m., Dec., '18	506,050	*360,382	145,668	99,923	45,745
12m., Dec., '17	350,458	*203,680	146,778	93,668	53,110

SAVANNAH (GA.) ELECTRIC COMPANY

1m., Dec., '18	$110,394	*$92,320	$18,074	26,319	†$8,245
1m., Dec., '17	92,611	*58,317	34,294	24,832	9,462
12m., Dec., '18	1,182,891	*856,151	326,740	302,947	23,793
12m., Dec., '17	968,173	*645,592	322,581	290,549	32,032

TAMPA (FLA.) ELECTRIC COMPANY

1m., Dec., '18	$103,665	*$56,538	$47,127	$5,293	$41,834
1m., Dec., '17	87,952	*50,019	37,933	5,085	32,848
12m., Dec., '18	1,062,546	*620,276	442,270	61,433	380,837
12m., Dec., '17	1,001,311	*563,540	437,771	56,118	381,653

Traffic and Transportation

Columbus Wants Increase

New Management Renews Fare Plea With Imposing Array of Evidence to Prove Its Needs

Charles L. Kurtz, president of the Columbus Railway, Power & Light Company, Columbus, Ohio, made application to the City Council on Feb. 18 for permission to increase the rates of fare from eight tickets for a quarter to 5 cents cash fare, with transfer, and six tickets for a quarter without transfers. He stated that the new rates will be necessary to take care of the expenses and make improvements and extensions. Dividends were not considered in the rates that have been requested.

PRESIDENT EXPLAINS COMPANY'S NEEDS

On Feb. 21 Mr. Kurtz explained to members of Council, as a committee of the whole, why the increase is needed. It is estimated that the new changes will increase earnings about $618,815 for the year. In the first place he pointed out that in addition to the loss sustained in 1918, amounting to $440,000, the January statement showed a deficit of $46,000. Within the next two or three years the company will be required to expend approximately $1,034,000 for the improvement of Main, Fourth and Broad Streets, for back pay to the men and for the redemption of cash fare slips issued during the period when the railway company was collecting a straight 5-cent fare.

All of these things the company wants to do. In addition it wants to maintain its credit during the remaining seven years of its franchise. Furthermore, it wants to build extensions and make improvements on its present tracks and rolling stock, so that more efficient service may be given. A temporary increase in the rate of fare will not meet the requirements. The credit of the company rests upon the privilege which it has to operate in the streets of the city and upon the efficiency of its service.

EARNINGS MUST PROVIDE FUNDS FOR IMPROVEMENTS

Mr. Kurtz feels that it will be impossible to make further bond issues at present for the purpose of obtaining funds for improvements and that any money which is expended must come from the earnings. He says that the equipment is worn and the property generally run down because of lack of funds to keep it in shape. It might be possible to strengthen, or even restore, the credit of the company through the adoption of reasonable rates of fare, so that money might be borrowed later, but this will not be possible if the Council grants the increases and then makes the rates subject to modification or revocation at any time.

Expenditures for the present year should include $697,422 for paving Broad, High, Fourth and Main Streets; $143,146 for redemption of cash fare slips; $81,590 for back pay to employees; $62,000 for rebuilding ten open cars and expenses on other equipment; $50,000 for placing general car equipment in good order, making $1,034,158 which must be considered in connection with the yearly deficit of about $440,000 under the old rate of fare.

OTHER CITIES A CRITERION

Mr. Kurtz called attention to the rates of fare prevailing in other cities at this time, while his company is receiving the pre-war rate, lower perhaps than the rate in any other city in the country.

It is stated that the three members of Council who have consistently opposed everything in the way of an increase in rates in the past—Griffin, Alcott and Zimpfer—will continue to maintain that attitude in regard to the request of the new management. Other members of the body have not expressed themselves.

So the Public May Know

The annual meeting of the stockholders of the New York & North Shore Traction Company, Roslyn, N. Y., was held on Feb. 18. The following directors were elected for the ensuing year: George A. Stanley, New York and Flushing; George F. Scofield, Cleveland, Ohio; Elmer G. Story, Bayside; Charles S. Colden, Whitestone; John G. Moran, Flushing; Watson B. Robinson, New York City; Dr. Joseph H. Bogart, Roslyn; Jules P. Kunz, Flushing, and George P. Allen, Roslyn.

Messrs. Story and Colden will represent the Seven-Cent Fare League on the board. This is the league whose activities in favor of a 7-cent fare for the company have been reviewed recently in the ELECTRIC RAILWAY JOURNAL.

Mr. Story is the president of the league whose members are voluntarily paying a 7-cent fare on the company's lines within the limits of the city of New York. A few weeks ago Mr. Stanley, president of the company, said he would like to have the public represented on the board of directors in order that the people who use his company's cars might know how the road is conducted.

Dr. Bogart is president of the Bank of Hempstead Harbor and health officer of the town of North Hempstead. He is the citizens' representative on the board of directors of the company from Nassau County.

More About Boston Zones

Boston Elevated Trustees Will Proceed With New System Unless Legislators Intervene

Unless the Massachusetts Legislature convince them of error, the trustees of the Boston Elevated Railway will put a zone system into effect in the near future. This was announced by Chairman James F. Jackson, who appeared with other members of the board at a legislative conference on the company's affairs on Feb. 21.

Two proposed inner zones are under consideration, one having a radius of about 2 miles and the other 3 miles from Boston City Hall. The former includes 20 per cent of the riding public and the latter about 50 per cent. The present intention of the trustees is to collect all fares in the inner zone on the pay-as-you-enter system, and passengers riding beyond the limits of the first zone will be obliged to pay their second fare when leaving the car. The pay-as-you-leave system will be applied to persons boarding cars in the second zone and leaving within that zone.

The trustees believe that with such a system a larger percentage of the fares will be collected than now obtains. Some of the present leakage, Mr. Jackson said, is due to conductors, and some to the traveling public. Without a zone system a flat fare of 9 cents is inevitable and a 10-cent fare is probable. Mr. Jackson said that even if the road should be relieved of subway and tunnel rentals, an 8-cent fare would be the lowest that would enable the company to break even in operating expenses.

Final Chicago Fare Hearing

The question of whether the Chicago (Ill.) Surface Lines shall be permitted to charge a higher rate of fare now rests with the Public Utilities Commission of Illinois. Final evidence and arguments were introduced on Feb. 13 and 14, after which the case was taken under advisement.

A feature of the closing session was the formal notice from the company that the appeal in the United States Supreme Court attacking the jurisdiction of the commission over service matters would be dismissed. This is taken to mean that there will be further discussion of the order entered several years ago directing the Chicago Surface Lines to put on trail cars and other additional facilities.

Attorneys for the company pointed out the danger of bankruptcy and receivership if more revenue is not secured.

The city's lawyer made his principal fight on the valuation of the properties, claiming that a fair return on the actual investment would not call for an increase in the rate of fare.

Chicago is now in the midst of a fight over the mayoralty. As usual, the traction question and the fare situation are leading topics in the campaign speeches.

Zones or Abandonment

In conference with the Common Council of Yonkers, N. Y., on Feb. 14, S. W. Huff, president of the Third Avenue Railroad System, declared that unless a zoning plan was adopted it would be practically impossible to increase fares on the Yonkers Railroad without abandoning a substantial amount of the lines in the outlying section of the city. The single fare, he contended, could not be increased enough to carry these lines without the danger of driving away passenger traffic altogether and thus making the situation worse than it is at the present time.

In a letter to the City Clerk of Yonkers, Mr. Huff said in part:

You will note from the report of your expert that even at the low valuation of the physical property as made by him, and without taking into account the numerous other items which must form a basis for the establishing of an equitable fare, he has found that the company is operated at a tremendous deficit and that this deficit is increasing at an alarming rate, notwithstanding that your expert finds that the property is being operated economically and efficiently and has no changes to suggest that might improve the situation, other than a modification of a contract for the operation of trackage outside of the city of Yonkers, which contract was approved by the Supreme Court and by both Public Service Commissions, after persons representing all the equities involved, including the city of Yonkers, had negotiated and agreed upon the contract.

You will further note from the report that the conclusion is reached that "some of the lines obviously could not be operated profitably on a 5-cent fare, nor even on a 10-cent fare."

This brings us to the real difficulty of the whole situation. With the spirit of optimism on the part of the city and on the part of the railroad company, there have been extensions of lines that should never have been made, and as the author of the report very properly says, they cannot be operated profitably on a fare even twice as much as that being now charged. The question which forces itself upon us all is this: Is it possible to tax the remaining lines with a fare sufficient to carry these unprofitable lines?

Our feeling is that it is probably not possible to place a sufficient single fare on the lines of the company as a whole to carry these outlying lines. To place the necessary fare on the lines as a whole would probably be to drive away travel to such an extent as to defeat the very purpose you and we would have in mind in making such increase. It would therefore seem to us that the only hope outside of a zone system which the city regarded unfavorably, lies in the abandonment of a substantial amount of outlying trackage and the determining of a fare which would be sufficient properly to support the remainder of the property.

Cannot Lift Old Tickets

Attorney-General Atwill of Massachusetts has issued an opinion as to the duties of common carriers concerning books of reduced fare tickets and their use after an increase in fares is allowed. Under this finding the Attorney-General states that companies are forbidden by law to accept tickets sold previously to the increase in fares, but that each company is bound to redeem such tickets at their pro-rata value before the increase went into effect.

Many inquiries had been addressed to the Public Service Commission of Massachusetts on this point, notably from patrons of the Bay State Street Railway and Boston & Worcester Street Railway. It was contended by ticket-book buyers that when the fare was increased, the old tickets should be accepted for the new fare until used. The companies refused so to honor superseded tickets. Instances were shown where speculators purchased from one to two dozen such books under the old rates of fare and held them until the increase went into effect with the purpose of selling them back to the companies at a price equal to the new fare scheduled.

Experimental Fare Continued

The Public Utilities Commission of Rhode Island has authorized the Rhode Island Company, Providence, to continue in force the increased fares which it was authorized to charge as an experiment from Oct. 23 to March 1. The period of grace allowed extends to May 1. This action was taken to enable the receiver to get his bearings without having as an additional burden the difficulties attendant upon rate increase agitation.

The commission ordered the Rhode Island Company to establish commutation rates for regular patrons outside the 10-cent zone limits and also to prepare a schedule of excursion rates on heavily patronized lines. The company is ordered to submit these schedules to the commission by April 1. The excursion rate is to apply particularly to lines which are engaged in summer traffic.

Incidentally there is scheduled for a hearing on March 14 the case of the city of Cranston and the towns of Johnston, East Providence, Warwick and North Providence protesting against the increase in fares.

Cincinnati Fare Going Up

Fares in Cincinnati will probably be increased to 6 cents on April 1, W. Kesley Schoepf, president of the Ohio Traction Company, predicted in his recent annual report to stockholders. The Ohio Traction Company owns and controls the Cincinnati Traction Company, which leases the Cincinnati Street Railway.

In speaking of the fare situation Mr. Schoepf said in part:

It is one feature of the Cincinnati franchise that allows increases of fares by half-cent stages. The increases did not begin to be made until the new arrangement had been tried out for three months at the old rate of 5 cents. The first increase was made on Jan. 1, 1919, to 5½ cents for tickets and 6 cents cash. It is anticipated that another increase will be made to 6 cents flat on April 1.

As to the wage situation the speaker said:

As to what will result in the next few months cannot be foretold. The War Labor Board's award is for the period of the war with the privilege of opening the question at the end of six months. It is believed that with adequate pay more satisfactory work can be gotten out of the employees. More honest, capable, industrious and courteous employees will be secured and retained if they are paid a good wage.

It is the hope of the management of the company that economies in operation and efficiency in all of its departments will make it possible to postpone any efforts to readjust wage scales, unless a natural readjustment and a general readjustment comes about, coincidental with the lowering cost of living, when readjustments would be made as a matter of course.

Shore Line Reduces Fares

For the experimental period of six months from April 1 a new schedule of fares on the Shore Line Electric Railway system affecting the lines from New London, Conn., northerly to Willimantic, Conn., is to be put into effect. They show a reduction from the rates now in force.

The new schedule of fares was decided upon after a series of conferences between the officials of the railway, the selectmen and counsel of the towns of Norwich and Sprague and the members of the Public Utilities Commission.

A partial comparison of the old and new rates follows:

	New	Old
From Parade or any portion of city of New London to College	5	5
To Best View	7.5	10
To Quaker Hill	10	10
To Alexander's	12.5	15
To Sanitarium	30	34
To Norwich	35	43
Franklin Square, Norwich, to Sanitarium	5	5
To Trading Cove	7.5	10
To Gallivan's	10	12
To Cook's	12.5	15
To Derry Hill	15	18
To Montville	17.5	20
To Dr. Fox's	20	23
To Alexander's	22.5	26
To Quaker Hill	25	29
To Best View	27.5	32
To College	30	35
To Parade, New London	35	43
To Ocean Beach	43	48
From Franklin Square or other section of Norwich to St. Mary's Cemetery	5	5
To Baldwin's store, Taftville	7.5	10
To Taftville	10	10
To Lillibridge Road	17.5	19
To Baltic	20	22
To Willimantic	45	53
Franklin Square, Norwich, to sanitarium	5	5
To Averay's Lane, Bean Hill	7.5	10
To Yantic	10	10

In its memorandum accompanying the decision the commission said:

The present schedule of rates and method of collection present a very complicated system, more or less confusing for conductors and unintelligible to the traveling public. On the line from New London to Willimantic there are five different zone rates, namely, 5 cents, 4 cents, 3 cents, 2½ cents and 2 cents.

The proposed rates retain the present 5-cent zones in the cities of New London and Norwich, and establish uniform 2½-cent or one half nickel zones on suburban runs. The initial or minimum charge of 5 cents entitles the passenger to ride through two suburban zones, and for 7½ cents to ride through three such zones, etc. In traveling into or out of either city, the rider is entitled to travel through the city zone and the next outside zone for 7½ cents, with transfer privileges in the city.

In view of pending railway legislation and for any sufficient cause shown the commission reserves the right and jurisdiction over said matter, to annul, modify or amend this temporary order at any time. The rates hereby approved shall not be changed by the company without the approval of this commission. A detailed finding and final order will be issued by the commission within — days after the expiration of said six months unless otherwise previously disposed of by final order of the commission.

Louisville Wants More

T. J. Minary, president of the Louisville (Ky.) Railway, called on Mayor Smith recently to acquaint him with the plight of the company. He made no formal request for an increase in fares, but later stated that a committee will call upon the Mayor and make such a request. No date has been fixed for the formal conference.

One-Man Cars or Nothing

So strong was the opposition which developed against amending the existing ordinance so that the operation of one-man cars on the streets of Norfolk, Va., would be legal, and so conflicting the evidence adduced as to the efficiency of the one-man car, the Council on Feb. 11 decided not to pass on the matter until it was better understood.

A committee from the Council will confer with Admiral Coffman and officials of the United States Housing Bureau, which is financing the purchase of new cars for Norfolk, in which the one-man car will be discussed from all angles.

The attitude of the government officials who have charge of traction matters and the officials of the Virginia Railway & Power Company is that Norfolk must take the one-man car or nothing. That attitude was clearly expressed in the meeting of the Council when W. A. Mellin, of the housing bureau, stated that standard cars could have been ordered at the time the one-man car was ordered, but the traction and housing bureau officials considered that the one-man car was the better.

The chief objection, which has so far developed in the mind of the City Manager regarding this type of car, is the difficulty which will come in the enforcement of the Jim Crow law. It was shown the City Manager, that white passengers now always have to pass through a group of colored passengers on the standard car and that there would be little difference experienced in the colored passengers passing through groups of white passengers.

The City Manager has also suggested that an impartial committee be sent to a city where the one-man car is in operation to ascertain at first hand how the traffic is handled. This committee could report back to the Council and its report might have a large effect upon the decision of the Council.

About $48 Each for Being Careful

Two hundred and seventy-one platform men of the San Diego (Cal.) Electric Railway have recently received their "Safety First" checks. The sum of $13,139 was distributed among the platform men, each man's check based on the number of hours of actual service during the year. The amount represents the savings from the 1918 accident fund.

Each year a certain per cent of the gross passenger earnings of the company is set aside as an accident fund. Out of this fund payments for personal injuries and damages are made and the amount left after this is done goes to platform men.

The total amount saved for the carmen this year exceeds that of last year, which amounted to $12,225. The saving is considered all the more remarkable because of constant changes in the personnel necessitated by men leaving to go into government work or in the service. Chairman Allen of the safety committee said:

> This condition has improved materially with the return of former platform men from the service. The outlook during the coming year would be bright indeed from the standpoint of eliminating accidents if we could by some means receive a closer co-operation from drivers of automobiles on the city streets as well as from the men and women patrons in boarding and alighting from cars. Accidents in which automobiles are involved and those resulting from people jumping on or off moving cars regardless of warnings and pleas of car men to wait until cars stop, continue to be the greatest stumbling blocks to our efforts toward saving life and limb.

Another Indiana Interurban Increase

The Public Service Commission of Indiana on Feb. 18 granted the Fort Wayne & Decatur Traction Company permission to increase its passenger fares from 2½ to 2¾ cents a mile. The increase was to become effective on Feb. 20, and to continue until Sept. 1, when the company is ordered to report its operating expenses and receipts to determine if the increase is to be made permanent.

Richmond Comes Into Its Own

Mayor Ainslie of Richmond, Va., has approved the ordinance granting increased fares to the Virginia Railway & Power Company, and soon afterward the board of directors of the company passed a resolution accepting the conditions laid down by the city. Changes made by the ordinance are as follows:

Six-for-a-quarter tickets for the general public are abolished, and a straight 5-cent cash fare is substituted.

Labor tickets at 2½ cents each and good between the hours of 6 a. m. and 7 a. m. are abolished. Instead labor tickets will be sold at the rate of six for a quarter, and will be valid between the hours of 6 a. m. and 8 a. m.

School tickets and transfers remain as at present.

In November, 1917, the company filed with the City Council an application for increased rates. The application was referred to the committee on streets, and there were many public hearings, the opposition to increased rates being chiefly led by representatives of the Central Trades and Labor Council.

The two Council branches and the committee on streets played battledoor and shuttlecock with the matter but this finally came to an end in the City Council, when the Board of Aldermen passed the relief measure by a vote of ten to one.

The ordinance allows the company to maintain the increased rates for the period of one year, and at the end of that time the new law automatically comes to an end. The City Council, however, has the right to repeal the ordinance at any time that it may deem proper. One of its provisions, as accepted by the company, gives the city the right to examine the books, vouchers and methods of management of the company.

Transportation News Notes

Watchful Waiting.—The hearings on the application to the Public Utilities Commission of Illinois of the East St. Louis (Ill.) Railway to charge a 7-cent fare have been completed and the company is waiting for the decision of the commission.

Want Seven Cents in Boise.—The Boise (Idaho) Railway, operating in the city, and the Boise Valley Traction Company, city and interurban, will ask the Utilities Commission of Idaho for permission to install one-man cars and to raise fares to 7 cents.

Service Hearing Concluded.—The hearing of the Trenton & Mercer County Traction Corporation, Trenton, N. J., before the Board of Public Utility Commissioners for failure to render proper service has been concluded. The matter has been taken under advisement.

Ten Cents on Georgia Line.—The petition of the Albany (Ga.) Transit Company for a 10-cent fare, ten tickets for $1, has been allowed by the State Railroad Commission. The petition of the company was not opposed. In fact, the City Council of Albany sent a resolution asking that the increase be authorized.

Governor Approves Fare Increase Measure.—Acting Governor L. F. Hart of Washington on Feb. 17 approved a law passed by the Legislature, authorizing the Public Service Commission to exceed the 5-cent limit on railway fares within city limits and giving City Councils the same authority over municipally-owned lines.

Wants Service Maintained Pending Inquiry.—Employees of the Des Moines (Iowa) City Railway have petitioned the City Council to prevent any curtailment of service on the part of the Des Moines City Railway until such time as a complete survey of conditions can be made to determine whether or not such curtailment is necessary to meet the forced 5-cent fare.

Wants Auto Line Restrained.—The Aurora, Elgin & Chicago Railroad, Chicago, Ill., has filed a complaint with the Public Utilities Commission of Illinois charging that the Inter-City Motor Express Lines, operating over public highways and streets in and between Chicago and Elgin and Aurora, is conducting its business without having obtained a certificate of convenience and necessity from the commission.

Public Authorities Divided.—The City Commission of Millville, N. J., has decided not to oppose the application of the Millville Traction Company for an increase of fares between Millville and Vineland from 10 cents to 14 cents and a raise in fares in Millville from 5 cents

to 7 cents before the Board of Public Utility Commissioners on March 11, but the Borough Commission of Vineland, N. J., has instructed Solicitor Hurd to protest the advance.

Lockport Granted Fare Increase.—The Public Service Commission for the Second District of New York at its regular session on Feb. 20 passed an order permitting the International Railway to increase its rate of fare in Lockport to 6 cents, the order to become effective on March 1, 1919, for a period of one year and thereafter until the further order of the commission. It was pointed out that in 1918 the company sustained a deficit of $9,978 and this was regarded as sufficient evidence to warrant the action taken by the State authorities.

Suburban Fare Increase Suspended.—The Public Service Commission for the Second District of New York has ordered suspended from Feb. 24 to and including April 30 rates of fare on Rochester lines of the New York State Railways under a complaint filed by Supervisor Louis J. Dubelbeiss, of the town of Irondequoit. The railway filed a tariff proposed as effective on Feb. 24 applying to one-way and round-trip cash and ticket fares on the Rochester and suburban lines to Irondequoit. Commissioner Barhite is investigating the proposed new fares.

Very Successful Experiment in Publicity.—One of the features of the recent ball by the employees of the United Railways & Electric Company, Baltimore, Md., was an extra edition of *Trolley Topics*, the company's semi-monthly paper. The copy for the paper was obtained at the ball and was rushed to the printer, who quickly ran off 3000 copies. These were hurried back to the hall and distributed by volunteer newsboys. The paper was a surprise to the guests, because it illustrated and told about things that were happening as those in attendance read about them.

Elm Grove Company Wants Increase.—The West Virginia Traction & Electric Company, Wheeling, W. Va., has petitioned the Public Service Commission of West Virginia for an increase in the fares on the City & Elm Grove Railroad. The present fare from Wheeling to Elm Grove is 10 cents, divided into one 6-cent zone and a 4-cent zone. The application is for a fare of 15 cents, the distance being divided into three 5-cent zones. One hearing on the matter has been held at Charleston, before the commission, and a second meeting will be held in the near future at Wheeling.

Fare and Traffic Conference Called.—The Public Service Commission of the State of Washington has called a conference for Feb. 28 at Tacoma, Wash., of city officials, representatives of commercial organizations and electric railways of the State, for the purpose of discussing fares and other traffic problems. Senate Bill No. 18, passed by the present Legislature and signed by the Acting Governor on Feb. 15, eliminates the 5-cent fare clause of the public service act of 1911. It is considered probable that the commission is preparing to establish uniform rates in all cities.

Fare Case at Houston Appealed.—The Houston (Tex.) Electric Company has appealed from the decision of the District Court of Harris County wherein it was held that the City Council of Houston was within its authority when it passed an ordinance repealing the 6-cent fare ordinance that it had previously enacted, the latter action being based on a referendum to the people in which a vote opposed to the 6-cent street-car fare was expressed. The case was taken before the First Court of Civil Appeals at Galveston and a motion by the company to advance on the docket was granted. The case is set for argument on March 6. An early decision is expected.

Service Order Extended.—The Public Service Commission for the Second District of New York has ordered that the time within which the New York State Railways was directed to restore service upon its lines in Rochester during the non-rush hours be extended until Feb. 17, at which time the company was to restore service as provided by the commssion's order of Feb. 6. The company applied to the commission for an extension of time upon the ground that it had been impossible to prepare the necessary time-tables within the time stated in the original order and that according to an agreement in force between the company and its employees, the company is required to post the changes in service for a period of at least five days. The time within which the service was directed to be restored in the order was not sufficient to enable the company to comply with the terms of the order.

Combination Bus and Railway Service Proposed.—The City Council of Seattle, Wash., has requested Senator Daniel Landon to introduce in the Legislature a bill authorizing municipalities owning city railway systems to own and operate auto bus lines or jitneys, either in connection with the street railway or as supplementary to such service. Senator Landon states that the Council asked him to submit the bill, the city believing that it will be requested to operate jitney lines to connect with the city-owned railway system. The bill was drawn by Walter F. Meier, Corporation Counsel, at the request of the special legislative committee of the City Council. A member of the legislative committee states that the bill does not mean that the city contemplates a general jitney business, but that if the city takes over the railway system, it will do all in its power to provide adequate transportation for the public.

Indiana Lake Shore Line Wants More.—The Chicago, Lake Shore & South Bend Railway, Michigan City, Ind., has petitioned the Public Service Commission for permission to charge passenger fares on a basis of 3 cents a mile for one-way travel between points on the line in Indiana. The company received permission from the commission last May to increase its basic charge from 2 to 2½ cents a mile. It obtained permission from the Interstate Commerce Commission last July to charge on the basis of 3 cents a mile for interstate traffic. A number of electric lines in Indiana have petitioned the commission for increases to 2¾ cents a mile for passengers since the recently granted increase to 2½ cents from the regular fare of 2 cents. The Chicago, Lake Shore & South Bend Railway, however, is the first to ask for a 3-cent basis. The line is said to be operating under conditions more peculiar to steam lines than other electric lines in Indiana.

Wants Sliding Fare in Jacksonville.—Officials of the Jacksonville (Fla.) Traction Company are considering plans to secure an amendment to the company's franchise, at a special election, so as to permit an increase in fares. The proposed amendment would place into the hands of the City Council the power to decrease or increase the rate of fare from time to time, as conditions justify. In speaking of the plans a representative of the company is reported to have said: "We are simply putting the proposition up to the people themselves, whether or not the company is entitled to just consideration, and asking only for a fair deal which will prevent bankruptcy. We are operating at a financial loss, due to the greatly increased cost of material and labor. There must come relief that will justify a continuance of the service. The progressive people fully appreciate the reason we are seeking relief, and there can be no just objection to permitting the people to determine the question."

New Publications

McGraw Electric Railway List for February, 1919

273 pages. This list is published in February and August. By McGraw-Hill Company. Price $7.50 a year.

Many important changes were made in this issue. They include: 1300 changes in the officials and chief operating men of the electric railway industry, 400 changes in power-plant equipment, 150 notes on substation equipment not published before, twenty notes on receiverships, dismantlements and suspensions, 300 changes relating to company connections and points reached and 700 population changes from latest state figures. The numerical indexes to companies and to individuals have also been rearranged. These changes were made from new reports received from 95 per cent of the 950 companies listed.

Personal Mention

Changes on Inland Empire Railroad

J. F. Gannaway has been appointed superintendent of the Spokane & Inland Empire Railroad with offices at Spokane, Wash. The appointment was made by F. E. Connors, the receiver of the railway. Mr. Gannaway was formerly assistant superintendent of the company.

F. S. Elliot has resigned as chief operating officer of the Spokane & Inland Empire Railroad, Spokane, Wash. This office has been abolished and the affairs of this position will hereafter be assumed by the receiver himself.

Waldo G. Paine, chief traffic officer, has become treasurer.

Elmo Edwards, formerly auditor, has assumed the duties of secretary of the company.

Mr. Paine and Mr. Edwards will have offices in Spokane.

Robert Crosbie, formerly secretary and assistant comptroller, and Paul McKay, treasurer and purchasing agent, with offices at Portland, have resigned.

The duties of purchasing agent for the railway have been taken over by the receiver.

W. R. Burns has been appointed auditor of the Dallas (Tex.) Railway to succeed L. W. Richards.

Charles F. Smith has been appointed auditor of the Sand Springs Railway, Tulsa, Okla., to succeed R. J. Guillan.

H. C. Lang has been appointed secretary and treasurer of the Western Ohio Railway, Lima, Ohio, to succeed R. B. Cook.

Lieut.-Col. L. V. Patch has been named a member of the Utilities Commission of Idaho, succeeding John W. Graham, resigned.

M. Cummings has been appointed auditor of the Springfield & Xenia Railway, Springfield, Ohio, to succeed J. F. Egolf.

William Reiser has been appointed treasurer of the Electric Bond & Share Company, New York, N. Y., to succeed A. E. Smith.

R. A. Hock has been appointed auditor of the United Gas & Electric Corporation, New York, N. Y., to succeed G. F. Bauer.

W. E. Eppler has been appointed comptroller of the United Traction Company, Albany, N. Y., to succeed W. H. Davies.

A. B. Eimer has been appointed auditor of the Niagara Gorge Railroad, Niagara Falls, N. Y., to succeed E. H. Buddenhagen.

Lee F. Swartout, who has been connected with the Michigan Railway, Jackson, Mich., and the predecessor company since 1910, has been appointed clerk to the general manager.

G. A. Richardson, general superintendent of the Puget Sound Traction, Light & Power Company, Seattle, has been engaged by the Brooklyn (N. Y.) Rapid Transit Company to make an examination of properties and equipment of the Brooklyn Rapid Transit System and submit a report to that company.

Thomas Gibson, who has been master mechanic for the Reading Transit & Light Company, Reading, Pa., for the last three years, has resigned to accept a position as general manager of the Frankford, Tacony & Holmesberg Street Railway, Philadelphia, Pa. Mr. Gibson will assume the duties of the new position on March 1. His office will be at Tacony, Philadelphia.

Henry T. Ledbetter, formerly auditor of the Toledo Railways & Light Company, Toledo, Ohio, has been appointed secretary of the company to succeed A. C. Van Driesen, who, as noted in the ELECTRIC RAILWAY JOURNAL of Nov. 23, 1918, resigned to become assistant treasurer of all the properties of Henry L. Doherty & Company in Toledo, in active charge of all financial matters of the company.

L. K. Sherman, chief engineer of the Housing Corporation, has been appointed director of the Bureau of Industrial Housing and Transportation, United States Department of Labor, to succeed Otto M. Eidlitz, whose resignation is referred to elsewhere. Mr. Sherman is forty-nine years old, a native of Massachusetts, and was graduated from the Massachusetts Institute of Technology as a civil engineer in 1892. His experience for the last twenty-seven years has been as an engineer or executive on construction. His offices are in Chicago.

Otto M. Eidlitz has resigned as director of the housing bureau of the Department of Labor, L. K. Sherman, Eastham, Mass., who has been chief engineer of the bureau for some time, will succeed Mr. Eidlitz as director. Mr. Eidlitz is resigning to return to his building interests in Brooklyn, N. Y., which he laid aside at the outbreak of the war to manage the government's housing program. The housing bureau is one of the agencies which came into existence at the beginning of the war. How long it will remain in operation is uncertain.

George B. Dobbin has resigned as secretary of the Michigan Railway, Jackson, Mich., to become comptroller and chief accountant of the Northern Ohio Traction & Light Company at Akron, Ohio. He has been connected with the company at Jackson since 1912. As a mark of the existing friendship and in recognition of Mr. Dobbin's favorite pastime, he was presented a handsome fisherman's outfit. A. J. Bray, now treasurer of the Michigan Railway, made the presentation speech. In addition Mr. Dobbin was given a testimonial, signed by his associates, attesting further the esteem in which he is held.

Harley L. Swift, formerly assistant superintendent of way and structures of the Mahoning & Shenango Railway & Light Company, Youngstown, Ohio, has been promoted from first lieutenant to captain and placed in command of Company C, Sixteenth Engineers (Railway). He has served continuously with this regiment since its arrival in France in August, 1917. During this period the company has constructed a large advance depot and yards; built standard and narrow-gage railway behind the British lines during March and April; constructed the Nevers cut-off and reclaimed Boche narrow and standard-gage railway during the Argonne and Meuse push, just previous to the end of the war.

A. J. Bray, at present auditor for the Michigan Railway, Jackson, Mich., has been appointed treasurer of the company to succeed J. W. Glendening, who has been made secretary. Mr. Bray entered business as a clerk in a bank at Elkhorn, Wis. After holding this position two years, he became chief clerk of construction work for the Bell Telephone Company in Wisconsin, acting as auditor of the estimates of that company. He was connected with the telephone concern for one and one-half years. In 1906 he became connected with the Michigan Railway. In January, 1911, he was made chief clerk and in August, 1912, he was promoted to auditor, which position he has filled until the present time.

Edward F. Seixas has been appointed general manager and official representative at Monterey, Neuvo Leon, Mexico, for the Monterey Railway, Light & Power Company, succeeding Lewis Lukes, heretofore vice-president and general manager, with offices at Toronto. Mr. Seixas has been general manager of the Niagara, St. Catharines & Toronto Railway since 1911. He was born in New York City in 1870. He entered business as a student with the General Electric Company, Schenectady, N. Y., and was connected successively with the World's Fair at Chicago, with the Amsterdam Railway, Light, Heat & Power Company, Amsterdam, N. Y., and then with the Niagara, St. Catharines & Toronto Railway.

Guy E. Tripp, assistant chief of ordnance, who resigned recently from the service to return to his duties as chairman of the board of the Westinghouse Electric & Manufacturing Company, on Feb. 13 was presented with a distinguished service medal by Secretary of War Baker. The presentation took place in the Secretary's office in the War Department. The citation as published in the army order follows: "Guy E. Tripp—As chief of the production division of the Ordnance De-

partment, and later as assistant chief of ordnance, he displayed fine technical ability and broad judgment in systematizing methods and practices, resulting in the efficient co-operation of industries producing articles of ordnance for the army."

William A. Mellen, formerly assistant manager of the transportation division of the United States Housing Corporation, has been appointed manager of the transportation division to succeed Major G. F. Wells, who recently resigned. Mr. Mellen was born at Fall River, Mass., on Jan. 14, 1880. He received his education there and was connected with the street railways of Fall River, where he worked under the direction of George W. Palmer. At the outbreak of the war Mr. Mellen was appointed supervising engineer in the United States Navy in charge of passenger transportation for the navy. He later resigned to accept the position as assistant manager of transportation of the United States Housing Corporation.

J. W. Glendening, who has been connected with the Michigan Railway, Jackson, Mich., since 1912, acting in the capacity of treasurer and assistant to John F. Collins, the general manager, will succeed G. B. Dobbin as secretary of the company and will also become secretary of the Saginaw & Bay City Railway. He is at present treasurer of this organization. Mr. Glendening came to Jackson in 1912 from Saginaw where he had been treasurer for four years, of the Saginaw & Bay City Railway and also treasurer of the gas and electric companies operating in Saginaw and Bay City. Previous to coming to Saginaw he was in the railway accounting department of the Public Service Corporation at Camden, N. J.

Peter J. Abt, special agent of the Detroit (Mich.) United Railway, has with four of his men been awarded the French "Croix de Guerre" for extraordinary services in capturing a nest of Germans, garbed as French soldiers, in the act of destroying a train of sustenance stores. Later he was given the "Distinguished Service Cross" by the American forces for the same act. Since President Wilson has been in France Captain Abt and the same four men have been on secret service guard attached to the President. On leaving for France Captain Abt was sent as a casual officer unassigned. Arriving "over there" Captain Abt was immediately placed in charge of a secret service detachment consisting of enlisted policemen and detectives from all parts of the United States.

William L. Sause, recently promoted by Mayor Craver of Youngstown, Ohio, from service director to be the city's first street railroad commissioner under the new service-at-cost plan of operation for the Mahoning & Shenango Railway & Light Company, was born in Youngstown thirty-six years ago. His first business connection was with the American Bridge Company. After spending five years with this company in Youngstown Mr. Sause was sent to Toronto by the company. He remained there three years. Following this came four years with the General Electric Company when Mr. Sause had charge of part of the drafting and engineering department. While with this company he prepared for a wider future by taking a course in structural and bridge designing. Next came a position in the engineering department of the Brown Hoist Machinery Company. Three years after joining the Brown company, Mr. Sause returned to Youngstown on a visit to develop some property he owned in the East End of the city. A little more than a year ago the newly-elected Mayor made him service director.

A. W. McLimont, who in September, 1917, was appointed to succeed Wilford Phillips in charge of the active management of the Winnipeg (Man.) Electric Railway, has been elected vice-president of the company. He has also

A. W. McLIMONT

been made a director. Mr. McLimont is a Canadian by birth. He is very well known in electric railway and engineering circles in the United States. He has been connected at various times with the Michigan United Railways as vice-president and general manager, the San Francisco-Oakland Terminal Railways as vice-president and general manager, the Chicago & Milwaukee Electric Railroad as general manager. He entered public utility work in 1885 with the New England Telephone & Telegraph Company. Later he became connected with the Thomson-Houston Company, Boston, with which he served until 1903. After much work in organizing, installing and operating electric railway and electric light properties in the United States, Mr. McLimont entered the foreign department of the General Electric Company. His work abroad included service in Central America, Argentina, Mexico and at Lima, Peru. After his return to the United States from his work in foreign fields, Mr. McLimont became electrical and operating engineer of the Public Service Commission for the First District of New York.

Obituary

Minor Q. Woodward, treasurer-manager of the Pine Bluff (Ark.) Company, is dead.

Horace G. Allen, for many years a member of the Boston (Mass.) Transit Commission, died at Boston on Feb. 12. He was sixty-three years of age. Mr. Allen was prominent in legal circles.

Robert K. Black, who assisted in the building of the first section of elevated railroad in New York City and who was for many years roadmaster of the Manhattan Elevated Railway, now included in the system of the Interborough Rapid Transit Company, New York, N. Y., died on Feb. 22 at his home in Scarsdale at the age of eighty-two years.

Bruce W. Duer, traffic expert for the Public Service Commission of Maryland, died on Feb. 15 of pneumonia. Mr. Duer was born at Princess Anne, Md., fifty-one years ago, and was educated at the Princess Anne Academy, entering railway service in 1884 with the New York, Philadelphia & Norfolk Railroad, serving consecutively as agent, operator, and dispatcher for several years, then going with the Baltimore & Ohio, working up to the position of superintendent of the Pittsburgh Division. He was vice-president of the Georgia & Florida Railway, with office in Augusta, Ga., for some time, before settling in Baltimore.

Edie B. Wade, captain of engineers, finance, accounts and contracts section of the American Expeditionary Forces, died of pneumonia at Coblenz, Germany, on Feb. 5. Captain Wade had been on the staff of Ford, Bacon & Davis, engineers, for a number of years. From September, 1914, to August, 1916, he was in their New Orleans office as engineering accountant on the construction of the cotton warehouses and terminal and grain elevator and also in the preparation of a report on the operation of the port, for the Board of Commissioners of the Port of New Orleans, and reports for various other clients including a report on the harbor of Mobile. In December, 1916, Captain Wade became attached to the New York office of Ford, Bacon & Davis and from there was sent to their San Francisco office, where he specialized on valuation work as engineering accountant. In May, 1918, he enlisted in the engineering corps at San Francisco, receiving a commission of captain. He was immediately sent to France with the American Expeditionary Forces, and has been doing important work at various points in France and England. At the time of his death he had just been sent to Germany. Captain Wade was well known in electric railway and professional engineering circles. He is survived by his widow and two children.

Manufactures and the Markets

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

ROLLING STOCK PURCHASES BUSINESS ANNOUNCEMENTS

Railway Export Field Is Gradually Opening Up

Inquiries from Every Section of the Globe Show Increasing Attention Paid to System Maintenance

Although the export field for electric railway material is not normally active at the present time so far as actual orders reported for maintenance and new line material are concerned, according to the numerous inquiries which manufacturers and agents have received the outlook is very promising. Throughout the past few years the foreign field, the same as the domestic field, has shown great hesitancy in purchasing electric railway supplies, and many railway electrifications already planned have been held up pending a cessation of hostilities and a more favorable price market. Nevertheless, some small amounts of necessary maintenance material have already been shipped.

European Equipment a Factor

A large field for railway equipment is open in South America. Some of the countries of that continent have much British and German stock invested in railways, and these two countries naturally have found an outlet for their own material which the United States may be able successfully to combat at the present time while Britain and Germany are returning to peace persuits. This is true especially of railway motors which, it is reported, England is not now prepared to manufacture in large quantities; the necessary control for these motors however they are able to turn out.

The South American market is rather more active now than any of the others. To these southern republics there have been recent shipments of orders for rail welding and bonding equipment and pole line hardware and porcelain. Inquiries have been reported on many different materials, notably bare trolley wire, rail bonds and track specialties, such as switches, frogs, cross-overs, etc.

Canada also is rather active in the railway field. Negotiations are at present under way for a number of safety cars for Toronto, and practically all types of materials have found inquiries. Canada is the only country reported in the field for safety cars—South American countries have not yet come to the point where this class of service appears to be required. It is very noticeable that these southern countries demand little in the way of refinements in equipment, and the cheaper grades of materials consequently have found a better market than higher priced goods. This lower grade of material has been pushed very strongly by the British and German manufacturers.

Porto Rico is a buyer of wire fence for rights-of-way, and the Dutch East Indies is in the market for track equipment.

The European market is beginning to show signs of activity. One of the largest fields for American manufacturers is that of electric rail welding and bonding, for there is reported only one European manufacturer of metallic electrode rail welders and that is a British firm. Much interest has been manifested recently in this equipment by Norway. Switzerland is in the market for copper-clad wire for railway transmission, telegraph, telephone and signal purposes, and for wire for manufacturing into fences for rights-of-way.

The confidence in the immediate field for electric railway equipment is further shown in the number of individuals who have recently been reported as seeking agencies for various kinds of equipment for foreign fields. The diversity of countries from which orders and inquiries are coming gives further evidence that railway development is not localized in any one continent but is in general world-wide.

Increase in Maintenance Supplies Since 1914

Figures on One Road Show Virtually Same Volume of Goods Bought Per Car-Mile in 1918 as in 1914

A particularly interesting set of figures showing quantities and prices of typical maintenance material purchased in 1914 and 1918 by a road of 303 miles of track in 1918 and operating virtually the same car mileage in the two years, namely 8,836,333 car-miles in 1918 and 8,853,958 car-miles in 1914. The amount spent for this material in 1914 was $161,774.44 and in 1918 was $303,160.25. The increase in unit price in 1918 over 1914 was 105 per cent. This road, the Worcester (Mass.) Consolidated Street Railway, it will be seen from the figures, purchased in the two years about the same volume of material. With the car-miles virtually the same in each year it is interesting to note that in this case the volume of supplies purchased per car-mile was the same. The individual items, of course, showed different volumes of purchases but on the whole the quantity of goods was the same per car-mile in each of the years for which figures are shown.

TYPICAL MATERIAL QUANTITIES AND PRICES

Material	Per Cent Increased Price	1914 Quantity	1914 Unit Price	1918 Quantity	1918 Unit Price
Axles	135	36	$11.73	72	$27.58
Field coils	127	624	21.09	752	47.80
Armature coils	105	480 sets	33.36	1,200 sets	68.23
Steel wheels	111	132	18.25	252	38.50
Chilled wheels	108	1,248	7.48	1,155	15.53
Controller segments	138	4,457	.064	1,520	.152
Trolley wheels, 4½ in.	159	2,532	.58	5,040	1.50
Trolley wheels, 5½ in.	108	996	.93	960	1.93
Shoe heads	144	1,140	2.25	795	5.50
Truck castings	94	113	3.09	250	6.00
Steel castings	119	67 lbs.	.09	395 lb.	.197
Malleable iron castings	74	1,904 lbs.	.0575	3,025 lbs.	.10
Commutator segments	117	36 sets	21.56	96 sets	46.85
Malleable-iron armature bearings	87	312	.70	296	1.31
Malleable-iron axle bearings	46	264	1.07	769	1.56
Trolley wire No. 00	92	253,667 lbs.	0.1495	16,658 lbs.	.2868
Copper bonds	82	1,632	.82	1,036	1.49
Steel pinions	132	636	3.52	900	8.15
Steel gears	113	192	10.45	348	22.30
Trolley wire No. 0000	96	69,690 lbs.	.1701	13,872 lbs.	.3335
Canvas	158	1,944 yds.	.71	1,367 yds.	1.83
Babbitt metal	236	15,672 lbs.	.33	8,650 lbs.	1.11
Brakeshoes	24	15,852	.54	19,525	.67
Cold-rolled steel	100	4,917 lbs.	.05	4,100 lbs.	.10
Norway iron	181	17,939	.0267	5,900 lbs.	.075
Glass	103	2,168 lts.	.335	2,200 lts.	.681
Trolley bases	90	20	12.60	58	24.00
Signal switches	30	20	20.00	30	26.00
Mechanical ears 4/0	161	1,914	.115	420	.30
Plain ears 4/0	100	1,104	.31	2,460	.62
Plain ears 2/0	146	3,588	.2156	4,320	.53
Trolley harps	67	444	.60	640	1.00
Friction tape	89	5,028 lbs.	.19	5,535 lbs.	.36
Trolley rope	134	1,956 lbs.	.32	2,853 lbs.	.75
Ties	30	64,614	.46	50,441	.60
Brake cable	249	3,896 ft.	.0459	7,024 ft.	.16
Overhead frogs	263	120	1.15	121	4.18
Journal bearings	181	768	1.36	1,380	2.46
Tie rods	179	1,419	.164	1,260	.457
Controller fingers	33	3,224	.30	3,520	.40
Axle collars	93	73	2.59	164	5.00
Brush holders	38	267	2.55	344	3.53
Gear cases (malleable)	139	84	15.92	372	38.00
Car paint	18	324 lbs.	.22	1,475 lbs.	.26
Rubber-covered wire	105	49,045 ft.	.0402	110,500 ft.	.0826
Trolley poles	116	228	1.25	385	2.70
Brass axle bearings	74	120	7.25	417	12.65

Rolling Stock

Rutland Railway Light & Power Company, Rutland, Vt., will during the year equip two one-man cars.

Goldsboro (N. C.) Electric Railway expects to purchase this year two single-truck closed cars.

Tidewater Power Company, Wilmington, N. C., expects to purchase this year equipments for two suburban cars.

Savannah (Ga.) Electric Company reports that it expects during the current year to purchase twenty one-man cars.

Kensington (Md.) Railway reports that it will purchase this year one double-truck passenger car if costs drop to the old base.

Kansas City, Lawrence & Topeka Railroad, Kansas City, Kan., during this spring will change one single truck car to one-man pay-as-you-enter type.

Winona Interurban Railway, Warsaw, Ind., will purchase this year ten 40-ft. freight trail cars. All city car equipment is to be changed over for one-man operation.

Capital Traction Company, Washington, D. C., has received and is now operating the twenty new cars ordered last summer, specifications of which appeared in these columns on April 20, 1918.

Southwestern Gas & Electric Company, Texarkana, Ark., has received ten new cars of the latest improved pattern, to replace those destroyed in the fire that recently burned the company's carhouse, as noted in these columns on Feb. 1.

Washington Railway & Electric Company, Washington, D. C., lost part of its Eckington carhouse and twelve cars in a recent fire. Most of the burned cars were of the old hand-brake type, but several were of the large type operating the Maryland and Rockville lines. The trucks of the latter, however, were saved. The company has put in operation twenty-one of the fifty new cars ordered last summer, specifications of which were given in the issue of this paper for May 4, 1918. Several more car bodies and trucks have been received and are in storage awaiting delivery of motors, some of which have now been shipped.

Trade Notes

Chicago (Ill.) Pneumatic Tool Company has moved its Cleveland district office from Room 813 to Rooms 406-408 Engineers Building. Ross Watson is district manager.

Independent Pneumatic Tool Company announces that after March 1, the Eastern branch of the company will be located at 1463 Broadway, at Forty-second Street, New York City. This change, the company states, has become necessary owing to its increased business in the East.

American Car & Foundry Company, St. Charles, Mo., has moved into its new machine and pattern shop, recently completed by the Dickie Construction Company of St. Louis. The building is a fireproof structure, costing approximately $150,000, and covers 240 ft. x 95 ft. of floor space.

James N. Hatch, consulting engineer, Chicago, has formed an association with Henry C. Eckland, to act as architects and engineers under the firm name of Henry C. Eckland & Company. Mr. Hatch will also continue his consulting practice of public utility and industrial engineering as heretofore.

Carl P. Dennett, Major, U. S. A., treasurer of the Griffin Wheel Company at Boston, has returned to this country and is resting up in the South. He was chosen by Henry P. Davison of the American Red Cross as its representative in complete charge of the welfare of American prisoners in Germany.

The Wagner Electric Manufacturing Company, St. Louis, Mo., has made arrangements to distribute 3000 shares of stock to officers, department executives, and their immediate principal assistants, at par, according to an announcement by President W. A. Layman. The stock is now quoted in the market at $125 a share.

Major Ainslie A. Gray has retired from the Ordnance Department and under the firm name of A. A. Gray & Company has opened offices at 1547 Marquette Building, Chicago, Ill., where he will assist manufacturers in solving their problems of production, advertising and selling and distribution. Before the war Major Gray was a member of the firm of Gray & Benjamin of Chicago, and prior to the establishment of that firm was editor of the *Electrical Review.*

NEW YORK METAL MARKET PRICES

	Feb. 13	Feb. 27
Copper, ingots, cents per lb.	17.50	15.25
Copper wire base, cents per lb.	20.75	18.75to19.00
Lead, cents per lb.	5.00	5.25
Nickel, cents per lb.	40	40.00
Spelter, cents per lb.	6.80	6.65
Tin, cents per lb.	†72.50	†72.50
Aluminum, 98 to 99 per cent., cents per lb.	31.50	31.50

† Government price in 25-ton lots or more' f. o. b. plant.

OLD METAL PRICES—NEW YORK

	Feb. 13	Feb. 27
Heavy copper, cents per lb.	14.50 to 15.00	13.00 to 13.50
Light copper, cents per lb.	11.50 to 12.00	11.00 to 11.25
Heavy brass, cents per lb.	8.00 to 8.25	7.50 to 7.75
Zinc, cents per lb.	5.25 to 5.50	5.25 to 5.50
Yellow brass, cents per lb.	6.50 to 6.75	6.00 to 6.50
Lead, heavy, cents per lb.	4.75 to 4.25	4.75 to 4.87
Steel car axles, Chicago, per net ton	$28.00 to $30.00	$28.00 to $30.00
Old carwheels, Chicago, per gross ton	$22.00 to $23.00	$22.00 to $23.00
Steel rails (scrap), Chicago, per gross ton	$16.50 to $17.50	$15.50 to $16.50
Steel rails (relaying), Chicago, gross ton	$50.00 to $55.00	$15.50 to $16.50
Machine shop turnings, Chicago, net ton	$6.00 to $6.50	$5.50 to $6.00

ELECTRIC RAILWAY MATERIAL PRICES

	Feb. 13	Feb. 27
Rubber-covered wire base, New York, cents per lb.	25	23
Weatherproof wire (100 lb. lots), cents per lb., New York	31.25 to 33.75	28.75 to 33.75
Weatherproof wire (100 lb. lots), cents per lb., Chicago	30.75 to 35.75	30.75 to 37.35
T rails (A. S. C. E. standard), per gross ton	$60.00 to $65.00	$60.00 to $65.00
T rails (A. S. C. E. standard), 100 to 500 ton lots, per gross ton	$57.00 to $60.00	$57.00 to $60.00
T rails (A. S. C. E. standard), 500 ton lots, per gross ton	$55.00 to $60.00	$55.00 to $60.00
T rail, high (Shanghai), cents per lb.	3¼	3¼
Rails, girder (grooved), cents per lb.	4½	4½
Wire nails, Pittsburgh, cents per lb.	3½	3½
Railroad spikes, drive, Pittsburgh base, cents per lb.	3.90	3.90
Railroad spikes, screw, Pittsburgh base, cents per lb.	8	8
Tie plates (flat type), cents per lb.	3	3
Tie plates (brace type), cents per lb.	3	3
Tie rods, Pittsburgh base, cents per lb.	7	7
Fish plates, cents per lb.	3	3
Angle plates, cents per lb.	3	3
Angle bars, cents per lb.	3	3
Rail bolts and nuts, Pittsburgh base, cents per lb.	4.90	4.90
Steel bars, Pittsburgh, cents per lb.	2.70	2.70
Sheet iron, black (24 gage), Pittsburgh, cents per lb.	4.55	4.55
Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb.	5.60	5.60
Galvanized barbed wire, Pittsburgh, cents per lb.	4.35	4.35
Galvanized wire, ordinary, Pittsburgh, cents per lb.	3.95	3.95
Car window glass (single strength), first three brackets, A quality, New York, discount †	77%	77%
Car window glass (single strength, first three brackets, B quality), New York, discount	77%	77%
Car window glass (double strength, all sizes AA quality), New York discount.	79%	79%
Waste, wool (according to grade), cents per lb.	13 to 20	13 to 20
Waste cotton (100 lb. bale) cents per lb.	11 to 13	11 to 13
Asphalt, hot (150 tons minimum) per ton delivered	.....	.....
Asphalt, cold (150 tons minimum, pkgs. weighed in, F. O. B. plant, Maurer, N. J.), per ton	$43.00	.....
Asphalt filler, per ton	$45.00	$30.00
Cement (carload lots), New York, per bbl.	$3.20	$3.20
Cement (carload lots), Chicago, per bbl.	$3.34	$3.34
Cement (carload lots), Seattle, per bbl.	$3.68	$3.68
Linseed oil (raw, 5 bbl. lots), New York, per gal.	$1.48	$1.48
Linseed oil (boiled, 5 bbl. lots), New York, per gal	$1.55	$1.55
White lead (100 lb. keg), New York, cents per lb.	13	13
Turpentine (bbl. lots), New York, cents per gal.	71½ to 72	70 to 71

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

Franchises

Buffalo, N. Y.—The Frontier Electric Railway Company, owned by the International Railway, is seeking by the provisions of a bill introduced in the State Legislature at Albany, an extension of two years within which to begin construction of its proposed line between Buffalo and Niagara Falls. The company also seeks a two years' extension of life of its franchise.

Track and Roadway

Oakland, Antioch & Eastern Railway, Oakland, Cal.—As a result of the negotiations for the reorganization of the Oakland, Antioch & Eastern Railway, the Oakland & Antioch Railway and the San Ramon Valley Railway, which have extended over a number of years, a new corporation to be known as the San Francisco, Oakland & Sacramento Railway is to be formed to take over the properties of the reorganized companies, announcement to this effect having been made. The reorganization plan presented to holders of the securities of the three companies for their approval a year ago was declared to be fully operative, 85 per cent of the holders of the various classes of securities issued by the companies having given their assent to the plan.

Waterbury & Milldale Tramway, Waterbury, Conn.—The Waterbury & Milldale Tramway plans to extend its line to connect with the line of the Connecticut Company at Dickerman Corners, Milldale Township.

East St. Louis Suburban Railway, East St. Louis, Ill.—The East St. Louis & Suburban Railway Company will install about 7 miles of new double track due to city street improvement plans. The rail will be a 7-in. 91-lb. T-rail laid on both concrete and ballast foundation. It is expected that the work will commence about May 1.

Charleston, Mo.—It is reported that the construction of a line from Charleston to the Mississippi River opposite Hickman, Ky., is under consideration by local capitalists. The Charleston Commercial Club may be able to give information.

New York Municipal Railway, Brooklyn, N. Y.—The Committee on Transit of the Board of Estimate recently approved the Ashland place connection between the Fulton Street elevated line and the Fourth Avenue subway in Brooklyn. The connection calls for the construction of an incline from the Fulton Street line under Fulton Street from Cumberland Street to Ashland Place.

Buffalo & Depew Railway, Buffalo, N. Y.—The Public Service Commission for the Second District of New York recently passed an order approving the construction by the Buffalo & Depew Railway of a single track extension, sidings, etc., of the company's line from Burlington Avenue and Ellicott Road in the town and village of Lancaster, easterly in Ellicott Road to Central Avenue and along Central Avenue in Lancaster Village to 50 ft. north of the New York Central Railroad.

Niagara Junction Railway, Niagara Falls, N. Y.—Plans are being made by the Chamber of Commerce of Niagara Falls to have the Niagara Junction Railway extend its electric line so as to skirt the city and make a belt line loop of the city's industrial section. The Niagara Junction Railway operates considerable trackage for its electric locomotives along Buffalo Avenue and it is planned to extend the line so as to tap the lower milling district. The city would be asked to allow the company to operate its locomotives over certain tracks of the International Railway so as to connect with certain proposed tracks. The road is electrified and the Chamber of Commerce believes the proposed extension would meet with practically no opposition.

London (Ont.) Street Railway.—The London Street Railway is contemplating the reconstruction of some of its lines in London.

Morristown, Tenn.—Plans have been prepared for the construction of an electric railway from Morristown to Pressmen's Home, about 30 miles, and an extension to Kyle Ford, making a total length of about 50 miles. John N. Adams, Nashville, chief engineer.

Dallas, Tex.—The organization of an electric railway company for the purpose of building a line through the Mount Auburn and Park View additions to the city of Dallas has been undertaken. This action was decided on when the Dallas Railway Company declined to grant the petition of property owners of these additions for a street car line. The proposed company will be capitalized at $150,000 and will build and operate a line about 1½ miles long to connect with the Dallas Railway Company's line near Fair Park. The proposition is being promoted by Henry G. Wills, and one-half the capital stock has been subscribed. Application will be made at once to the Secretary of State for a charter, after which the line will be built.

Northern Texas Traction Company, Fort Worth, Tex.—It is reported that the Northern Texas Traction Company plans to construct an extension to the Santa Fe station.

Waco, Tex.—D. T. Shaw of Hillsboro, is taking steps to promote a company for the purpose of building an electric interurban line from Waco through Hillsboro and Cleburne to Fort Worth. The Tarrant County Traction Company operates a line from Fort Worth to Cleburne. Mr. Shaw plans to purchase this line and extend it to Waco.

Monongahela Valley Traction Company, Clarksburg, W. Va.—The Monongahela Valley Traction Company contemplates the extension of its line from Wolf Summit to West Union or Shirley.

Power Houses, Shops and Buildings

Shore Line Electric Railway, Norwich, Conn.—Work is under way by the Shore Line Electric Railway on the construction of a substation at West View. The power house at Mystic will be discontinued, the new building obtaining power from Greenville.

Potomac Electric Power Company, Washington, D. C.—Plans have been completed and contracts are now being awarded by the Potomac Electric Power Company, controlled by the Washington Railway & Electric Company, for a second extension of the turbine room at its Bennings plant, consisting of the installation of one 20,000-kw. G.E. turbo-generator and Worthington surface condenser. The company recently completed an extension of its turbine and boiler rooms, the work consisting of the installation of one 15,000-kw. Westinghouse turbo-generator, Worthington surface condenser and six 1000-hp. Babcock & Wilcox boilers with Taylor stokers, together with coal and ash handling equipment, boiler feed pumps, heaters, etc.

Hamilton Utilities Company, Benton, Ill.—A new substation, outdoor type, equipped with three 100-kva. transformers, is being erected by the Hamilton Utilities Company, operated by the Central Illinois Public Service Company of Mattoon.

Illinois Central Electric Railway, Canton, Ill.—Plans have been made by the Illinois Central Electric Railway for the construction of an office building, including freight house and waiting room, at Canton.

Water, Light & Transit Company, Carrollton, Mo.—The installation of a water filtering system and other improvements to its properties is contemplated by the Water, Light & Transit Company.

Kansas City, Mo.—The firm of Wight & Wight, architects, Kansas City, has been employed by the Interurban Central Station Company to design the proposed interurban passenger terminal at Tenth and McGee Streets. Contracts for the project will probably be let in the early summer.

St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo.—This company has installed an additional feed pump and coal crusher at its power house. A new boiler will also be installed.

New York Municipal Railway Corporation, Brooklyn, N. Y.—Bids will be received by Lindley M. Garrison, receiver of the New York Municipal Railway Corporation, until March 4 for the installation of electrically driven, automatically controlled seepage and emergency pumps, etc., in the pump rooms of the Sixtieth Street and Montague Street tunnels. Plans and further information may be obtained at the Municipal Railway's offices at Room 412, 85 Clinton Street, Brooklyn.