

Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

Volume 51

New York, Saturday, May 11, 1918

Number 19

Be Sure You're Right—Then Go Ahead on Skip or Stagger Stops

THE skip-stop and stagger-stop plans are at last in a fair way to get a trial on a nation-wide scale. The Fuel Administration stands behind their use, and a period of nine months of non-zero weather opens up before them. This conjunction of circumstances simply puts it up to the electric railways to lay out the stops in the way that will prove of greatest benefit to the greatest number.

It will not do to cut out stops at random without regard to the conditions at each stop. A school, a church, a factory, an important store are often justifiable exceptions; not so the cantankerous individual who sees his own interests through high-powered magnifying lenses. Therefore, let every railway in introducing the change make a careful survey of where the traffic comes from and where it goes to, make allowance for torn-up streets and poor paving, give ample publicity to the reasons for the change and its benefits, and, finally, put up conspicuous stop signs to eliminate confusion and cussing.

When the stop-reduction plan is handled in this way, the railway will not go through the harrowing experiences of those roads which went at the subject hammer-and-tongs and then had to admit that many of the stops could have been located to better advantage elsewhere. In all cases it is better to have all the data in advance. Then if a protest does come, the railway will be able to prove, as in a recent instance, that exactly seven people got off every day in front of the People's Pants Emporium before the heartless railway ordered its cars to stop 250 ft. further along.

Finally, before the plan is begun, prove that the skip stop is as much for the public's benefit as for that of the railway. This will help its popularity, although under present conditions the public is inclined to grant favors to utilities even where the gain is entirely to the company, provided the latter shows that it really needs the help.

Electric Freight Handling Is a Necessity

NO ONE has ever discovered for what mysterious reason a right-of-way railroad operated by electricity should rely mainly upon passenger business when exactly the same structure without trolley wire or third-rail would be pre-eminently a freight handler. If there

is any reason at all, it is that electricity was first applied to the street railway and therefore is still largely associated with passenger rather than freight operation.

Of course, there is nothing new in the argument that electric railways can and should—and some of them do—handle freight in a big way. What we think is new, however, is the way in which A. B. Cole has considered this more-than-timely subject in his article in this issue. Instead of rethreshing time-worn suggestions, he made a first-hand investigation covering specifically almost every situation which he describes, and where his own notes were lacking or incomplete he was able to reinforce them by the magnificent researches of the War Board of the American Electric Railway Association.

We believe that Mr. Cole's article and the War Board's digest constitute the best statement ever put together on what is now even more important to our government than to the electric railways, namely, the quickest possible handling of freight in the largest possible quantities with the smallest possible number of men. Clearly this means that there is little more than short-haul emergency use for the motor truck if the electric, like the steam, railroads are properly exploited.

As we summarize the situation, only four obstacles are now in the way of such exploitation. The first of these, the removal of local franchise restrictions, would not cost a cent. The second, interchange privileges with steam railroads, would bring many railroads into the big freight-handling class also at little or no expense. The third, new equipment and larger terminals, would cost some money but would be by far the least expensive as well as the quickest way of securing the com-

Prepare to Haul Freight

One of the ways in which the electric railways of the country can help the nation at the present time is to assist in hauling freight. The steam railroads are congested and are not able to carry all the freight which is offered to them. The electric railways can take much of this overload to better advantage than can motor trucks or any other means of transportation.

Electric railway companies should not only prepare their properties to handle this business, but, if local restrictions stand in the way, efforts should be made to have them removed. Then shippers should be urged to use the electric lines. At present many companies are devoting themselves entirely to passenger transportation, while most others are engaged principally in this kind of service. On electric railways taken as a whole the possibilities of freight haulage have hardly been touched. The effort to increase our freight business is now a national duty. P. H. GADSDEN,
Resident Member at Washington, D. C.
Electric Railway War Board

modity sought—namely—more transportation. The fourth, the closing of existing gaps in interurban networks, would take some more money, but the amount required would be only a fraction of the hundreds of millions of dollars in roadway building and maintenance demanded for motor trucks, which are so short in life, costly in upkeep, wasteful in fuel and prodigal in men.

Advertise Clean-Up Week and Practice Its Precept

AT THIS TIME of the year there arises in many communities an appeal to clean up yards and vacant lots. This is known in certain localities as the annual "clean-up week," being sponsored by civic organizations and city authorities mainly on sanitary grounds. Electric railways in many cities and towns have joined in the campaign with enthusiasm, and for the little effort and money expended there is often a return in the form of good-will which is worth going after.

There are two ways in which traction companies can do their bit in clean-up work. One is to turn the broom and hose on their own property and equipment. Too frequently there is basis for unfavorable comment on the unsightly appearance of cars which may need only a scrub brush to make them more presentable. The vacant space around car stations also is often covered with rubbish. If the electric railway manager feels that he has nothing to look after in either of the particulars cited above, he may find it to his advantage to display posters in his cars calling attention to the clean-up campaign.

Use Specialized Research to Supplement Association Committees

THE Southwestern Electrical & Gas Association is not the largest but it is one of the liveliest of our public utility organizations. This has been proved again in the resolution of the April convention to establish at the University of Texas scholarships in connection with fuel and lubricants.

It may be presumptuous to say so, but we believe that the associations in our industry have failed to solve many a problem because of too much dependence upon committee work and too little dependence upon university or other outside investigators. To-day, while fighting the German menace, we should not forget that the efficiency which made that menace possible is very largely the result of specialized, scientific research. When a German association was faced by a knotty problem, its committee did not hesitate to employ an outside expert. The German Street & Interurban Railway Association, for example, engaged a metallurgist to assist in studies of rail corrugation.

The defect of committee work fundamentally is that the members are on it *con amore*; and often love of the job is not great enough to prevent all the duties from being foisted upon the chairman. If the chairman is able and sacrificing, we get a report of action; if he isn't, we get a report of "progress." In the rarer cases where nearly everybody works, we run the danger of a worthless collection of "ifs" and "whereases" because the algebraic sum of opposing views tends to approach zero.

Surely a great improvement would follow if the committee confined itself first to setting forth the problem to a specialist engaged to solve it and then to subjecting his studies and conclusions to analysis from an operating standpoint. Instead of sending out a data sheet, the specialist would visit enough properties to determine for himself the limitations of local conditions, or, if it were a question for laboratory analysis, he would have all the means at hand to do the work in a scientific way.

Take so simple a matter as that of testing the life, chipping and breaking of motor brushes, for example. Can the railway manager be sure that whenever a shopman substitutes new brushes for worn ones he properly records the number, type and name of those so replaced? A look at the average shopmen will give the answer!

Indeed, there are many problems that the industry could solve quickly by specialized research—problems of energy saving in the plant and on the car; of varnishes, paints and insulations; of some features in track and line construction; maybe even systems of fare collection! As most of our associations operate to-day, too much is left to slipshod generalizations from offhand opinions and too little to data gathered in the field or the laboratory by a recognized specialist.

Publicity Work at Home Must Now Be Done by the Railway Companies

THE decision of the Court of Appeals in New York State that the public service commissions have no power under the State constitution to raise fares upon electric railways, operating under franchises which stipulate the maximum rate of fare, simply intensifies the necessity for comprehensive and convincing local publicity work by the companies concerned. Permission to increase fares above the franchise rate must now come from the local councils or, in New York City, the Board of Estimate and Apportionment.

Public service commissioners are men who have become educated in the intricacies of the electric railway business. In placing before them the details of the situation, both financial and operating, electric railway managers address men who know the field and understand its language. More important, the men addressed have already learned that the interests of the public service corporations and the interests of the public are not opposed to each other. They understand perfectly the essential equities—that just as labor is entitled to a good wage, just as superintendence is entitled to good pay, so is the invested capital which makes the public service possible entitled to its fair return.

While commissioners, like all of us, are human, the courage of public service commissions throughout the country to make just decisions in the face of possible political opposition has been amply demonstrated. The difficulties of making the average common council, which can give but little time to electric railway matters, understand the situation in all its complicated bearings and then act justly regardless of the probable political effect, is, in the very nature of things, a much more difficult task. Common councils are hostile to rate advances from the start. Only overwhelmingly convinc-

ing evidence can be expected to change their minds. A certain few must be expected to vote, regardless of proofs, according to the dictates of immediate political expediency as they see it.

The task before the electric railway companies, in short, is a task of complete community education, each company for itself, according to the exigencies of its local problem.

But in all cities the leading thought to be driven home is the same—the value of service. And it must be brought home, not in terms of abstract justice but in terms of dollars and cents. Bad service costs everyone far more than increased fares. No man can sell his house and lot, his farm or factory, for as much if the trolley line running by it gives poor service, as he can if the service is good. The wage worker who owns no property loses in time far more by bad service than the extra car fare would cost. That cost at the most, on two rides a day, for 314 working days, would be \$6.28 a year.

To choke a trolley company until it is black in the face does the city and the car rider no good. It lessens the company's power to give good service.

It often happens that a local newspaper has so committed itself against fare increases that it cannot be expected to reverse itself. But the prosperity of newspapers, as of politicians, depends upon the public good-will. It cannot persist in a policy opposed to the well-being of a town and of its readers, without suffering harm. So in the last analysis, the company must convince the community. That's the only answer.

On the whole, there will be a compensation for this necessary extra effort. The public's good-will will be gained—nay, it must be gained, since to win before the public service commission a verdict for higher fares that would be unpopular at home, would, after all, be a Pyrrhic victory.

Railways Should Help Employees to Start Vegetable Gardens Again

A YEAR ago many electric railways assisted their employees to start vegetable gardens. The purpose was partly to assist the individual employees to reduce their cost of living by raising a part of their food supplies and partly to increase the food supply of the country.

These reasons apply just as strongly now as twelve months ago so that the same efforts should be continued, and increased, this year. They should certainly not be relaxed. The National War Garden Commission has issued some "Garden Primers" to encourage just this sort of home cultivation and can be depended upon to help. Owing to the late spring there is still ample time to put in seed and plants but not a day should be lost from now on.

The Pennsylvania Railroad reports that its employees east of Pittsburgh last year planted approximately 1200 gardens on company lands and raised crops of an estimated value of \$250,000. This railroad has offered to rent ground belonging to the company to its employees at a charge not exceeding \$1 per acre for the season and for tracts of more than an acre a charge not exceeding 50 cents per acre for the season will be made. One argument urged for the inauguration of the day-

light saving plan was that it would help in the establishment of these war gardens. Now that daylight saving is here, people should take advantage of it.

A Useful Application of Electric Generator Armature Reaction

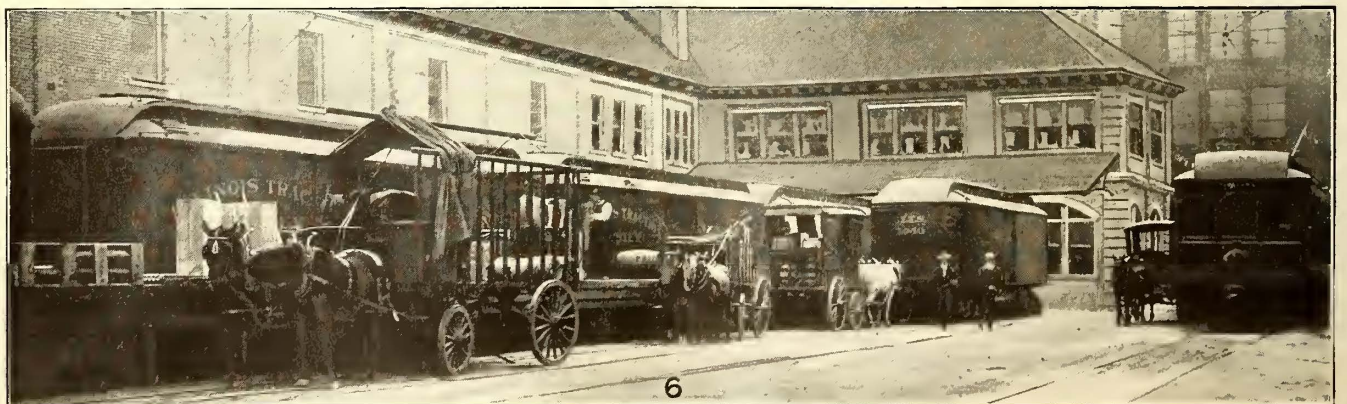
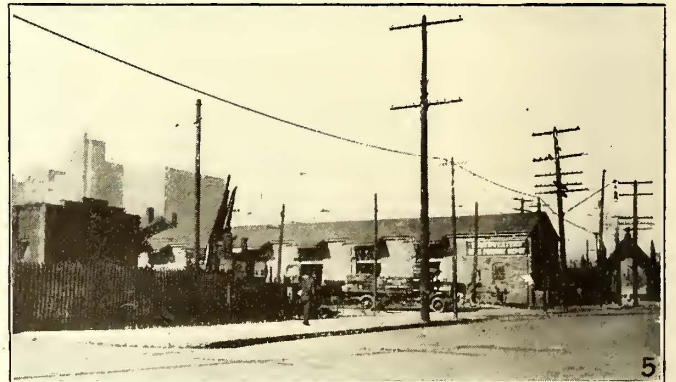
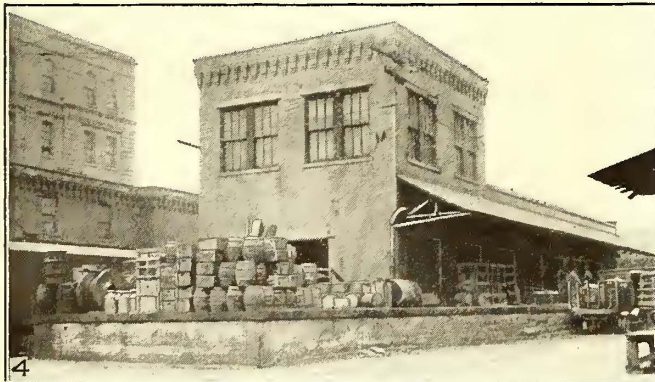
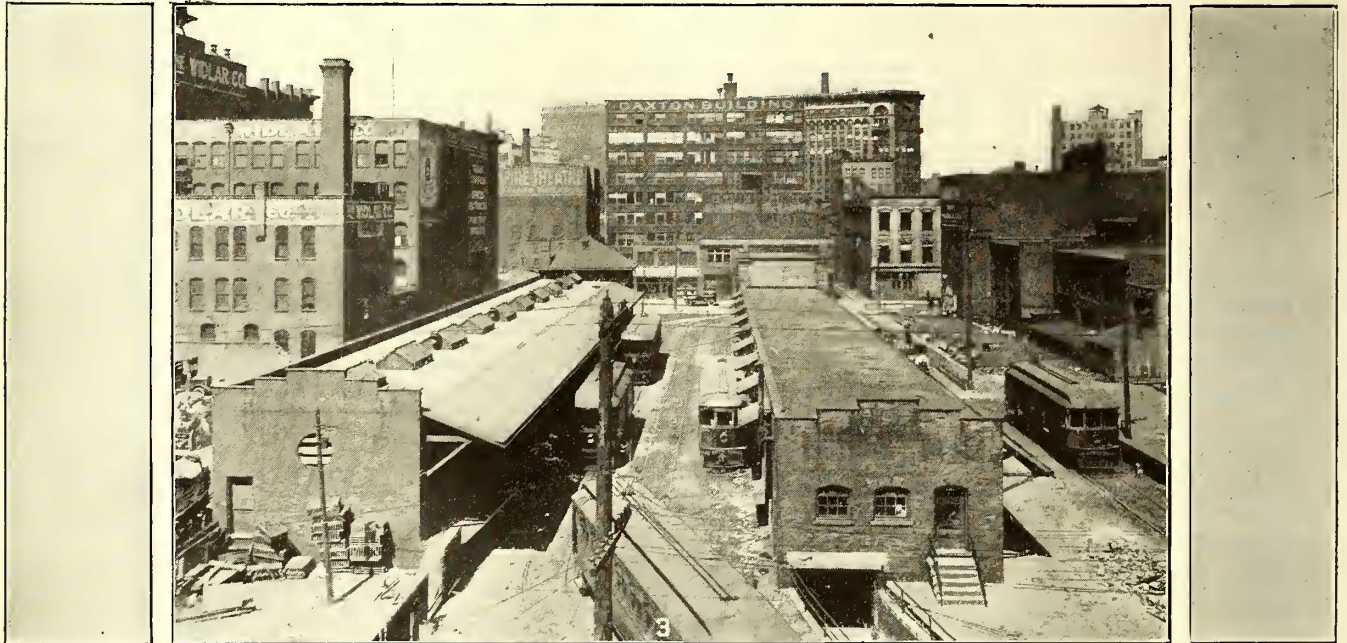
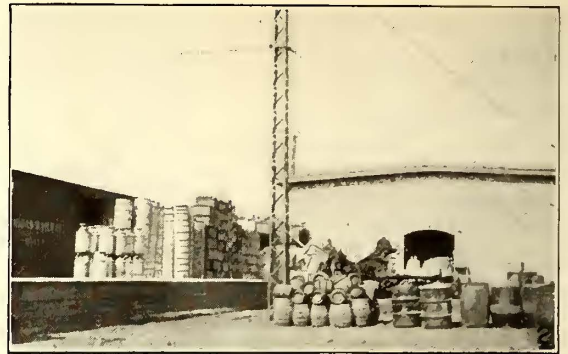
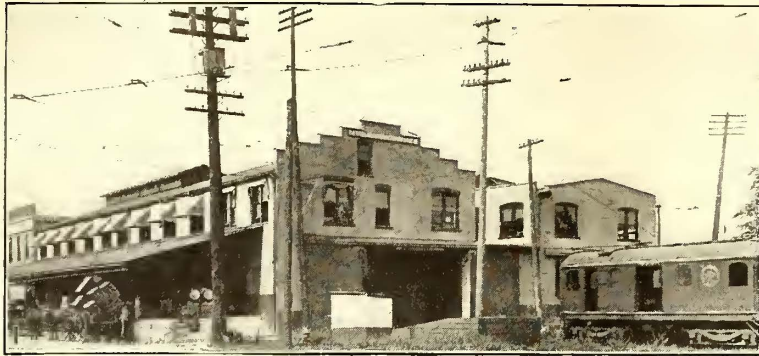
IN LAST WEEK'S issue of the ELECTRIC RAILWAY JOURNAL there was described a device for short-circuiting the armature windings of a direct-current generator in order to prevent "flashing," or the jumping of an arc from brush holder to brush holder. This device short-circuits for an instant first the direct-current brushes and a few thousandths of a second later it short-circuits three collector rings tapped into the armature windings like the rings of a rotary converter. In case of excessive overload on the machine, such as might cause flashing, the generator is protected in the manner indicated while the main circuit breaker is coming into action.

This interesting device involves a number of fundamental principles, one of which in particular deserves special mention. When the alternating-current short-circuit occurs, large alternating currents flow through the collector rings and windings. These currents are of low power factor because the reactance of the local circuit is high compared with the resistance. They therefore produce a magnetizing force opposed to the main field, greatly decreasing or practically neutralizing the latter and so reducing the direct current voltage produced by the machine.

The above phenomenon illustrates the intimate magnetic relation of the armature and the field of an electric generator and brings to mind a somewhat analogous case which had an important bearing upon the early success of the electric railway generator. Pioneers in the electric railway business will remember the terrific sparking which characterized the early multipolar railway generators. This was largely due to the impracticability of making the several paths in the armature winding produce exactly the same voltage. Then when all the brushes of the same polarity were connected together there were fireworks, sometimes startling, at the commutator. Flash-overs also were frequent.

When the rotary converter was invented it was noted that this machine did not spark like the ordinary direct current machine and it was found that the improvement was due to the collector rings which were each connected to the winding at a number of equipotential points. Analysis showed that alternating currents circulated locally in the windings, of low power factor on account of the relatively high reactance. These currents reacted on the poles, weakening the strong ones and strengthening the weak ones, thus equalizing the voltage in the several armature paths. The application of equipotential or bonding rings to the multipolar generator followed as a matter of course. It had the desired effect, and destructive sparking largely became a thing of the past.

This early experience is mentioned here partly because suggested by the new "flash suppressor" and partly because it is well now and then to remember how much of present comfort we owe to the inventors of the past.



A FEW ELECTRIC RAILWAY FREIGHT STATIONS

Fig. 1—Illinois Traction System—Springfield, Ill.
 Fig. 2—Michigan Railway—Grand Rapids, Mich.
 Fig. 3—Electric Package Agency—Cleveland, Ohio

Fig. 4—Ft. Wayne & Northern Ind. Traction Co.—Ft. Wayne, Ind.
 Fig. 5—Cleveland, Southwestern & Columbus Ry.—Cleveland, Ohio.
 Fig. 6—Illinois Traction System—St. Louis, Mo.



A 60-TON ELECTRIC LOCOMOTIVE AND TRAIN, WATERLOO, CEDAR FALLS & NORTHERN RAILWAY

Electric Railways Are in a Position to Haul More Freight

By A. B. Cole

In Co-ordination with the War Board of the American Electric Railway Association

The author has recently made an extended personal study of the freight carrying facilities of electric railways. From the data thus secured and from those compiled by the War Board, he is able to point out how electric railways, in general and specifically, can relieve a large proportion of the present traffic congestion, particularly when helped by the removal of local franchise restrictions, the extension of steam railroad interchange arrangements, and federal aid in financing the purchase of new rolling stock, the carrying out of track alignment and the improvement of terminal facilities

IN THE MINDS of our public and government, the electric railway is associated only with the transportation of passengers. This is deplorable, since it means that thousands of miles of track are being used only a very small portion of the time and for only a fraction of their capacity instead of fully sharing the burden of carrying the greatest freight movement

in the history of American railroading. It is true that the steam railroads are best fitted for long through hauls, but an investigation of our electric railways will disclose some surprisingly long hauls, as well as indicate what the addition of a few miles of track here or there, the removal of local franchise restrictions, the increase of motive power and car equipment, terminal facilities, etc., could do to relieve the steam railroads of burdensome local passenger and freight service, particularly the latter.

Many of the interurban electric railways, especially those constructed during the early development of this class of transportation, gave little attention to the movement of freight. Those built in more recent years have been devoting more attention to the development of this

service. Fortunately enough instances exist to prove not only that electric railways can do great things to relieve freight congestion, but also that they can do it in the fullest co-operation with their older steam brother. Where there is a duplication of facilities, as between a steam railroad and an electric line, the facilities of the electric line should be used to their maximum capacity to re-

lieve the steam line of the short-haul traffic. The general equipment, the motive power and cars of the steam railroad which are used in this short-haul service could then be released for long-haul through freight and passenger service. Thus the present unprecedented congested condition of the steam railroads could be very materially relieved.

The unused and undeveloped facilities of the electric railroads of the country are of such magnitude and can be made available in the present crisis at such a comparatively small cost that it would seem extravagant and wasteful, both in man power and in money, were the government to countenance the much discussed motor-truck transportation plan before the freight carrying power of the electric roads has been fully developed.

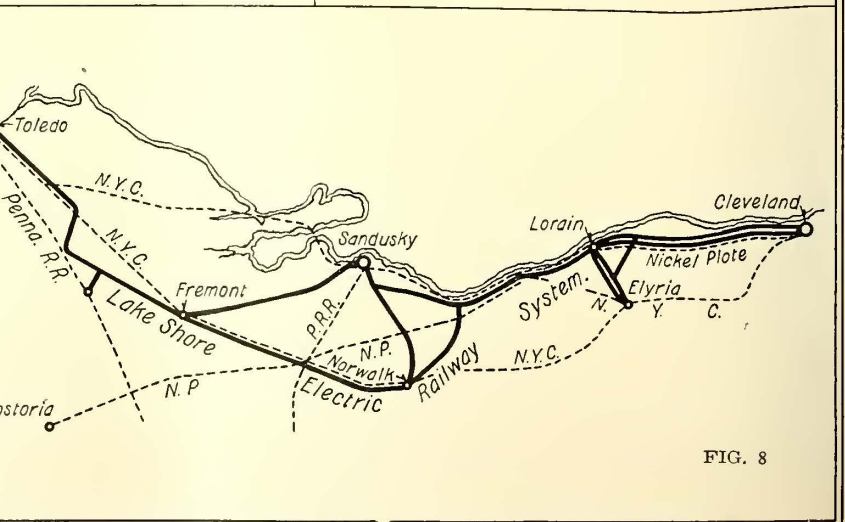
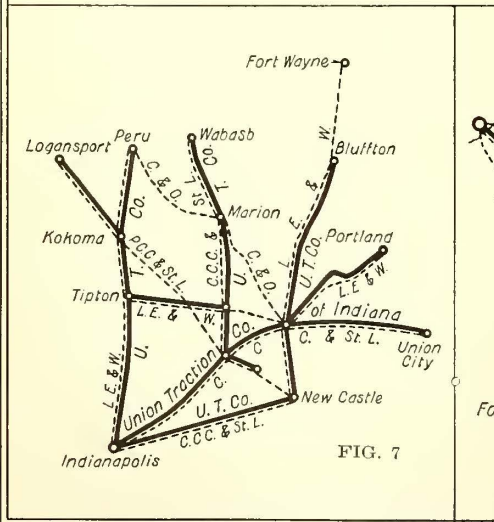
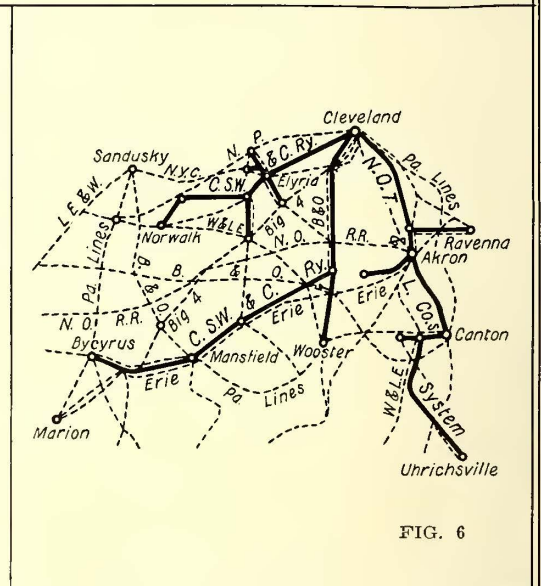
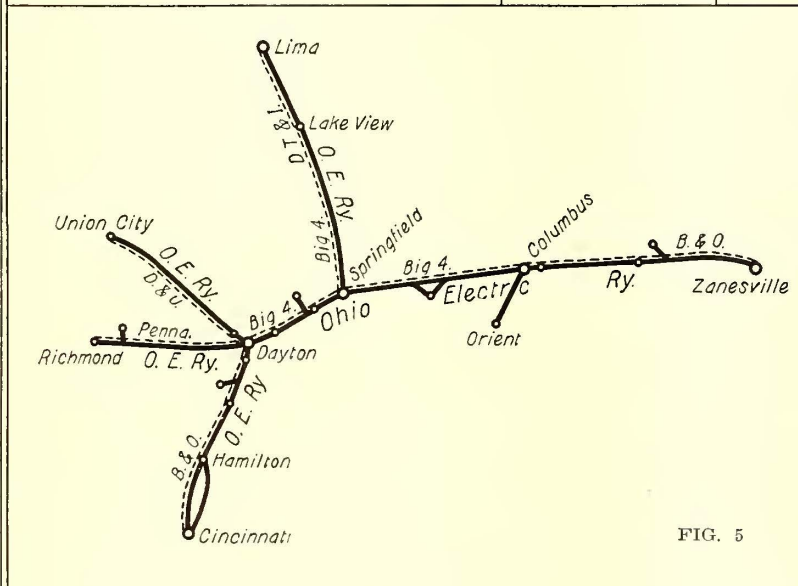
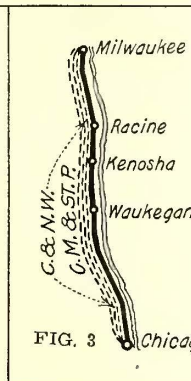
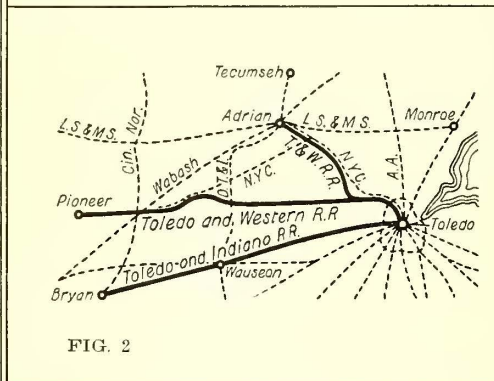
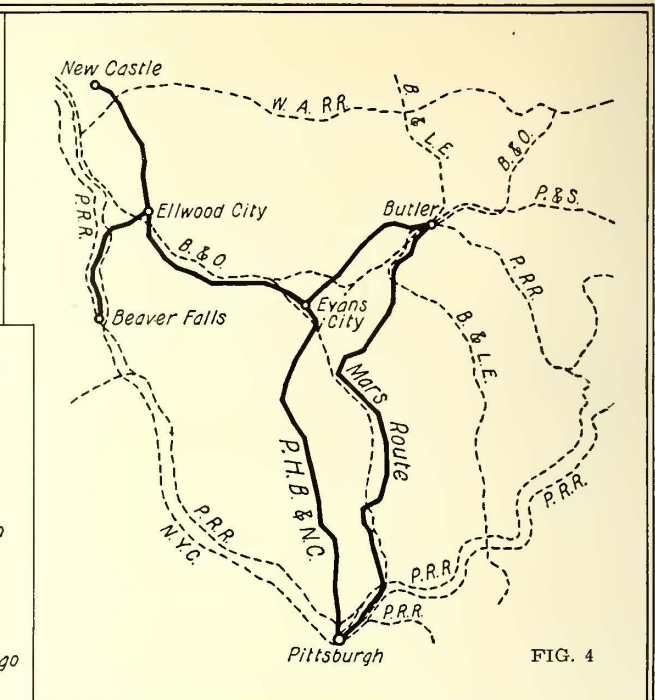
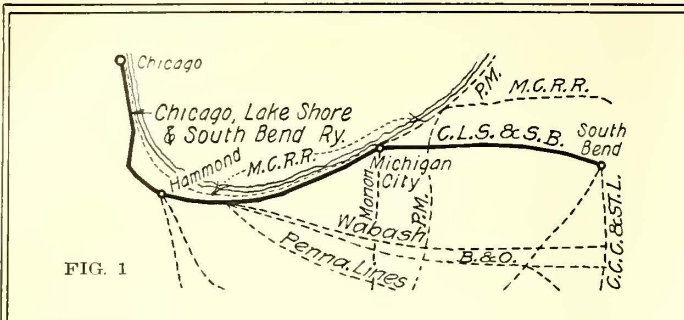


Fig. 1—Chicago, Lake Shore & South Bend Railway
 Fig. 2—Toledo & Western and Toledo & Indiana Railroads
 Fig. 3—Chicago, North Shore & Milwaukee Electric Railroad
 Fig. 4—Pittsburgh, Harmony, Butler & N. C. and Pittsburgh Mars & Butler Railways

Fig. 5—Ohio Electric Railway
 Fig. 6—Cleveland, Southwestern & Columbus Railway, Northern Ohio Traction & Light Company
 Fig. 7—Union Traction Company of Indiana
 Fig. 8—Lake Shore Electric Railway

DUPLICATION OF SERVICE—SOME SPECIFIC INSTANCES WHERE ELECTRIC RAILWAYS CAN HELP THE STEAM RAILROADS. ELECTRIC LINES SHOWN IN SOLID LINES

The amount of relief which the electric railways can afford the steam lines is not to be measured merely by the tonnage handled, but by the increase in the physical capacity of the steam railroads, through the elimination of long waiting at freight terminals, thus conserving fuel and labor by a reduction of standing time.

The capacity of the steam railroads for through passenger and freight service would be materially increased were the local short-haul traffic handled by the electric lines, and the steam road relieved of odd movements due to local passenger trains, way-freights, and switching, which tend to slow up the through service and impede terminal operation.

An immediate step of most importance in the relief of traffic congestion is the elimination of needless duplication of service by steam and electric lines. A study of seventeen typical cases taken from data secured from the War Board of the American Electric Railway Association and shown in the accompanying maps will indicate the prevalence of this condition.

A Few Specific Instances Where Electrics Can Help

Maps illustrating these conditions are shown on the opposite page and elsewhere in this article

An immediate step of most importance in the relief of traffic congestion would be to eliminate the needless duplication of service by steam and electric lines in the same territory. A study of the following typical cases taken from data collected by the War Board of the American Electric Railway Association will indicate the prevalence of this condition:

Northern Ohio Traction & Light Company (1) could readily relieve:

Pennsylvania Railroad at Cleveland, Akron, Ravenna, Barberton, Canton, Massillon, Canal Dover and Uhrichsville.

Baltimore & Ohio Railroad at Cleveland, Kent, Akron, Massillon, Canal Dover, New Philadelphia.

Wheeling & Lake Erie Railroad at Cleveland, Kent, Canton, Massillon.

Erie Railroad at Akron, Kent, Barberton.

This line can handle all steam road traffic between its stations.

Cleveland, Southwestern & Columbus Railway (2) can practically take care of all local freight business between terminals (Cleveland, Wooster and Bucyrus) relieving the New York Central, Baltimore & Ohio, Erie and Pennsylvania Railroads.

Lake Shore Electric Railway (3) is an important link in through interurban service between Cleveland, Sandusky and Toledo, forming an important connection for freight in and out of Detroit. This railway could handle all local business now carried by the New York Central, Nickel Plate and Pennsylvania Railroads between Cleveland and Sandusky and other points.

Chicago, North Shore & Milwaukee Electric Railroad (4) could handle carload and l.c.l. freight as well as Chicago packing house freight to Fort Sheridan and Great Lakes Naval Training Station. Movement of through freight in the Chicago district could be facilitated if carload shipments for points between Highland Park and Milwaukee could be delivered to the electric line, thus eliminating the delay in handling it through Chicago. This in turn would help to reduce congestion at Chicago terminals. The steam railroads favorably affected would be the Chicago & Northwestern and the Chicago, Milwaukee & St. Paul Railways.

Chicago, Lake Shore & South Bend Railway (5) could handle practically all local freight between its terminals, West Pullman, Ill., and South Bend, Ind., relieving the Baltimore & Ohio, Chesapeake & Ohio, Grand Trunk, Michigan Central, New York Central, Pennsylvania and the Wabash.

Michigan Railway (6) can handle both carload and l.c.l. freight. It has considerable equipment, including warehouse and team track delivery facilities at all stations. It could relieve the Pere Marquette, Grand Rapids & Indiana, Michigan Central, Grand Trunk and the New York Central Lines.

Grand Rapids, Grand Haven & Muskegon Railway (7) can care for all l.c.l. shipments originating at its terminals. In this particular case the electric line forms quite an important route between Chicago, Grand Haven, Muskegon and Grand Rapids via the lake boats of the Goodrich Transit Company. This line also forms an important link in through electric railway haulage from Grand Haven and Muskegon to points in Southern Michigan, Ohio and Indiana. Such changes would relieve the Grand Rapids & Indiana, the Pere Marquette, and the Grand Trunk Railways. The last-named serves the same towns as the electric for 28 miles.

Pittsburgh, Harmony, Butler & New Castle Railway (8) can relieve the following steam roads of practically all local freight business, in one of the most important war industry districts in territory served:

Baltimore & Ohio at Pittsburgh, Butler, Evans City, Zelenople, Ellwood City and New Castle—

Pittsburgh & Lake Erie at Ellwood City and New Castle—

Buffalo, Rochester & Pittsburgh at Pittsburgh and Butler—

Bessemer & Lake Erie at Pittsburgh and Butler—

Pennsylvania Railroad at Pittsburgh, Butler and New Castle.

Immediate Relief by Universal Interchange Far Greater than Through Motor-Truck Haulage

Admittedly there is at present a great shortage of freight cars, and the addition of 100,000 cars recently ordered by the Railroad Administration will only tend to ameliorate, not correct, this trouble. Other steps must be taken, and an important one is to increase the use of the existing cars. This the electric railway would be particularly able to accomplish, if universal interchange between steam and electric lines were established, because of the shorter time spent by freight cars in electric railway terminals.

There are enough electric railways having steam road clearances to be of material help; and in the meantime, through federal aid, others could be placed in physical shape for this service at not one-tenth the amount of money which would be required for the construction of highways for the use of motor trucks.

Detroit United Railway (9) can handle both carload and l.c.l. freight over its entire system, thereby relieving the Michigan Central, New York Central, Grand Trunk, Detroit & Toledo, Canadian Pacific, Detroit, Toledo & Ironton, Detroit Terminal, Wabash, Pere Marquette, Ann Arbor, Baltimore & Ohio, Hocking Valley, Pennsylvania, Wheeling & Lake Erie, Toledo & Ohio Central, Toledo Terminal, Detroit, Bay City & Western and Cincinnati Northern.

Toledo & Indiana Railway (10) can handle all local freight traffic between Toledo and Bryan, Ohio, by the steam railroads making more effective use of the Toledo Terminal Railway. This is a belt line connecting with the electric line. If the Detroit, Toledo & Ironton Railway (steam) would interchange with the electric line at Wauseon, Ohio, it would be possible to minimize congestion in this territory without the assistance of parallel steam roads. In general, the steam roads affected would be the Detroit, Toledo & Ironton, Toledo Terminal, New York Central, Cincinnati Northern and Wabash. The last three railroads are parallel to the electric railway.

Rock Island Southern Railway (11) could handle all carload and l.c.l. freight in territory served. It already handles much coal traffic. The steam roads that would be relieved are the Chicago, Rock Island & Pacific, Chicago, Burlington & Quincy, Chicago, Milwaukee & St. Paul, Minneapolis & St. Louis and Santa Fé.

Interurban Railway & Terminal Company, Cincinnati (12) could handle all local passenger and freight business between Cincinnati and Lebanon, Ohio, now carried by the Cincinnati, Lebanon & Northern Railroad. The electric line now has so little business that it is in the hands of a receiver. On the other hand, the grades on the steam line are so severe as to call for an uncomical, prodigal use of locomotives, two being needed for a three-car passenger train out of Cincinnati and two for a seven-car freight train over the same grade.

Aurora, Elgin & Chicago Railroad (13) can handle carload and l.c.l. freight business. The possibilities for extending the l.c.l. business is very great if proper terminal facilities were provided at Chicago. Carload business is now being handled quite extensively and team track freight facilities are provided to all points on the line and to industries adjacent to other lines. The steam roads relieved would be the Chicago & Northwestern, Chicago, Burlington & Quincy, Chicago, Milwaukee & St. Paul, and Chicago, Great Western. With the extension of freight interchange privileges, the steam railroads would be still further relieved throughout the Chicago district.

Union Traction Company of Indiana (14) could handle more l.c.l. freight, relieving the steam roads in this district. Here is a noteworthy example in that every one of the 400 miles of this system is paralleled by steam railroads. The roads directly affected are Lake Erie & Western, Big Four, Pennsylvania, Clover Leaf, Wabash, Chesapeake & Ohio, Central Indiana and Monon.

Terre Haute, Indianapolis & Eastern (15) is similar to the case of the Union Traction Company in being paralleled by steam lines. Hence it could afford much relief in l.c.l. business in the territory served by the Peoria & Eastern Railroad, Chicago & Eastern Illinois Railroad, Big Four Railroad, Pennsylvania Company.

Toledo & Western Railroad (16) can handle both carload and l.c.l. freight and reach any steam railroad entering Toledo through the Toledo Terminal Railway. The steam lines affected would be the New York Central, at Adrian, Palmyra, Blissfield, Riga, Sylvania, Morenci and Fayette; the Detroit, Toledo & Ironton, at Dennison, Ohio and Adrian, Mich.; the Cincinnati Northern, at Alverton, Ohio, and the Wabash, at Adrian, Mich., and Alverton, Ohio.

Salt Lake & Utah Railroad (17) can take care of carload and l.c.l. material in territory which it serves, increasing the present amount of freight handled by 300 per cent. This railway has a 50-ton electric locomotive in reserve. It has steam line connections and could greatly relieve the following railroads: Denver & Rio Grande, Los Angeles & Salt Lake, Utah Coal, Union Pacific and Western Pacific.

Among the electric railways handling steam road interchange traffic are the Fort Dodge, Des Moines & Southern Railway, the Niagara Junction Railway, the Toledo & Western Railroad, the Michigan Railway, the Inter Urban Railway of Des Moines, the Detroit United Railway, the Aurora, Elgin & Chicago Railway, the Chicago, Lake Shore & South Bend Railway, and the Waterloo, Cedar Falls & Northern Railway. Such inter-

change is especially desirable at this time. The results obtained by most of the lines in this group warrant due consideration of this traffic by electric lines wherever practicable.

The Waterloo, Cedar Falls & Northern Railway was the pioneer electric line to arrange with the steam railroads for the interchange of freight. As a result more than 70 per cent of the switching from

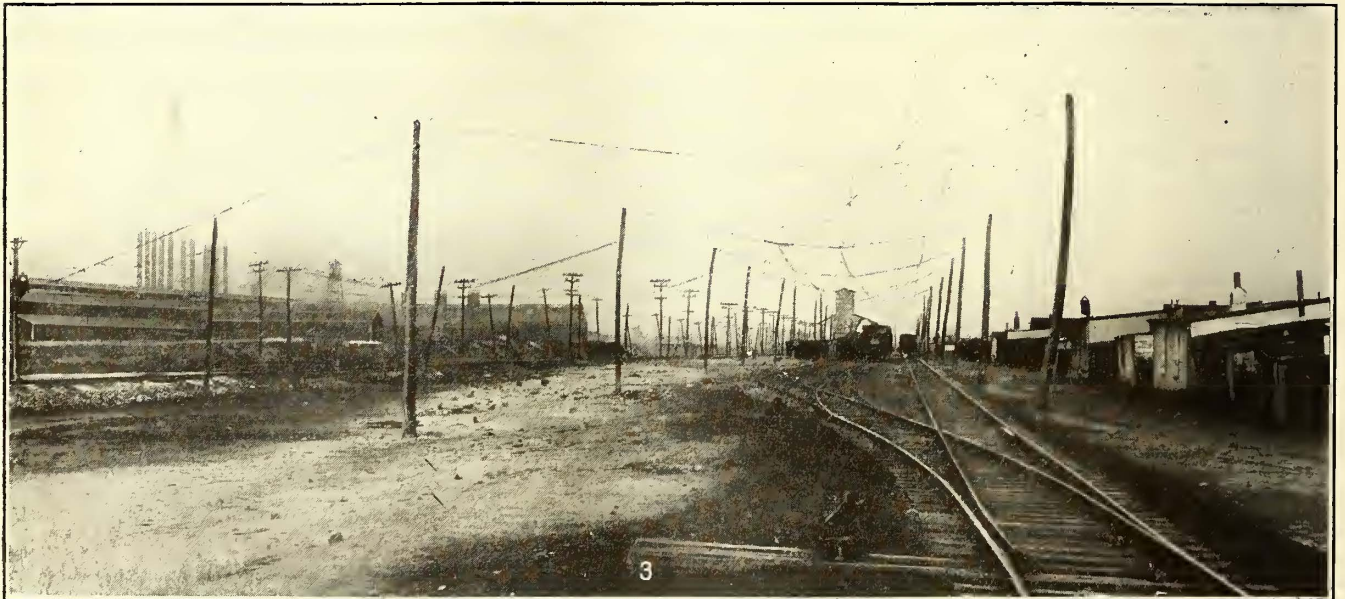
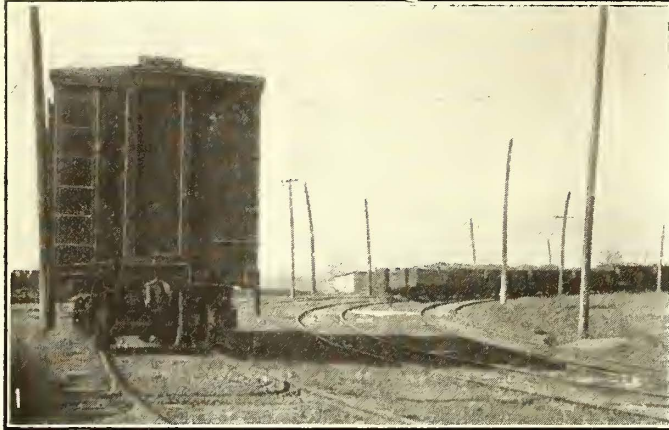


Fig. 1—Toledo & Western R.R. with Toledo Terminal Railway
 Fig. 2—Chicago, Lake Shore & South Bend Railway with Lake Erie & Western Railroad
 Fig. 3—Illinois Traction System

Fig. 4—Fort Dodge, Des Moines & Southern Railroad with Des Moines Union Railway
 Fig. 5—Illinois Traction System—Terminal Railroad Association, St. Louis, Mo.

steam roads entering Waterloo with its 175 factories is performed by this line. Similarly the several steam roads entering Cedar Rapids enjoy business from Northern territory due to the construction of the Cedar Valley Road. In other words, a 60-mile branch of the latter between Cedar Rapids and Waterloo forms a connecting link and feeder between the steam roads entering Cedar Rapids. At Waterloo, interchange connections are made with the Illinois Central. The accompanying table gives a better idea of the operations of this heavy freight carrier.

At Waterloo and other points interchange connections are made with the Illinois Central, the Chicago, Rock Island & Pacific and the Chicago Great Western Railroads. Just north of La Porte City, a comprehensive interchange track layout is located between the

serves as a delivery track and one as a receiving track. Leads from both steam and electric roads approach these two storage tracks at both ends.

How Quick Electric Freight Aids Food Conservation

The feature which should be borne in mind in any consideration of electric railway freight service is its promptness. The following instance shows how rapid transportation has a direct bearing on the conservation of our food supply.

When the steam railroads around Indianapolis were crippled last winter by unusually severe weather, the electric railways not only met the fuel shortage in isolated communities by supplying them with coal, but also answered the appeal of the Food Administrator to save

ELECTRIC RAILWAY FREIGHT YARDS

Fig. 1—East St. Louis & Belleville Electric Railway—East St. Louis Yard

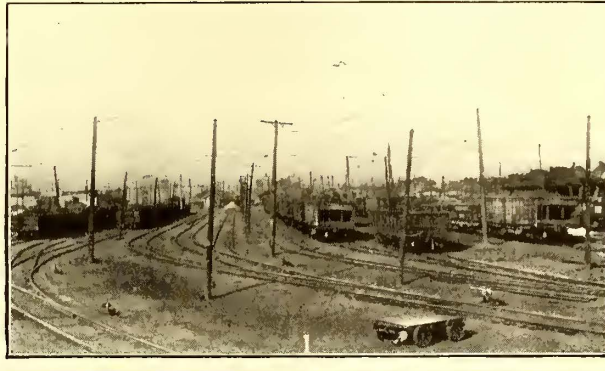
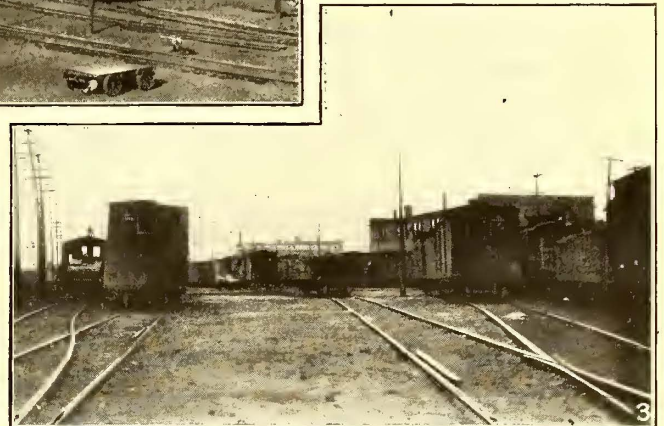
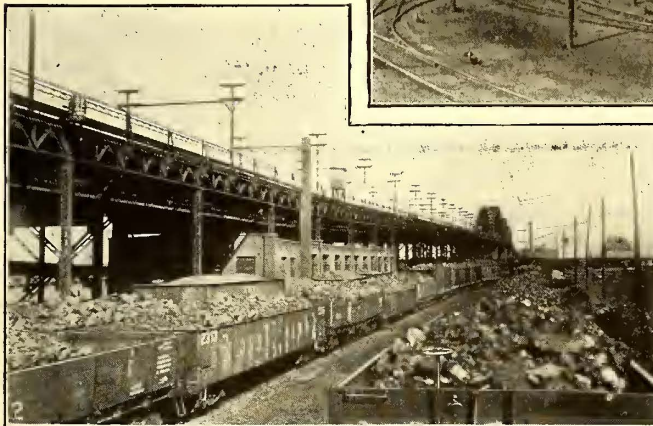


Fig. 2—Illinois Traction System—St. Louis Yard at McKinley Bridge

Fig. 3—Fort Dodge, Des Moines & Southern Railroad—Des Moines Yard



main lines of the Waterloo, Cedar Falls & Northern Railway and the Chicago, Rock Island & Pacific Railway on the adjoining right-of-way. This was built to relieve the interchange of track facilities between these roads in West Waterloo, and to serve for reception and delivery of freight from the South.

This interchange layout includes two parallel storage tracks each long enough to clear fifteen cars, one of which

cattle and hogs that were smothering to death owing to lack of steam road car for this traffic. As a result, the electric railways transported about 1000 carloads of livestock.

The electric railways also give faster service than steam under normal conditions. If a farmer has cattle for the Indianapolis market, he notifies the interurban a day or two in advance. Within two or three hours after loading the stock is at its destination. The poundage lost by cattle is so much less on the fast electric interurbans than it is on the through steam lines that the farmer actually saves the cost of transportation.

Such examples as this could be multiplied indefinitely as proof that transportation by electric lines can save vast quantities of perishable freight, whether in the form of livestock, vegetables or fruit.

What Physical Betterments Do Electric Railways Need?

A large number of electric railways are prevented from handling more freight by franchise restrictions which prevent an extensive development along this line. With such restrictions removed, many electric railways

FREIGHT CARS AND TONNAGE MOVED ON WATERLOO, CEDAR FALLS & NORTHERN RAILWAY DURING A TYPICAL MONTH

| System Total | | | System Total | | |
|--------------|-------|--------------|------------------|-------|--------------|
| Date | Loads | Empties Tons | Date | Loads | Empties Tons |
| 1..... | 53 | 13 2,915 | 16..... | 63 | 14 3,170 |
| 2..... | 57 | 10 3,385 | 17..... | 59 | 18 2,857 |
| 3..... | 72 | 27 3,730 | 18..... | 29 | 18 1,558 |
| 4..... | 56 | 23 3,675 | *19..... | 60 | 13 2,823 |
| * 5..... | 47 | 9 2,193 | 20..... | 60 | 21 3,194 |
| 6..... | 65 | 20 3,476 | 21..... | 66 | 18 3,447 |
| 7..... | 49 | 30 3,009 | 22..... | 59 | 28 3,109 |
| 8..... | 56 | 16 3,047 | 23..... | 62 | 33 3,184 |
| 9..... | 49 | 19 2,648 | 24..... | 57 | 17 3,004 |
| 10..... | 60 | 22 3,052 | 25..... | 26 | 21 1,459 |
| 11..... | 33 | 14 1,826 | *26..... | 53 | 27 2,675 |
| *12..... | 54 | 5 2,345 | 27..... | 53 | 5 2,636 |
| 13..... | 45 | 22 2,371 | 28..... | 53 | 16 3,057 |
| 14..... | 51 | 6 2,319 | 29..... | 67 | 9 3,209 |
| 15..... | 46 | 34 2,635 | †30..... | 24 | 8 1,226 |
| | | | 1,584 536 83,234 | | |

Switching service:—Waterloo Belt-Line Yard Engine handled 1717 loads and 1504 empties. *Sundays. †Thanksgiving Day.

would require only a little financial aid to be in a position materially to relieve the freight situation. These restrictions date back to the time of small horse drawn vehicles and appear grotesque to-day in view of the noise and damage produced by motor trucks in the very communities that will not permit a freight car to travel over its own rails.

Aside from franchise restrictions, however, the electricians need changes in physical alignment (such as easing of curves, construction of long double-ended sidings at way stations, freight cut-offs and belt lines), more terminal and yard facilities and more rolling stock. Of course, as this reconstruction would be for the purpose of fitting the electric railways to operate on M. C. B. standards, they could haul standard steam railroad cars in unlimited numbers.

Motor-Truck Development Costlier

Returning to the matter of finances, it is pertinent to mention that for only \$50,000 a 75-mile interurban was rebuilt to M.C.B. standards for locomotive freight service thus enabling it to move hundreds of tons at insignificant cost. How long would an expenditure of \$50,000, made and paid for by the public, last in buildings and maintaining motor trucks and highways?

It is obvious that \$50,000 would not go far in this direction.

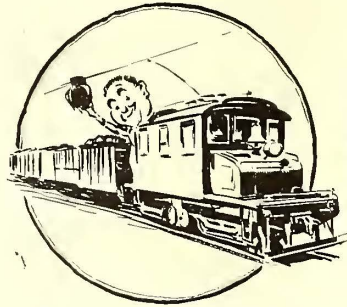
The motor truck has well demonstrated its worth in recent years, particularly behind the firing lines in France. There,

regardless of cost and the regular means of transportation have failed for one reason or another, where the motor truck has performed so effectively as to lead many to believe that it has miraculous powers and will in time supersede steam and electric railways as freight carriers.

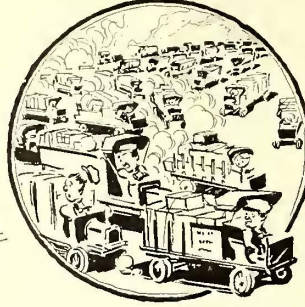
Motor truck haulage is a costly way of handling freight in quantity—costly from the standpoints of highway maintenance, first cost and depreciation of equipment, waste of fuel and lubricants, and, worst of all, waste of manpower. We need take only the figures of motor truck advocates themselves and place the most favorable

construction possible on them to appreciate the fallacy of their contentions.

Enormous sums also are necessary to prepare the roads for motor trucks. For example, a motor-truck advocate writes in the *New York Times* for April 14, 1918, that New York State and its counties alone have spent the staggering sum of \$140,000,000 for modern highways. What would a tenth of this sum do for the betterment of electric railway transportation in New York State, merely in affording a new all-rail route across

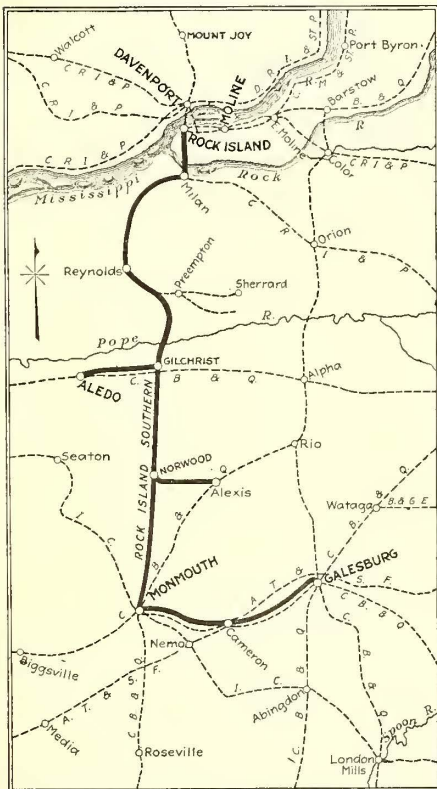


With a 500-ton electric train a maximum of three or four men is required

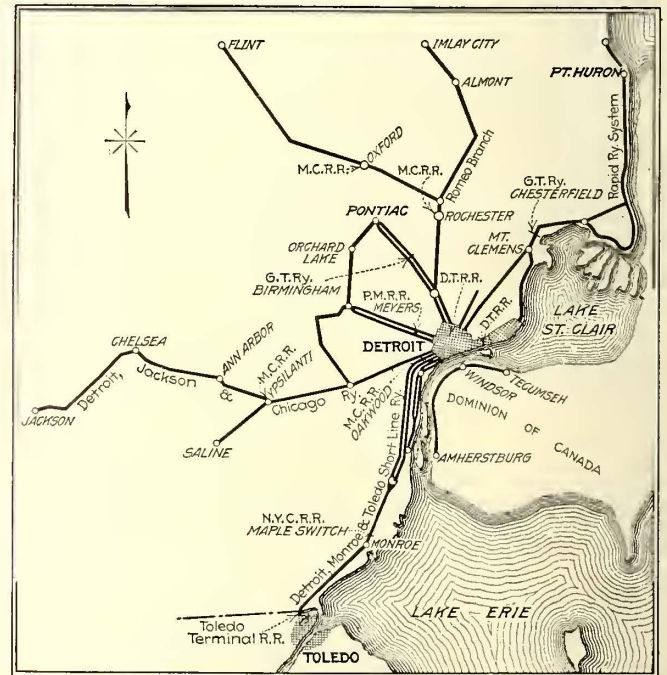


With 500 tons of freight handled by 5-ton motor-truck units, 100 men would be required

A STUDY OF MAN-POWER CONSERVATION



DUPLICATION OF SERVICE—ROCK ISLAND SOUTHERN RAILWAY (For details see page 895)



DUPLICATION OF SERVICE—DETROIT UNITED RAILWAY SYSTEM SHOWING STEAM RAILROAD INTERCHANGES (For details see page 895)

where the railroad facilities are generally inadequate and where results must be obtained, regardless of cost, the motor truck has been wonderfully effective in affording a quick, though costly, means of transportation over rough roads for comparatively short distances. There have been instances in this country, too, where material had to be moved without delay and

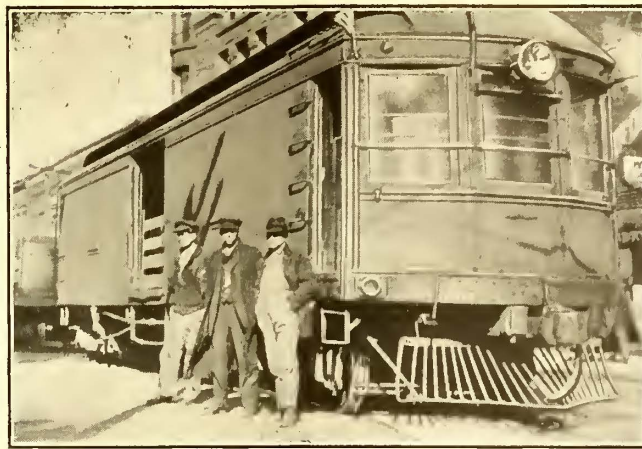
the State from Niagara Falls to Albany? Again, in the *Saturday Evening Post* for April 6, there is an almost casual reference to spending \$850,000,000 to make the national highways suitable for motor trucks; and, quite as casually, the suggestion is made that the motor truck because of its usefulness be subsidized by the government!

What the motor truck actually does to a modern brick highway is shown in an accompanying illustration of the Akron-Cleveland highway, over which there pass an average of seventy-five trucks every twenty-four hours. This road was newly paved only three years ago under special specifications prepared by County Engineer Stinchcomb, who said, on its completion, that it represented the highest type of country highway—the perfect road.

While it is true that the public pays the bill for improved roads (in most cases) it cannot be expected that the wholesale destruction of recently improved highways will be allowed to continue without objection on the part of the public.

There is now pending before Congress a bill to provide that the United States shall aid the States in the maintenance, repair and reconstruction of public roads subjected to extraordinary traffic by reason of the use of such roads by the Government of the United States. This calls for an appropriation of \$10,000,000.

The term "road" or "public road" in this bill includes bridges and culverts. If this bill is passed



FOOD CONSERVATION—INTERURBAN STOCK TRAIN

the money will be appropriated from the Treasury of the United States. If the regular avenues of transportation, viz: the railroads, both steam and electric, were used, this unnecessary expense account of repairs to roads due to the movement of these heavy trucks over the same could be saved. In this connection, in an article in the *New York Times* of May 5, 1918, Richard O. Smith, in charge of the Touring Bureau of the Automobile

Club of America, states regarding road conditions in one part of the country as follows:

"The travel on the New York to Washington road has been so large both by motor trucks and passenger vehicles that the main highway is badly worn in many places, and it is no easy matter to suggest favorable detours to insure comfortable travel. Several miles of the Lincoln Highway route through New Jersey and Pennsylvania are in very bad condition."

It is obvious that it would be much cheaper and very much better for the communities in cases of this kind to permit the electric railway to handle freight on its own rails and on streets which it maintains instead of spending vast sums for the benefit of an industry which does

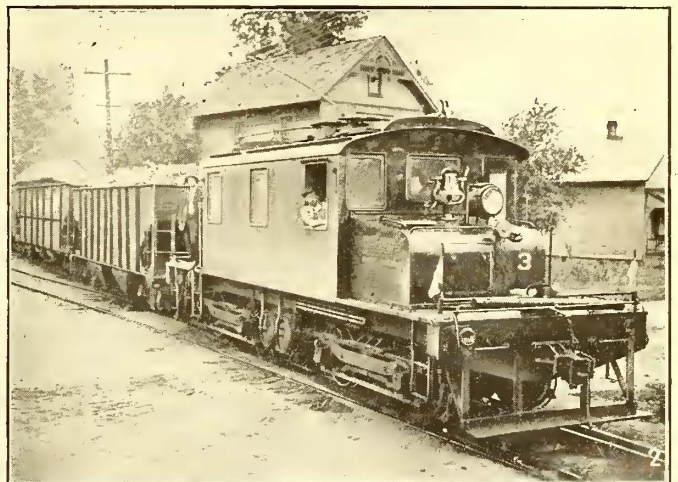
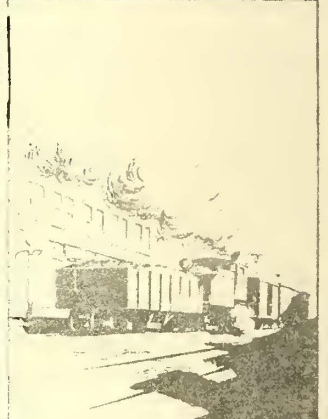
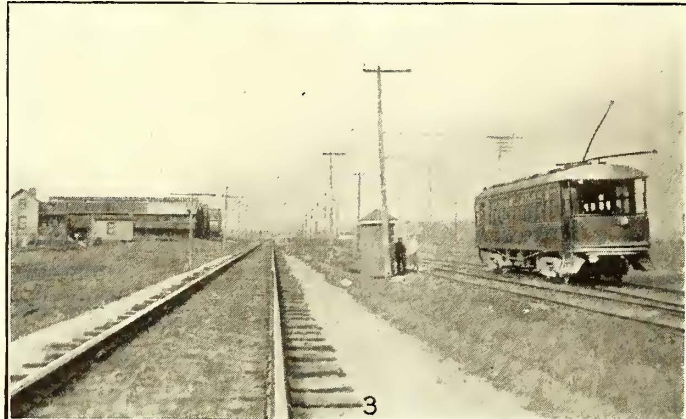
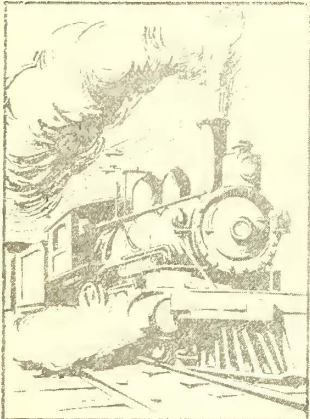
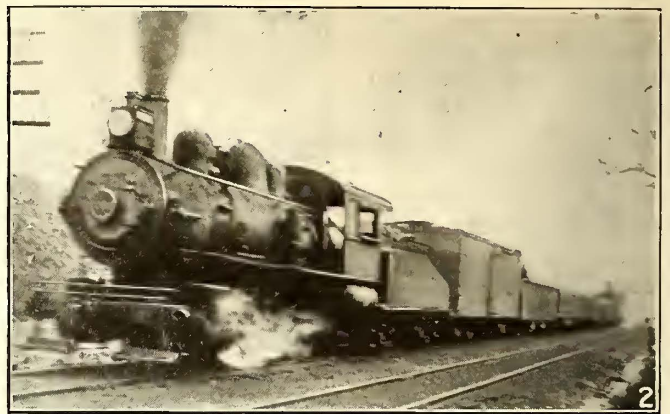
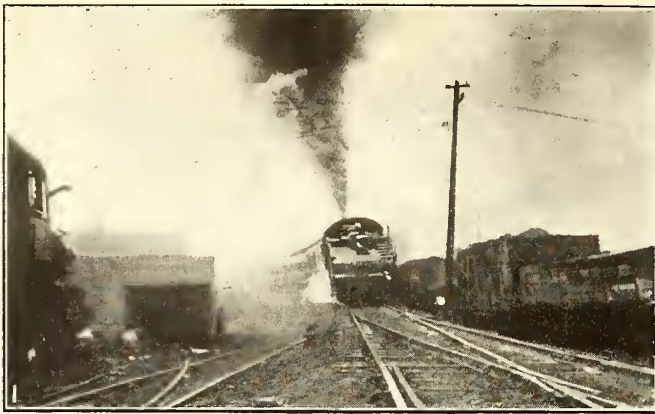


Fig. 1—Pacific Electric Railway
Fig. 2—Youngstown & Ohio River Railroad

Fig. 3—Toledo & Western Railroad
Fig. 4—Utah—Idaho Central Railroad

ELECTRIC LOCOMOTIVES IN STEAM ROAD INTERCHANGE SERVICE



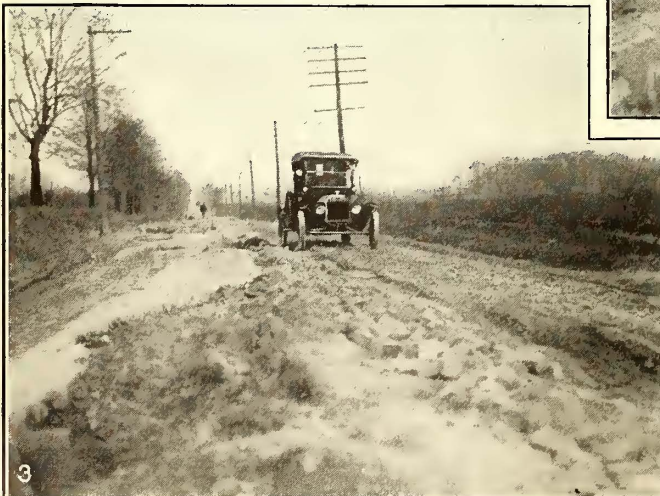
Figs. 1 and 2—Prodigal Use of Locomotives Where Electric Line Could Effect Saving in Fuel, Man-Power and Equipment

Fig. 3—Parallel Electric Line (Interurban Railway & Terminal Company, Cincinnati, Ohio) Could Handle Local Freight and Passengers

Where the Electric Railways Can Help

Fig 1—Truck-Operating Difficulties, Akron-Cleveland Highway
Fig 2—Effect of a Few Months Last Winter on the Perfect Road

Fig 3—Seventy-five Trucks Operate Daily on This Highway
Fig 4—Electric Railway Menace—Motor Truck and Trailer



not pay its keep in taxes. Nor can there be any argument as to the relative safety of motor truck operation over the public highways and train operation over a right-of-way.

The vaunted speed of the motor truck looks foolish alongside of normal electric railway service. For example, the projectors of a motor-truck service between Detroit and Toledo propose to run 5-ton trucks with two 5-ton trailers each, totaling 15 tons, at a schedule speed of 10 m.p.h., or six hours for the 60-mile run. Electric railway freight trains carrying 50 to 150 tons make the same run in three hours! Longer runs than this would put the motor trucks at a still greater disadvantage since they cannot make reasonable speed at night with

than four men, so that the haul per man was 250 to 375 tons per trip. The average speed ranged from 15 to 18 m.p.h.

Now, had this job been assigned to motor trucks, each driver would not have averaged better than 10 tons per trip, assuming that he could take such an unusually big load. Therefore, to haul 500,000 tons fully 50,000 men-trips would have been necessary compared with 1666 men-trips (assuming 300 tons per man) on the electric railway. In other words, if the motor trucks could have equalled the speed of the electric railway, they would still have required thirty times the man-power!

It follows that there could be no greater waste of



Fig. 1—Front end of out and inbound freight houses
 Fig. 2—House tracks—five of these between warehouses
 Fig. 3—House tracks—average of 100 cars per day loaded from these
 Fig. 4—Inbound freight house

Fig. 5—Outbound freight house
 Fig. 6—Team side outbound freight house
 Fig. 7—Team and storage yard
 Fig. 8—Loading carload freight

DETROIT UNITED RAILWAY—EAST SIDE FREIGHT TERMINAL

any degree of safety to themselves or others. On the other hand, a car on rails runs as fast at night as it does in the day.

Electric Railway Accomplishment On a 12-Mile Haul

The economic fallacy of the motor truck even for so short a haul as 12 miles can be realized from the wonderful achievement of the Inter-Urban Railway, Des Moines, in completely furnishing Camp Dodge by hauling some 10,000 standard steam road cars, totaling 500,000 tons of freight, in 1000 to 1500-ton trains of twenty to thirty cars each, and requiring not more

man-power than the unrestricted use of the motor truck, not alone in the number of men required for the trucks but in the additional men required for road upkeep, maintenance of a heat engine and increased manufacture of gasoline, which is needed far more abroad than here.

Instances that prove the economic inferiority of the motor truck could be multiplied indefinitely, but it does not follow that the more efficient rail transportation will be utilized as a matter of course. The establishment of regular schedules and routes, and of return load bureaus to enable trucks to return loaded, indicates that the motor truck is backed by men who are making the

most of the extraordinary conditions created by the war congestion of the steam railroads. The danger actually exists that both the railways and the public may be injured immeasurably by an uneconomical form of transportation because that form of transportation is backed by interests worth hundreds of millions of dollars. In short, the public sees the motor truck through the veil of romance.

How the Terminal Facilities Help in Handling Freight

The Detroit United Railways has been able to triple its freight-handling capacity by erecting a new terminal on the east side of Detroit and about 1 mile from the Detroit City Hall. The company has nearly completed an extensive new freight structure on the west side,

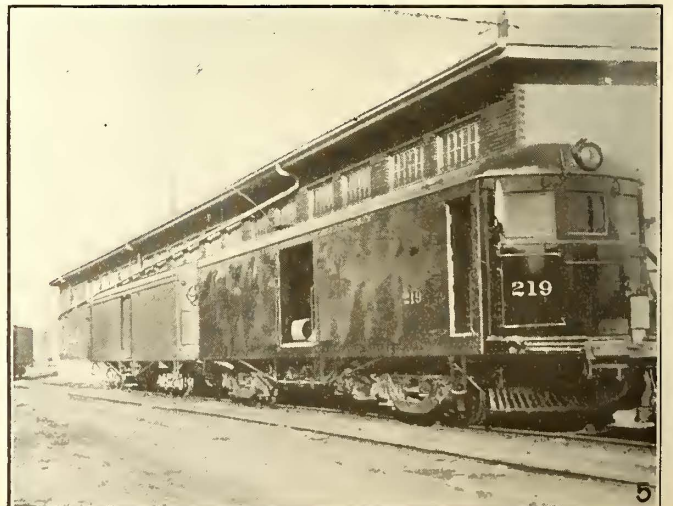
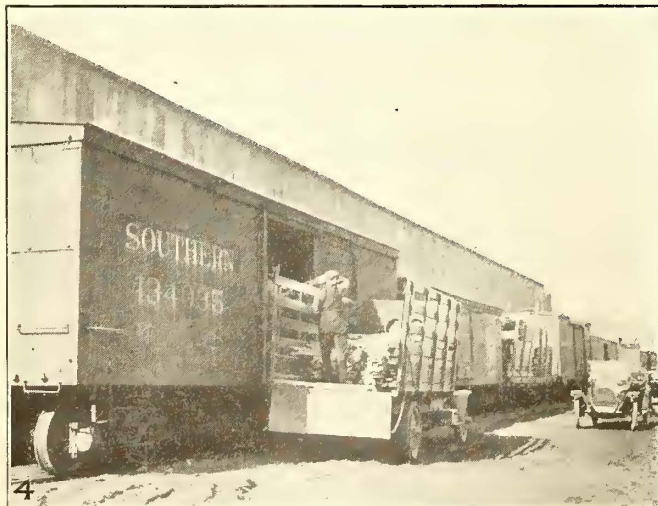
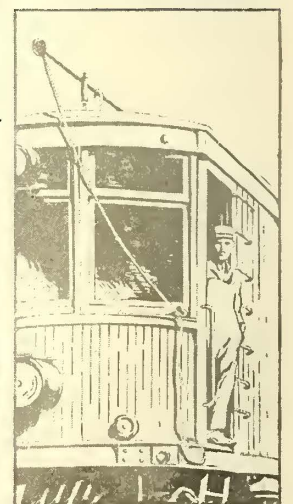
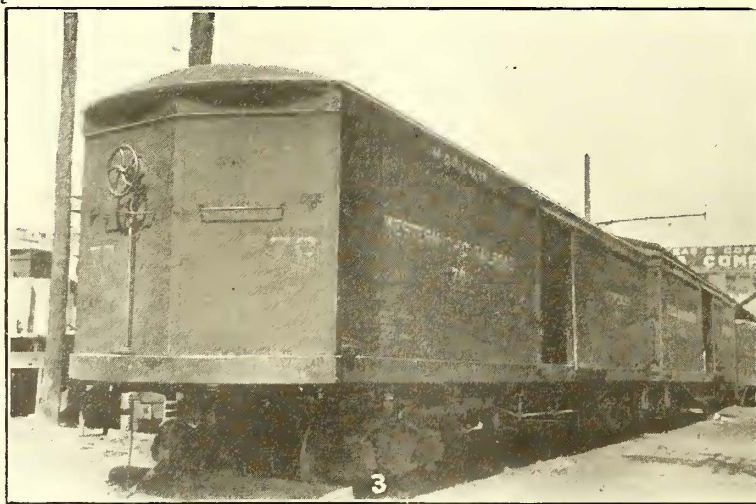
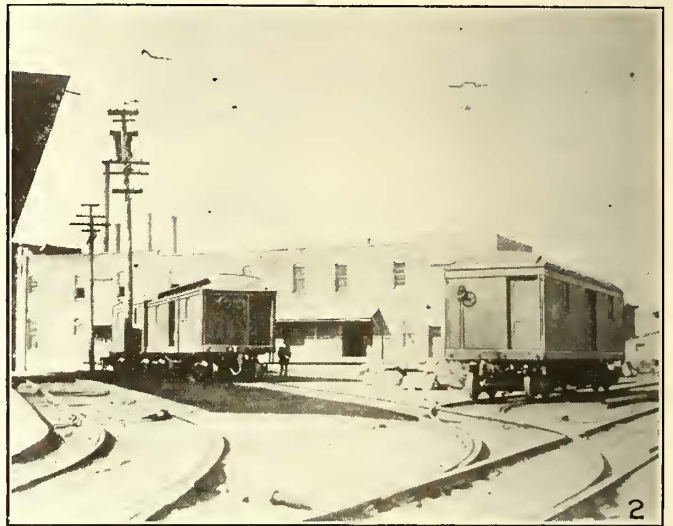
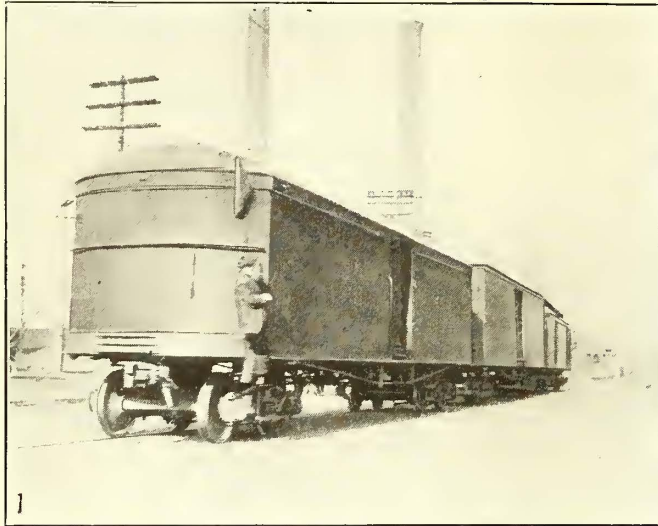
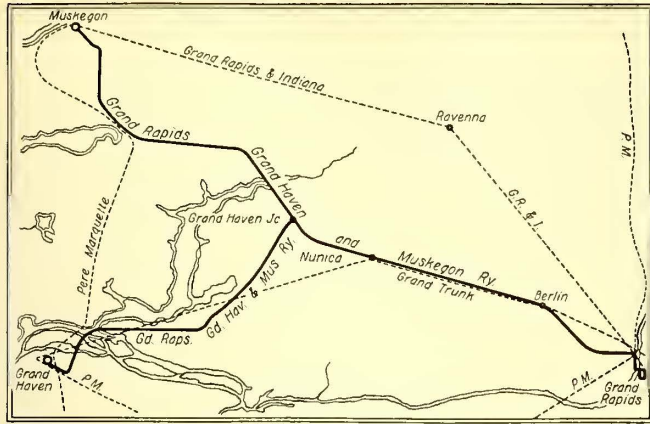


Fig. 1—Typical Interurban Freight Train in the Middle West
 Fig. 2—Ohio Electric Railway Freight Terminal—Springfield, Ohio
 Fig. 3—Western Ohio Railroad Freight Trailers

Fig. 4—Michigan Railway Freight Yard—Grand Rapids, Mich.
 Fig. 5—Michigan Railway—Motor-Freight Car and Trailer



DUPLICATION OF SERVICE—GRAND RAPIDS, GRAND HAVEN & MUSKEGON RAILWAY—(See Page 895)

How Detroit United Can Speed Up Air-craft Program

The Detroit United Railway system is so located that the industrial center which it serves could, through close attention to the proper routing of shipments, benefit to even a greater degree than at present from the fast service performed by this line. In the Detroit territory companies manufacturing air-plane motors have often been obliged to make shipments by express because of not being able to get them over the steam roads fast enough. This is very expensive compared with the practically express type of electric freight service of the Detroit United. Although the steam roads have sidings into the air-craft plants, there is no reason why the electric cars of the lines could not be "set out" at these plants for such shipments.

Detroit as a Center of Through Routes

All of the D. U. R. freight routes begin at Detroit. What may be considered the round-trip routes follow:

- Detroit to Pontiac—Four runs daily (except Sunday).
- Detroit to Flint—Three runs daily (except Sunday).
- Detroit to Imlay City—Two runs daily (except Sunday).
- Detroit to Jackson—Five runs daily (except Sunday).

which represents only one-half of the contemplated development when completed, but has been unable to construct the other half of the terminal because of lack of funds. In the meantime the building has been leased to an automobile concern as a drive-away garage.

The east side terminal occupies an entire city block.

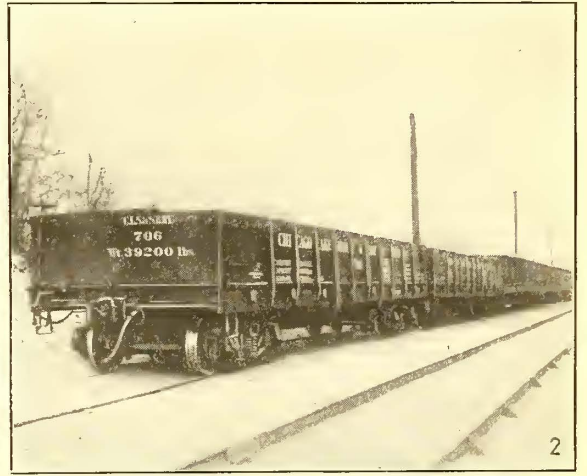
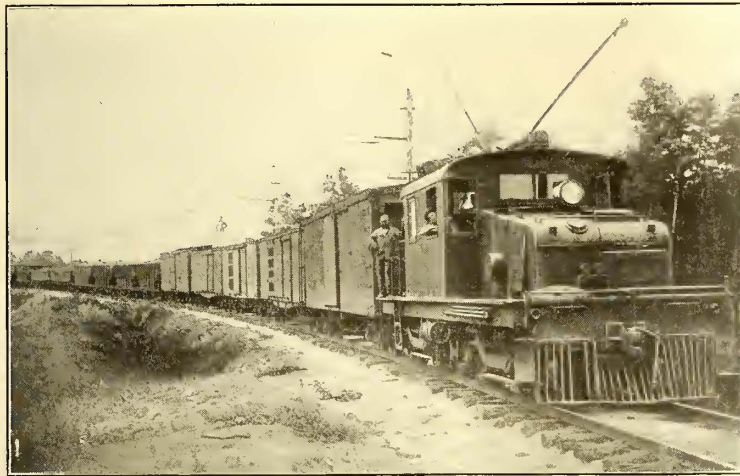


Fig. 1—Piedmont & Northern Lines—Heavy Freight Train. Fig. 2—Chicago, Lake Shore & South Bend Railway, Standard Steam Railroad Equipment

ELECTRIC RAILWAY FREIGHT ROLLING STOCK

The inbound freight house is 60 ft. by 405 ft. and the outbound 45 ft. by 405 ft. Between these two buildings is a yard, consisting of five loading or house tracks. The streets along either side of the freight house serve as a team and truck way to the station. In the block beyond that occupied by the building and house tracks are tracks for loading and unloading carload shipments. These include four team and storage tracks 600 ft. long, connecting between the two buildings and also the main line. All the facilities in this freight house are of the modern type. See ELECTRIC RAILWAY JOURNAL, April 21 and Aug. 11, 1917.

An average of ninety-seven to 100 cars a day are loaded out of the east side terminal of the Detroit United Railway, approximately 2200 to 2400 cars per month, which compares favorably with many a steam road terminal. Practically each one of these cars is equivalent in service to from three to five steam road cars, because many of them are motor cars, and make a large average daily mileage.

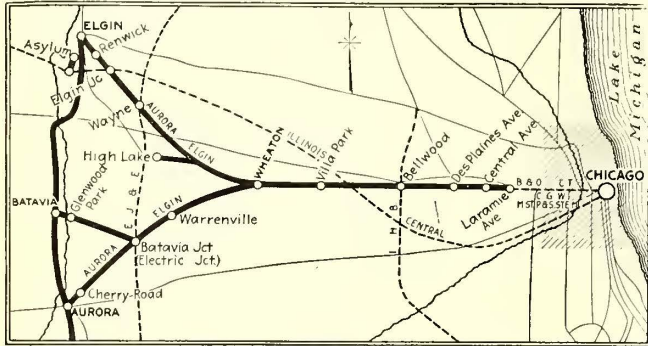
- Detroit to Ann Arbor—Two runs daily (except Sunday).
- Detroit to Northville—One run daily (except Sunday).
- Detroit to Port Huron—Two runs daily (except Sunday).
- Detroit to Mount Clemons—Three runs daily (except Sunday).
- Wyandotte and Orchard Lake—Two runs daily (except Sunday).



TYPICAL FREIGHT STATION, CHICAGO, LAKE SHORE & SOUTH BEND RAILWAY

There is a regular daily merchandise car service from Detroit to Saginaw and Bay City, via Flint; from Detroit to Battle Creek, Kalamazoo, Grand Rapids and other points in western Michigan, via Jackson over the Michigan Railways, and from Detroit to Lima, via Toledo, over the Toledo, Bowling Green & Southern, Western Ohio, Dayton & Troy Railway.

During last year a great many shipments were made over electric lines between all the points just mentioned.



DUPLICATION OF SERVICE—AURORA, ELGIN & CHICAGO RAILWAY, WHITE CIRCLES INDICATE TEAM LOADING FACILITIES FOR CARLOAD FREIGHT (See page 895)

At a time when the steam roads were greatly congested all over the country, manufacturers and consumers east of Michigan were greatly assisted by the electric railway lines in getting their materials transported. A movement of about seven cars of automobile parts a day takes place between Dayton, Ohio, and Flint, Mich. The ability of the Detroit United to increase this traffic is limited only by the supply of cars.

Michigan Railway Operates Heavy Trains

The Michigan Railway handles a considerable amount of steam road equipment between Grand Rapids, Kalamazoo and Battle Creek by powerful motor cars, each capable of hauling on a level as high as twenty-six freight cars. The average electric freight train out of Grand Rapids and Kalamazoo is from eight to ten cars in length. An extensive interchange business is carried on between the Michigan Railway and the Detroit United Railway.

The freight handled on this system is practically the same as that on any steam road, as it includes both less than carload and carload. A large amount of the latter goes daily out of Grand Rapids for all points connecting with this road, which includes southern Michigan, northern Ohio and Indiana. Much more relief could be given from Grand Rapids via the Michigan Railway to points in southern Michigan and northern Ohio if a very important gap were closed by the construction of an electric railway between Adrian and Battle Creek, or between Adrian and Jackson.

The freight operations of this road are extensive and they have grown so rapidly that the freight terminal built at Grand Rapids only three years ago is entirely inadequate for the service demanded. It has a yard capacity of twenty-eight cars, while the present traffic would require a forty-car yard. In summer from thirty to forty cars are handled daily, and throughout the year there are handled about twenty cars per day outbound and about fifteen cars inbound.

Steam railroad interchange is carried on by this road at the following points in Michigan:

Allegan—Père Marquette and Lake Shore Railroads.
Montieth—Grand Rapids and Indiana (Richland Junction).

Chicago, Kalamazoo and Saginaw—Richland Junction.

Battle Creek—Michigan Central.

Holland—Père Marquette.

Lansing—Père Marquette.

Bridgeport—Père Marquette.

Battle Creek—Reaching the Grand Trunk through the Michigan Central.

Michigan Railway Interline Service to Detroit and Points South

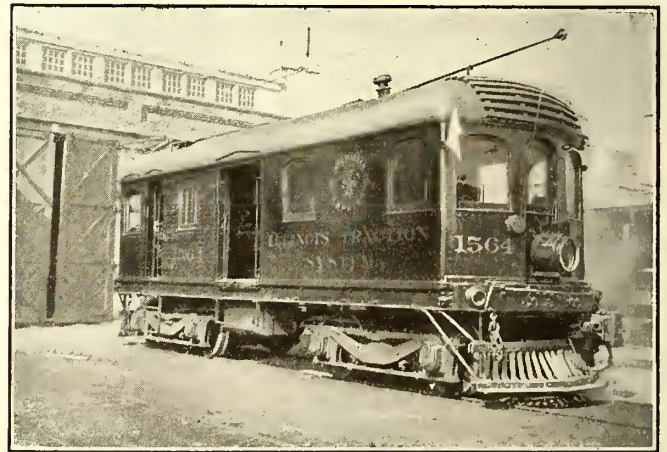
One of the outstanding features of the operation of the Michigan Railway is its flexibility in handling mixed freight equipment, both steam cars and electric trailers.

On the southeastern division, Kalamazoo to Jackson, there are four round trips per day. One of these is an Adams Express run, although this train also handles solid cars to and from terminals. Each train consists of from one to five interurban trailers. Two runs are in the day time and the other two at night.

On the northeastern division, Jackson to Lansing, two round trips are made daily, one during the day and one at night, both doing local work. There is also one round trip each day between Lansing and Owosso, and between Lansing and St. Johns. The freight motive power of this line consists of four steel, 55-ton freight motor cars, each capable of pulling a 500-ton trailing load and easily handling ten loaded freight cars, which is the usual length of train on this system between Grand Rapids, Kalamazoo and Battle Creek.

Electric Freight Terminal Required at Toledo

Toledo, Ohio, is a very important interurban electric freight center. Many cars from Michigan routed to points in Ohio and Indiana, go through this terminal,



ILLINOIS TRACTION SYSTEM—ONE OF EIGHTEEN 63-TON ELECTRIC FREIGHT LOCOMOTIVES

which at present is greatly congested and in no respect commensurate with the importance of the traffic handled.

At the same time there exists in Toledo a large steam freight terminal station belonging to the Toledo Terminal Railroad Company which is unused for the purposes for which it was built. Its location is such that it could adequately serve all electric lines entering the city. A part of the station could be used for passenger service. If this structure were released for the

use of the electric lines, conditions at Toledo would be very much improved. There are possibly similar cases elsewhere of steam railroad property that could be released to the electric lines.

Heavy Carload Carrier—Toledo & Western Railroad

The Toledo & Western Railroad, running due west from Toledo to Pioneer, Ohio, and with a branch running from Allen Junction to Adrian, does one of the most extensive interchange businesses of any electric line in the country. More than 75 per cent of the revenue is obtained from freight operation.

The organization of this line is similar to that of a steam railroad and, in fact, is considered as such by a

facturing district, could supply. During the off-peak hours enormous quantities of merchandise could be handled over the elevated and surface lines to and from the heart of the city by these interurban systems without any inconvenience or annoyance to the public.

The present elevated lines are used for passenger traffic only, and their economic value could be increased very considerably by their use for express and freight service.

The radiating interurban lines are not being operated at their full capacity and could very advantageously move any freight matter delivered to them from the elevated system. By this means the public would be much better and more profitably served than at present. The interurban lines maintain an express and freight



ILLINOIS TRACTION SYSTEM—FREIGHT ROLLING STOCK ALONG A TYPICAL BELT LINE

number of steam roads which have interchange agreements with the electric line. Such an important factor has this railroad been in the development in territory served that the real estate values have increased 100 per cent in the last fifteen years.

Interchanges are located at the following points:

Toledo, Ohio—Toledo Terminal Railroad and connecting lines.

Franklin, Ohio, and Adrian, Mich.—Wabash Railroad.

Denson, Ohio—Detroit, Toledo & Ironton Railroad.

Freight traffic has been increased to the point where an electric locomotive of 60-tons weight is required to handle some trains during the sugar beet season.

Chicago Franchises Restricting Electric Freight Haulage

Chicago city regulations considerably limit the service which the six electric interurban railways, radiating from the city into a very rich agricultural and manu-

service but are handicapped by reason of the location of their terminals, which are from 6 to 8 miles from the heart of the city. It is unreasonable to expect shippers to haul freight this distance when the facilities provided by the steam railroads for receiving such freight are convenient for downtown distribution.

There is now pending before the City Council in Chicago an ordinance which, if favorably acted upon, will enable the electric railways entering Chicago to carry freight and express matter over the elevated lines. This will open new important traffic arteries over the Aurora, Elgin & Chicago Railway, the Chicago, Lake Shore & South Bend Railway, and the Chicago, North Shore & Milwaukee Electric Railroad. These lines connect with the elevated structure and have cars that are designed to fulfill the clearance requirements at station platforms and on curves. Unfortunately, the franchise for the elevated lines specifies that no freight other "than mail and such baggage as is carried by hand may be moved

over the elevated lines." This limitation placed on the elevated lines prevents Chicago from enjoying an economic development of inestimable value.

Electric freight haulage in Chicago would greatly relieve steam railroad congestion by taking a considerable amount of short-haul traffic. Aside from providing facilities for carrying freight over the electric lines, including the Chicago Surface Lines, interchange with the steam belt lines operating in this vicinity would make the whole transportation system in Chicago and vicinity far more flexible and useful.

The "North Shore" Line Aids the Great Lakes Naval Station

The Chicago, North Shore & Milwaukee Electric Railroad, skirting the western shores of Lake Michigan between Chicago and Milwaukee, is in excellent position to serve the numerous industries located along its lines. Although it went into extensive freight operation but recently, many of its freight houses are not large enough to care for the traffic, and it has been compelled to enlarge its facilities and erect new stations large enough to give adequate service.

If the plan of moving freight over the elevated lines is carried out, this road will have to make still further additions to its freight facilities. It will then be in a position to be very helpful toward relieving the freight congestion to all points on its line between Chicago and Milwaukee. Instead of being restricted to local freight it would be able to interchange freight with other lines, running south and west of Chicago.

During the last winter, this railway played an important part in handling commodities, judging by these extracts from the *Chicago Evening News* of Jan. 19, 1918:

Not only did the electric line take care of passengers, but when the steam roads were tied up, it hauled meat, milk and coal to a number of North Shore towns, which otherwise might have experienced a real famine.

The day before the first storm broke in all its fury, the electric line delivered ninety cars of coal to the Great Lakes Naval Station. But for the timely assistance brought to the great training camp with its 20,000 jackies, they would have suffered for lack of fuel. From the Borden's Condensed Milk Company at Evanston, the electric line received two carloads of milk, which were distributed to the towns along the line, thus avoiding a serious milk famine.

Mrs. Scott Dureen, owner of the famous Crabtree Dairy, found the electric railway a savior in the time of distress. The steam railroads could not help her, but the electric line took care of all her shipments in such a satisfactory manner that she will continue to use it hereafter.

When the Naval Section was threatened with a bread famine the electric railway pulled a carload of bread from Libertyville to the Great Lakes.

The same train crew took care of the usual steam road traffic from Rondot.

So successful was the electric road in getting meat cars through and avoiding a meat shortage, that Armour & Company have taken advantage of the facilities and shipped several carloads of meat from the Eaton branch to supply all the North Shore towns along the electric line.

At present the North Shore line has no terminal within the corporate limits of Chicago but stops at its southern terminal, Evanston. However, there is a track connection between this line and the Chicago Elevated lines. Should the Chicago Council finally pass the freight ordinance now pending, it would be possible to work out plans to handle freight at night over both the elevated and surface lines of Chicago. Also intend to greatly develop the territory served by the electric railroads.

The "South Shore" Could Run Forty-Car Freight Trains

The Chicago, Lake Shore & South Bend Railway, operating 77 miles between Pullman, Ill., and South Bend, Ind., could also handle all the freight traffic that might be routed over it. Freight is carried as far west as Kensington, Ill., where it is interchanged with the Illinois Central or Pullman Railroads. This road is single track from South Bend to Gary, 59 miles, and double track for the remaining 17 miles. It is protected throughout by automatic block signals.

All freight is hauled by 72-ton electric locomotives rugged enough to draw thirty to forty-car trains instead of the ten-car trains which meet the requirements at present.

Most freight movements are made at night during the off-peak hours. A locomotive makes a round trip of 154 miles from South Bend to Kensington in about fourteen hours. Freight cars loaded up until 6 p.m. in Chicago are "set out" by the Illinois Central at Kensington, from which point they leave at about 1 a.m. and reach South Bend in time for 8 a.m. delivery. This is far better service than that now possible by other existing facilities. This line can materially relieve the steam road situation in its territory, since the railway can carry between its terminals practically all local freight offered for transit.

At South Bend the "South Shore" line taps such industries as the Oliver plow works, the Studebaker plants and the Singer sewing machine works. With the extension of steam road interchange arrangements to this line it could at once become a very great source of relief. Interchange arrangements would also permit it to tap the Haskell & Barker car works at Michigan City and the Rumley implement plants at La Porte, Ind.

Through an interchange agreement already in effect with the Illinois Central Railroad at Gary and with the Elgin, Joliet & Eastern Railway (Chicago Outer Belt Line) at Gary (Golf Junction) this line receives freight for any point in the United States. Interchange is also made with the Chicago & Calumet Railroad.

At present no interchange is made on the east end of this line because the steam lines are said to refuse to deal with an "electric" line. With this barrier removed, the "South Shore" line could interchange with the following steam roads at different points: Lake Erie & Western, Erie, New York Central (Lake Shore), Monon, Michigan Central, Pennsylvania and Baltimore & Ohio.

Wells, Fargo & Company operate their express service on the regular passenger cars, and the last night train each way has an express trailer. Express matter to points east of Hammond, Ind., on the "South Shore" line is brought out from Chicago by the Erie Railroad and turned over to the electric line at Hammond.

In addition to the express business, dispatch or package freight is handled on the regular passenger trains.

Aurora, Elgin & Chicago Railroad Could Handle More Freight

High-speed passenger service is operated by this line as well as a package express and freight service, both carload and less than carload. Like other electric lines entering Chicago, it is seriously handicapped in not

being able to operate its cars carrying express and freight into Chicago over the elevated lines, its express and freight terminal being located at a point 6 miles out from the center of the city. This line has freight motors capable of hauling from ten to thirty standard steam road cars.

While the general character of traffic handled by this line is l.c.l. merchandise and package express, it has steam road interchange regulations with the Illinois Central, Chicago, Burlington & Quincy, Indiana Harbor Belt-Line and Elgin, Joliet & Eastern Railroads.

have no other outlet than the electric road, while on adjacent steam roads there are more than 100 such mines, which are also served by the electric system. The three coal mining districts on the system are from Danville to Champaign, from Springfield to Peoria and from Staunton to Springfield. It is the aim of the traffic department of the company so to arrange shipments that each group of mines will supply all the coal needed in its own region, thus keeping the car mileage down to a minimum. This local distribution is undertaken in large part by the railway which

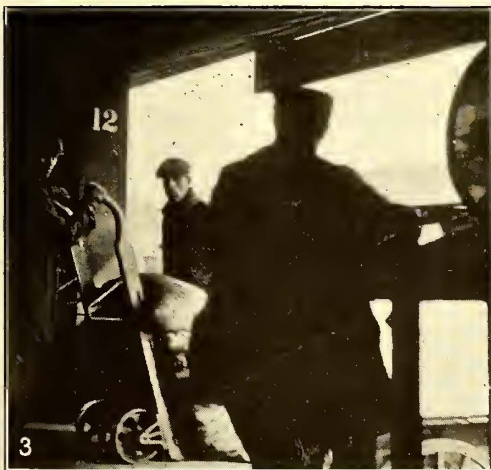


Fig. 1—Detroit United Railways
Fig. 2—Michigan Railway

Fig. 3—Indianapolis Terminal, Checking Freight from Trucks
Fig. 4—Interurban Railway & Terminal Company, Cincinnati, Ohio

FREIGHT HANDLING ON A NUMBER OF INTERURBAN ELECTRIC RAILWAYS

Through the last two named belt lines, this electric line can reach any steam road point in the United States. In an endeavor better to serve its territory, the management has prepared a map, reproduced on page 904 to show the points where team tracks are available for loading and unloading.

Illinois Traction System

The Illinois Traction System, traverses a territory of diversified agricultural and mining character, providing freight traffic of a steady nature. There are eleven coal mines on the system, and some of these

delivers coal along the right-of-way to dealers, who unload on their own special sidings directly to their own wagons for house and factory distribution. Although a considerable part of the line is single track and a heavy passenger business is done, the company has been successful in developing also an extensive freight and express traffic, by inaugurating a generous policy of providing long sidings and general improvement of electric railway facilities, including block signals.

The Illinois Traction System serves more than 100 towns and cities located in fourteen counties in the

State of Illinois. Its freight and express traffic is handled by motor express cars drawing trailers, and by large 63-ton electric locomotives, with a drawbar pull of 35,000 lb. Each of these locomotives has an equipment of four 200-hp. motors, which gives it a tractive power equal to the average steam freight locomotives.

Supplementary to the daily operation of freight and

Glover, near Champaign, where a complete installation of connecting interchange tracks has been made to facilitate this class of traffic. By means of fast through express trains, freight received at any terminal point by 5 p.m. reaches its destination on the traction system by early the next morning.

Twenty-four grain elevators have been constructed along the interurban line, and are now in operation and

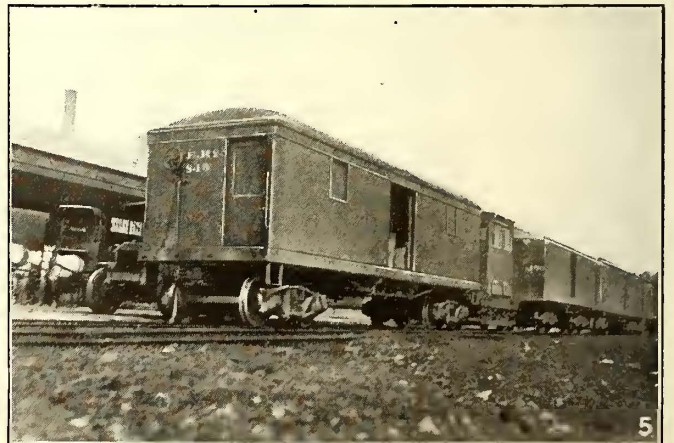
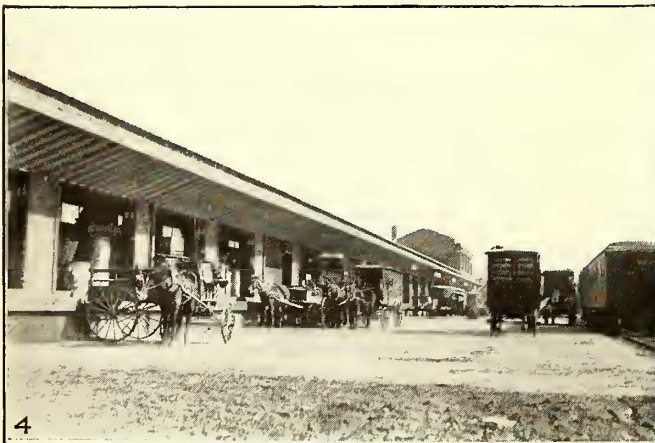
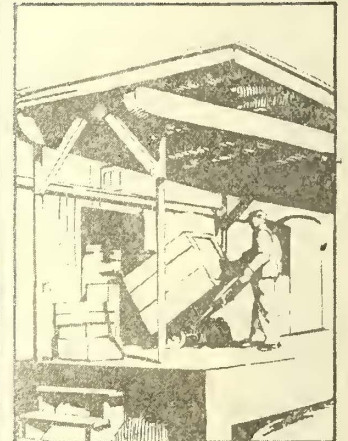
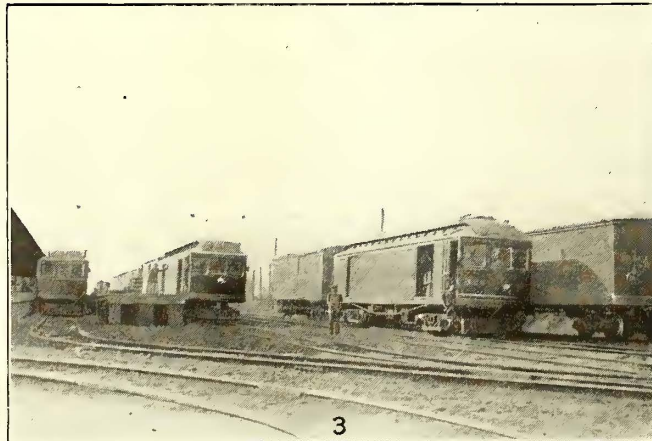
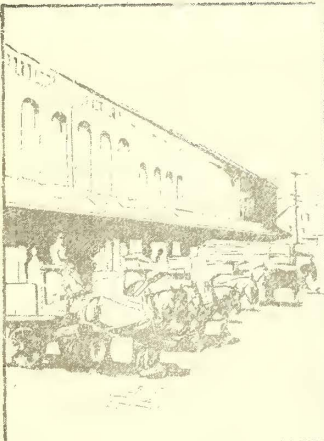
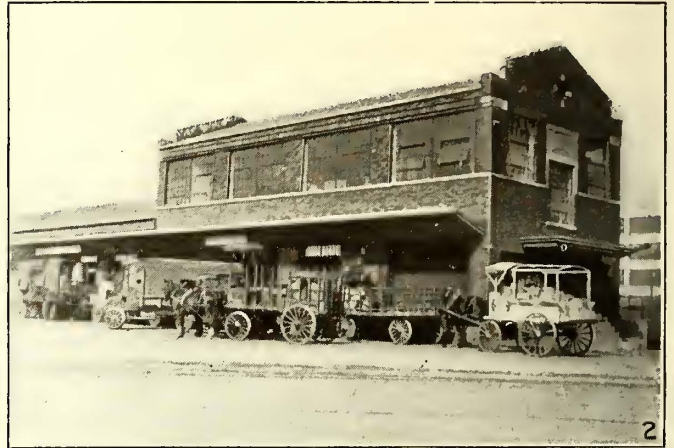
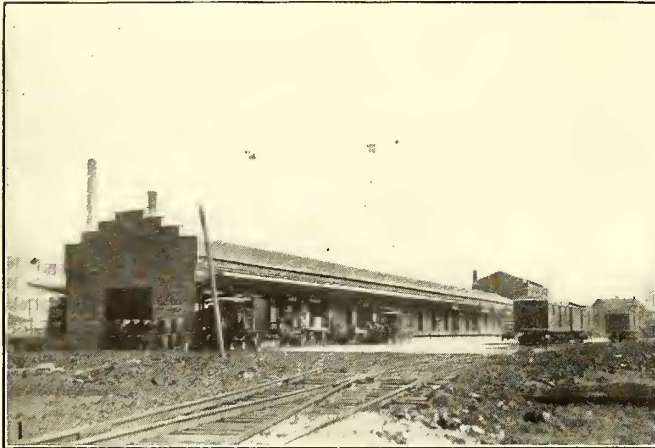


Fig. 1—One of the Terminal Buildings
 Fig. 2—Freight Office End of Terminal
 Fig. 3—Terminal Yard for Loading and Unloading, Less-than-Carload Merchandising Freight

Fig. 4—Team Driveway
 Fig. 5—Interline Interurban Freight Trailers. A Switching Motor Is Used in Moving Trailers About the Terminal Yard, thus Relieving Motor Cars

THE SERVICE AT THE INDIANAPOLIS FREIGHT TERMINAL AVERAGES 2100 FREIGHT CARS PER MONTH

express trains over this system, a through service for package or dispatch freight to and from Chicago is maintained by means of a physical connection with the Chicago & Eastern Illinois Railroad. Connection between this steam road and the electric line is at

at the service of the shippers of the Illinois Traction territory. Much of the grain going over this system is shipped to Chicago, but since the Illinois Traction System has no physical connection with an electric line into Chicago, it was necessary to build a large transfer grain ele-

vator at Glover, Ill., where connection is made with the Chicago & Eastern Illinois Railroad. Grain on the traction system is delivered to this elevator and is transferred into steam road cars.

Another noteworthy factor in connection with the Illinois Traction System is that it has its own entrance into St. Louis via the McKinley Bridge. By means of its own terminals at St. Louis, and interchange arrangements with all steam railways entering St. Louis, it assures a great saving of time in handling shipments through that gateway.

Freight Haulage by Iowa's Interurbans

One of the outstanding characteristics of the important electric lines of Iowa is that practically all of them have been built and operated on a steam railroad basis. They are of steam railroad construction but are provided with trolley wires.

On the Fort Dodge, Des Moines & Southern as high as twenty cars to the mile are found, while over the Waterloo, Cedar Falls & Northern anything that a steam railroad handles can be transported. On the Inter-Urban Railway of Des Moines we find a wonderfully extensive movement of materials to construct, equip and supply one of the great military camps of the country.

These points are brought out as a comparison with many of the roads in the Central States which could develop similar freight operation with federal financial assistance.

Inter-Urban Railway Equips Camp Dodge Completely

The Inter-Urban Railway handles heavy steam railroad freight traffic and does a general interchange business through the Iowa Transfer Pool Yard operated by the Des Moines Union Railway, which cares for all steam road interchange in the vicinity of Des Moines. At this yard direct connections are secured by the Inter-Urban Railway with the Chicago, Rock Island & Pacific, the Chicago, Great Western and the Fort Dodge, Des Moines & Southern Railroad.

In addition to this, at Granger transfer is secured with the Chicago, Milwaukee & St. Paul Railway, although most of the interchange with this railway is done at Perry. At Altoona, near the eastern end of the system, interchange is secured with the Chicago, Rock Island & Pacific. At Colfax connection is made with the Colfax Northern, which is a 7-mile line running into an extensive coal field. At Colfax also, interchange is possible with the Chicago, Rock Island & Pacific Railway.

One of the noteworthy facts in connection with the operation of the Inter-Urban Railway of Des Moines is that Camp Dodge, with accommodations for about 25,000 troops is located approximately 12 miles northwest of Des Moines. *This camp, which is virtually a city, was constructed of material hauled in more than 10,000 cars over the electric line. This included the transportation of building materials, supplies, food, munitions, cattle and horses.*

In connection with this camp the electric line not only furnishes an unlimited freight service, which is comparable with that found on steam roads, but also operates a very extensive passenger service.

Des Moines is an important city, and the soldiers travel frequently. To meet this situation on an electric line steam railroad coaches have been secured from roads in the vicinity of Des Moines. Ordinarily the electric locomotives haul freight, but on Saturdays and Sundays, when the passenger traffic is very heavy, they also haul trains of twelve 25-ton trailers. The company has also eight passenger motor cars which have been regeared for train operation and haul from six to seven passenger cars.

Long before the creation of the big camp, several industries on this line were heavy tonnage producers. One of these is a gravel pit, served by the Beaver Valley division on which Camp Dodge is located. From this pit 316,800 tons, or more than 6600 carloads, have been taken in one year. This is more than three times as much output as obtained from any other gravel pit in the State. A number of coal mines of various capacities are also located on this line. Five of these supply more than 4000 tons per day to be handled.

Twelve grain elevators on the Inter-Urban company's lines also bring considerable traffic. Other industries are an ice plant with fifty cars per day in winter, several clay-products plants, one asphalt paving plant and several canning factories. Seven miles of the railway are equipped with block signals, and the Beaver Valley division is rapidly being double-tracked to Fort Dodge.

When Camp Dodge was established it was thought that it would be impossible for the electric line to handle all the traffic. However, the steam lines, the nearest of which was within 1 mile of the camp, while another was 3 miles away, did not extend their lines into the camp. Hence all this traffic had to go by the electric line.

The electric line's service has proved satisfactory beyond all expectations of the government officials. Here is an example of what is done regularly: Often in making troop movements, it is necessary to have very long trains, consisting of baggage and passenger cars. Recently one 60-ton electric locomotive moved a train of sixteen sleepers and two baggage cars to the interchange point, where the steam line actually had to break the train in two because the branch line locomotives could not haul the entire train.

Oct. 2, 1917, is cited as a typical day. On that day, 26,145 tons were moved in 504 cars, nearly 52 tons per car.

Heavy Tonnage Freight Service Waterloo, Cedar Falls & Northern Railway

On the main line of the Cedar Rapids & Waterloo division, freight service is performed by five 60-ton locomotives equipped with four 250-hp. motors, which are capable of making the run of 60 miles between Waterloo and Cedar Rapids in three hours. The capacity of these locomotives is such that an 800-ton train can be handled at 24 m.p.h., and the type of control equipment on these locomotives is specially laid out to meet the demands of heavy traffic on this line. The company also has an extensive freight terminal at Waterloo, in connection with a belt-line along which are located many traffic producing industries. The line switches more than 70 per cent of the steam road tonnage entering Waterloo to these industries.

A Short Big Freight Carrier—Mason City & Clear Lake Railroad

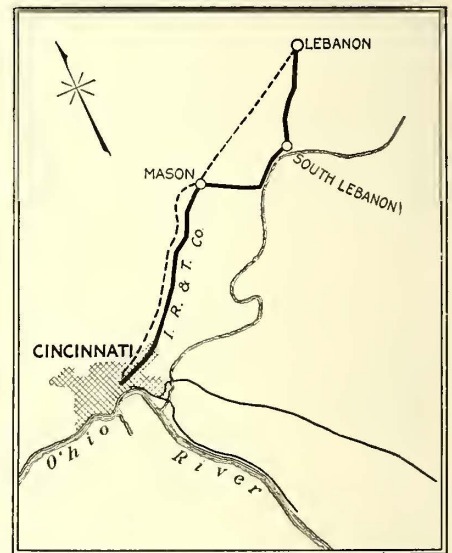
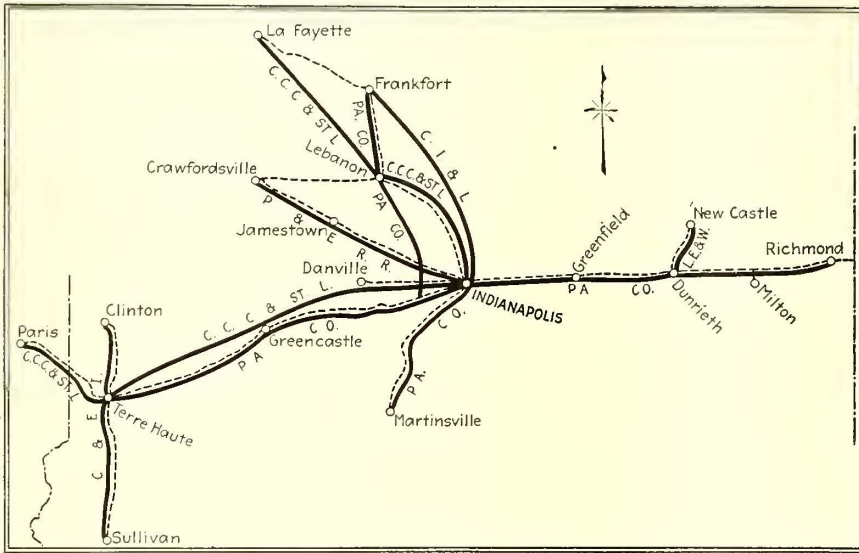
The Mason City & Clear Lake Railroad, one of the earliest interurban systems, has always depended very largely on its freight traffic. The building up of this line is interesting in that it is only 16 miles long and the actual freight route only 10, and on the whole system there is only 5.45 miles of yard track. This line is built on private right-of-way and is not restricted in any way from the standpoint of operating methods.

On the shore of Clear Lake near one end of the line is a large ice house, which during the winter is filled with ice, and a salesman is put on during the summer to take orders for it. The freight revenue from this enterprise, which is very heavy, with the

freight checker and into the freight house have been eliminated.

The first of the new freight terminal buildings has been completed. This development is to include three freight houses, two outbound and one inbound. The former are to be of the following dimensions: 30 ft. x 660 ft. and 30 ft. x 470 ft., with a 50-ft. driveway between them and tracks on the outside of each. The inbound freight house is to be 50 ft. x 450 ft., with a 40-ft. driveway.

When this terminal was laid out, more teamway was allowed in proportion to the house area than is usual in steam terminal design, for it is found in connection with handling electric freight that there is more delay from trucks and wagons, owing to their greater number. Moreover, the use of loops materially helps to



DUPLICATION OF SERVICE—AT LEFT, TERRE HAUTE, INDIANAPOLIS & EASTERN TRACTION COMPANY. AT RIGHT, INTERURBAN TERMINAL & RAILWAY COMPANY—(See page 895)

other freight handled on the line, brings the revenue up to more than \$30,000 a year, making the average amount per ton of freight 53 cents. During 1917 this line handled 58,172 tons of freight.

New Indianapolis Freight Terminal Relieves Congestion

Indianapolis, the long time interurban center of the United States, has helped to foster some of the most important interurban systems of the country. Owing to the rapid development of l.c.l. freight, however, the facilities there became entirely inadequate some time ago. Hence it has been necessary to build a new freight terminal about 1 mile from the present one, which adjoins the passenger terminal.

Although this new terminal is located 1 mile from the center of the city, shippers have not been inconvenienced owing to the general use of motor trucks, which make the run from the heart of the city to the new freight house in a little more than five minutes. A complete description of the new terminal was published in the ELECTRIC RAILWAY JOURNAL of Aug. 11, 1917.

One of the noteworthy features is the terminal layout, which will make possible really rapid handling of l.c.l. and carload freight. Practically all difficulties in the transit of freight from the shippers' trucks through the

clear the yard by reducing the number of switching movements.

Thirteen tracks will ultimately run straight through the terminal yards, being separated only by buildings and driveways. All the platforms are 10 ft. wide. Sufficient space for two lines of trucks and wagons is provided, and this space extends the full length of the adjoining straight track. Only five tracks, at present, are on the north side and three on the south side of the completed building. Granite block will be used in paving all driveways.

This terminal performs an important function in the effort of interurban electric railways to assist the government in lessening the serious situation on the steam lines. The building of this terminal should be helped in every possible way by the government. It has been somewhat delayed by lack of financial resources.

Indianapolis Could Give More Off-Peak Service

While the interurbans radiating from Indianapolis have been doing an extensive passenger and l.c.l. freight business for years, most of them are important trunk lines. Single-car operation and, in some cases, motor-car and trailer operation have been characteristic of electric freight operation in this territory.

In many cases the roads find it necessary to handle

freight movements practically on passenger schedule. Most freight cars are geared to the same speed as the passenger cars. Furthermore, they are frequently operated during the day, sandwiched between limited and local passenger trains. Yet plenty of freight could be handled during the off-peak hours. In fact, the shortage of warehouse space in Indianapolis has led many of the lines to handle their freight at night, thus improving the load factor. More freight could be handled in this way.

The physical facilities for freight handling, however, are limited, and federal financial aid is needed to place the lines in the proper shape. For instance, sidings are short and often stub-ended, available only for two or three cars and sometimes only one car. In other cases curves, or city fire plugs within clearance lines, prevent handling M. C. B. equipment, or special work will not take M. C. B. wheel flanges.

The Indianapolis Union Railway, or Indianapolis Belt, has been operating for more than twenty years and, naturally, is centrally located, for the city has grown around it. With the extensive development of freight haulage in this city, the electric railways might eventually consider the construction of a belt line, say for two-thirds of the distance around Indianapolis, to give two general entrances for south and west lines and north and east lines.

The Indianapolis electric freight terminal averages 2100 freight cars a month, practically the same as the Detroit United Railway's big terminal. There are eleven through-car routes between Indianapolis and Fort Wayne, four between Indianapolis and Dayton, one to Zanesville, and two to Lima and Cleveland.

Recently the lines radiating from Indianapolis changed their methods of freight operation. Freight cars operate during the night, starting out about 6 p.m. and coming back early in the morning with a return load of milk and other farm products and merchandise. This was found necessary because it was impossible to secure sufficient rolling stock to handle all the traffic. Loading cars at the station during the day and having them on the road at night permitted the use of cars in a more efficient manner, for in the day they virtually were part of the freight house and gave increased warehouse capacity. Therefore the practice in Indianapolis at the present time is to have trail cars and some motor cars "set out" during the day for loading at the freight house. The trailers in taking the l.c.l. freight are loaded as "set out" cars for different points, while the motor cars are generally used as "peddler" cars.

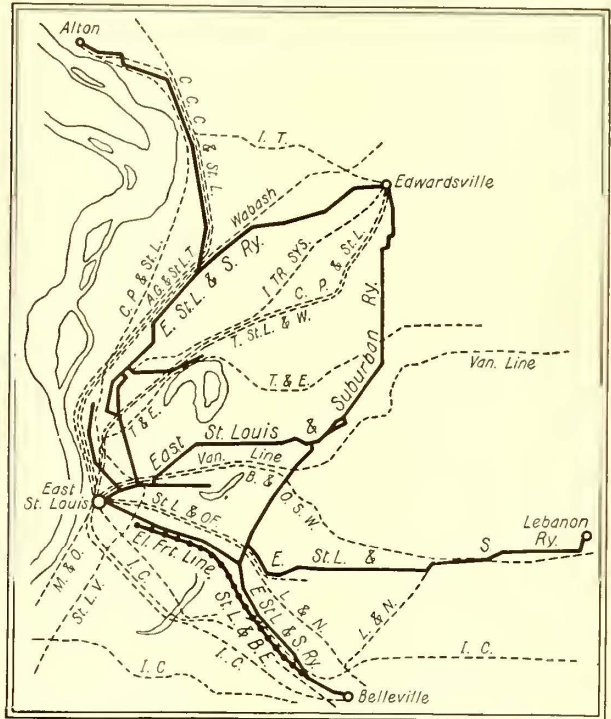
Non-agency stations are cared for by the freight crews. They unlock these stations and place the goods inside ready for delivery to the shipper in the morning. At the larger stations the night employees assist the train crews to handle the freight. Under this arrangement freight can be received as late as 4.30 p.m. at the freight house and will arrive in Terre Haute, Ind., or Paris, Ill., for the next morning delivery.

Interurban lines entering Indianapolis use standard steam railroad classification, including the steam railroad methods of billing and accounting. With the renewal of franchises restrictions in many cities and towns in Indiana a more extensive electric freight development is possible.

Union Traction System Can Handle 25 Per Cent More Freight

The Union Traction Company of Indiana, operating through the central part of the State, is one of the oldest interurban lines in the country. This system includes more than 400 miles of line connected with more than 4000 miles of electric railway. While the company does not conduct what is known as heavy-tonnage freight business, it handles freight by means of motor-freight and express cars and trailers.

Points such as Terre Haute, Louisville, Dayton, Fort



RIPE FOR FREIGHT RELIEF—EAST ST. LOUIS & SURBURBAN AND ST. LOUIS & BELLEVILLE ELECTRIC RAILWAYS

Wayne, Lima, Toledo, Detroit, Sandusky, Cleveland, Columbus, Zanesville, South Bend, Benton Harbor, St. Joseph, Jackson, Saginaw, Bay City, Grand Rapids, and others can be reached by this network.

Undoubtedly there are many points where this electric railway could relieve the steam lines of local traffic, through handling all local freight and also in many cases interchange operation, as at present there is no extensive interchange with steam railroads.

Short, But Important—Winona Interurban Railway

The Winona Interurban Railway, operating between Goshen and Peru, Ind., over a distance of 70 miles, connects at Goshen with the Chicago, South Bend & Northern Indiana Railway, which in turn connects with the Chicago, Lake Shore & South Bend Railway at South Bend.

The South Bend connection forms an important junction point in the through-haul of freight from Indianapolis to Benton Harbor, via the Union Traction Company of Indiana, the Winona Interurban Railway and the Southern Michigan Railway—lines popularly known as the route of the "Cannon-Ball Express." The Southern

Michigan Railway connects, at Benton Harbor, Mich., with the Graham & Morton steamship line, which operates a boat service between Chicago and Benton Harbor.

For the last two years the Winona Interurban Railway has been hauling a considerable amount of Chicago freight to and from the territory reached by its line. At Peru, Ind., it connects with the Union Traction Company of Indiana and the Fort Wayne & Northern Indiana Traction Company. The Winona line also interchanges at Peru with the Chesapeake & Ohio and Wabash Railroads. The track and special work is so constructed that standard M. C. B. steam road equipment can be

territory that is served by trunk-lines running generally east and west. Thus the Winona Interurban Railway would be able to save considerable detour of freight. Carload freight could be taken from any of the interchanging steam lines and handled for distribution to any point in the territory.

The "Cannon-Ball Express," previously mentioned, is a through freight service from Indianapolis to Warsaw and, in fact, to Benton Harbor, Mich. This service is maintained by a trailer loaded for Indianapolis, leaving Benton Harbor at night and going *via* the Southern Michigan Railway to Goshen. At this point a Winona

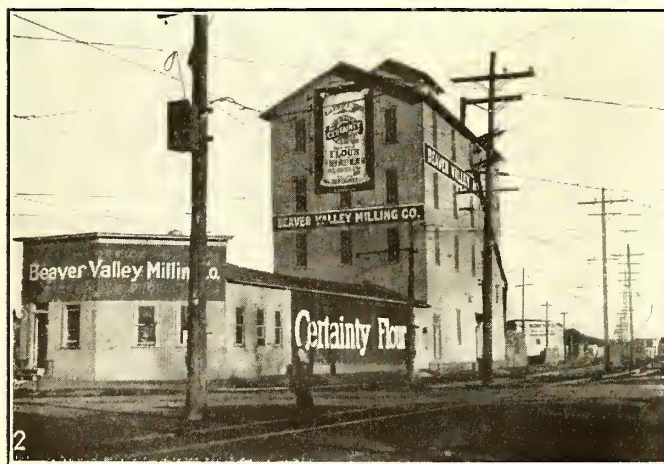
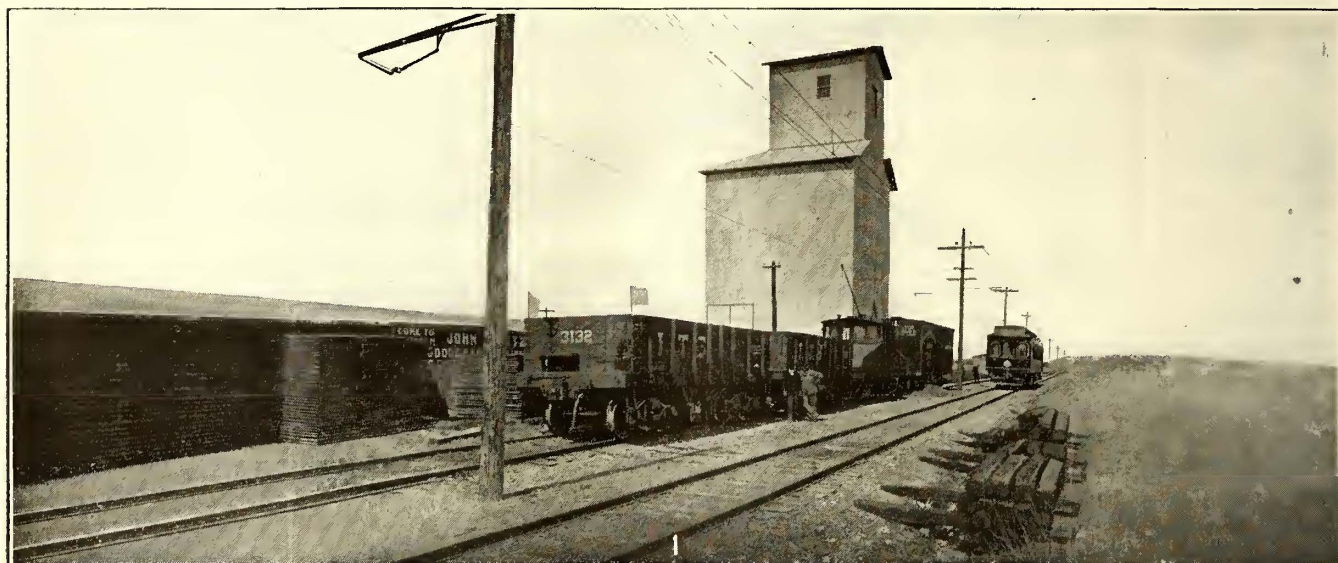


Fig. 1—Grain Elevator, Illinois Traction System
 Fig. 2—Grain Elevator, Inter-Urban Railway of Des Moines. Fig. 3—Standard Oil Company—Aurora, Elgin & Chicago Railway
 ELECTRIC RAILWAY FREIGHT-PRODUCING INDUSTRIES

operated over the entire system. The Winona Interurban Railway is able to render considerable relief in handling carload interchange traffic with the Wabash Railroad at Peru. At present it is handling on an average sixty carloads a month, not including the l.c.l. shipments. These, collected into carload lots, would equal another sixty cars.

With respect to the general freight service that can be rendered by the Winona Interurban, equipment is now available to handle from ten to fifteen more cars a day. Although it is a short line, it forms an important link in a through route. Moreover, its location is such that it gives a north and south line crossing

interurban motor car picks it up and proceeds to Peru, where it generally picks up a Union Traction Company trailer. By the time the train reaches Indianapolis, therefore, it is a regular three-car freight train. Return service is given from Indianapolis in similar manner, the train leaving at approximately 6 p. m. The service has been noteworthy in many respects, especially in the transportation of perishable commodities.

Extensive Plans Held Up in Cincinnati

The electric railway interests of Cincinnati have extensive plans for the development of the express and freight business on the interurban lines entering this

city. This plan contemplates the use of the bed of the old Miami & Erie Canal as an entrance through the city to the downtown district. This would bring the electric lines downtown in a depressed right-of-way to a point where the lines could be advantageously connected with a loop.

The work on this plan has temporarily been held up on account of the inability of civic authorities to settle on a definite scheme for financing the general improvement of transportation in Cincinnati. This condition has restricted the development of interurbans in the surrounding territory, owing to the city system being broad gage and not standard. With the contemplated development carried out, the two electric systems—the Ohio Electric and the Indianapolis & Cincinnati Railway—will be large factors in relieving the congestion in that territory.

The Interurban Railway & Terminal Company, which lays claim to having put up the first interurban electric freight terminal in the United States, has been doing an extensive motor-car freight business for several years, running each day a single freight motor-car over the Rapid, Suburban and Cincinnati & Eastern divisions. The Rapid division runs from Kingston to Lebanon; the Suburban from Cincinnati to Bethel, and the Cincinnati & Eastern from Cincinnati to Richmond.

The Rapid division is paralleled throughout most of its length by a steam railroad, the Cincinnati, Lebanon & Northern. This was originally built as a high-water line to permit the Pennsylvania System to get into the city with freight during the flood periods of the Ohio River. It is also operated at other times, however, as there is a considerable freight movement over it.

The Interurban Railway & Terminal Company, although primarily a passenger road, could readily take over practically all of the steam passenger traffic and a great deal of the local freight between Cincinnati and all common points. In fact, the two lines are so close to each other after leaving Cincinnati limits that only a fence or pole line separates them for a great part of the distance to Lebanon (see page 900).

Since this steam line was developed for a high-water service, it must enter Cincinnati over an extremely heavy grade, a condition which calls for a prodigal use of locomotives. For example, two steam locomotives are needed to haul seven freight cars over the grade leaving the Cincinnati terminal. The trains move so slowly that not infrequently coal thieves board the cars and within a block or two throw half a ton or more off by the roadside! An actual occurrence of this kind was witnessed by the writer.

The local commuter service of the Cincinnati, Lebanon & Northern is also handled in a costly way. A three-

car passenger train will pull out of the terminal with a light American-type engine, and a switcher will couple on as soon as the train gets into the yard. These two locomotives then labor up the grade with three cars!

This instance is cited to disclose the absurdity of overloading a set of steam rails and underloading a parallel set of electric rails. Even if this particular steam road is not overloaded, it is obviously using equipment extravagantly. The passenger business could be handled to better advantage by the interurban railway, because the steam line is primarily designed for freight, and it could be electrified to advantage to improve its operation in that field.

Cleveland Has Possibilities

For some years Cleveland has had what is really an interurban package-express service. Although this meets a certain need, it does not fulfill the demands of the shippers in Cleveland and the surrounding territories. Shippers who have been interested in interurban freight haulage from Cleveland to local points for nearly fifteen years assert that they have been unable to secure what they consider an advantageous arrangement for handling freight out of Cleveland on the interurban railways.

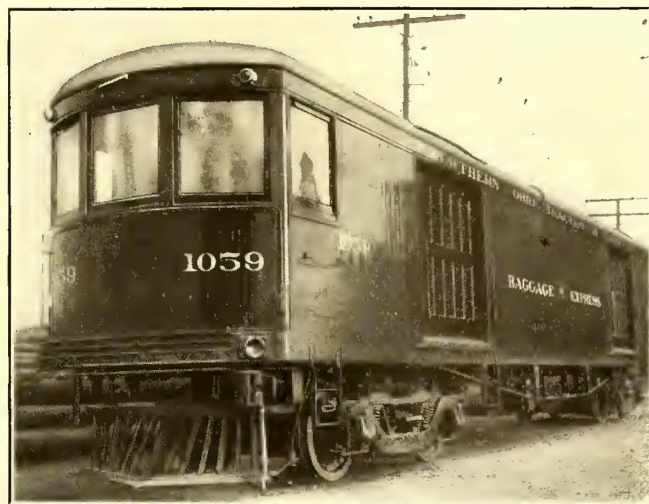
Because of this absence of l.c.l. electric freight, shippers, especially jobbing houses, find themselves restricted in dealing with the small towns near Cleveland. *So interested were these shippers in electric freight haulage that six years*

they helped to secure permits for the electric railways to haul freight trains of up to three cars through the streets of Cleveland.

The only line out of Cleveland with extensive freight operation is the Cleveland, Southwestern & Columbus Railway. The Northern Ohio Traction & Light Company, Akron, however, expects shortly to have extensive freight service over its lines into Cleveland.

The present electric railway freight movement in and out of Cleveland *via* the package-express system amounts to about twenty-five cars a day. The Electric Package Agency is carrier for the Cleveland, Southwestern & Columbus Railway, the Northern Ohio Traction & Light Company, the Lake Shore Electric Railway and the Cleveland, Painesville & Eastern Railroad. Only the first-named line, as already noted, handles considerable freight business of its own.

There is a movement on foot in Cleveland that may considerably help both the passenger and the freight situation. To improve realty values in a district known as Shaker Heights, the promoters constructed a 3-mile electric railway at their own expense and turned it over to the Cleveland Railway for operation. This line is now in successful operation and the plans are ultimately to extend it over a private right-of-way



INTERURBAN FREIGHT MOTOR CAR, NORTHERN OHIO TRACTION & LIGHT COMPANY

into the heart of Cleveland to a projected passenger and freight terminal near the Square. The steam belt-line operating around Cleveland is to come down the same right-of-way parallel to the electric line.

The same interests are building a large steam railroad freight terminal which is connected through the belt line to the New York Central Railroad and the Pennsylvania Railroad. When this project is fully developed, the electric railways will easily be able to tie into this main trunk line by constructing a few miles of new track. Only one or two lines may not be able to make connections readily.

Northern Ohio Traction & Light Company Twenty-four-Hour Freight Service

Freight service is now operated continuously throughout the twenty-four hours by the Northern Ohio Traction & Light Company to help relieve the congestion on steam lines and assist the government in the movement of food and war supplies. The service is given between Akron, Cleveland and Canton. The property is so situated that it could handle an enormous amount of freight. Indeed, its only limit is its present inability to obtain rolling stock.

The time of transit for freight via the electric line is four hours from Canton to Cleveland, while by steam it would be from four to ten days. This is not necessarily caused by the inefficiency of the steam railroads, but by the difference in the operating conditions. It takes time to move carload shipments on the railroads, while a large amount of freight handled on the electric line consists of l.c.l. merchandise, making it possible for one car to make three or four round trips daily.

One of the important obstacles to the extension of electric railway freight business is the lack of terminal facilities. The Northern Ohio Traction & Light Company, however, feels that it would be able to solve this problem to a certain extent if its freight service were operated at night only.

2800 Miles of Ohio Trolley Used Almost Exclusively for Passengers

The electric railways in Ohio are contemplating a more extensive operation of freight service, as they thoroughly realize the great possibilities of helping along this line in our national emergency. There are 2800 miles of interurban lines in the state used for little else than passenger service. Already electric freight trains run out of Toledo daily. This could be extended to every line in the state.

Through Akron the electric line could handle local freight and leave the main lines of the Baltimore & Ohio, the Erie and the Pennsylvania Railroads free to rush food supplies and coal. The Cleveland & Lake Erie could be used exclusively as a coal carrier. The Toledo & Ohio Central Railroad and the Hocking Valley Railroad could be used for coal only, and *the thousands of miners now idle, through lack of empty cars, would be able to earn a living wage and at the same time would relieve the acute coal shortage.* The Cleveland, Southwestern & Columbus; Columbus, Marion & Bucyrus, and Columbus, Delaware & Marion Railways are so located that they would form an important freight route to Columbus and other points.

East St. Louis Ripe for Freight Relief

Of the relief afforded through an electric line absorbing local traffic, in a radiating metropolitan district, the East St. Louis & Suburban Railway serves to illustrate well the possibilities.

Passenger service is maintained by high-speed two-car limited trains with free parlor car between East St. Louis and Eads' Bridge Stations to Alton, Ill. These trains make the 26-mile run in fifty-five minutes, the run being divided as follows: In East St. Louis, 2.34 miles; interurban, 22.31 miles to Alton and in Alton 1.5 miles. The 22.31 miles of interurban running is made in forty minutes.

Through this service an average of 1000 people a day travel on the limited trains, and the last steam railroad has recently taken off its local passenger service between East St. Louis and Alton, Ill. Now this same property is in a position to give further relief by handling all local freight along the same line. By increasing their freight and passenger handling facilities, many properties around the country could do the same as the East St. Louis & Suburban Railway.

St. Louis & Belleville Electric Railway Is A Freight Line Outright

This road operates a freight line between East St. Louis and West Belleville, doing interchange service with three belt lines: namely, St. Louis & Merchants Bridge Terminal Railway, Venice & Crondullett Railway and Alton & Southern Railway. All three of these connect with twenty-three steam lines entering St. Louis, thus giving interchange connections to these lines and to the St. Louis & Belleville Electric Railway.

About 100 cars a day are interchanged on the St. Louis & Belleville electric line. Twenty cars a day are used for general freight business operating on the line. Two 50-ton locomotives are used to handle this service. The trains operate on a special schedule according to the demands of the coal mines located on the system.

The line is 14 miles long. It has a yard at Twenty-first Street, East St. Louis, consisting of fourteen tracks, with a capacity of 300 cars. Team tracks in East St. Louis at the Twenty-first Street yard have a capacity for unloading thirty cars at a time. Included in the rolling stock of this line are more than 530 40-ton coal cars. While these cars go off the electric line, they are restricted to the East St. Louis and St. Louis district. Practically no l.c.l. business is done by this road.

The industries located on this line are the Excelsior Machine Works, which usually furnish about two carloads a day; the American Carbon Paper Company, which furnishes about three carloads a day, and the following coal mines: Suburban mine, 600 tons, or fifteen-car capacity a day; Superior mines, 800 tons, or twenty-car capacity a day; Avery mines 650 tons or sixteen-car capacity a day and Harmony mine 400 tons, ten-car capacity a day.

During the recent cold weather the steam roads around St. Louis could not deliver the coal, and the electric locomotives handled thirty-seven cars while the steam locomotives could not move. The electric locomotives were used for the purpose of bucking snow and clearing their own tracks.

The East St. Louis & Belleville Electric Railway has always interchanged steam road cars, thirty to forty at a time to a train. The maximum grade is 3½ per cent to 4 per cent, but as the road is built on its own private right-of-way, there are no other physical restrictions. The last coal mine is only 9 miles from East St. Louis, but on the last 4 or 5 miles delivery tracks are located.

More than 3000 cars loaded with building material have been delivered for the improvement of the city streets between the eastern limits to East St. Louis and Belleville, thus making 5½ miles of the finest road of its kind in the country. Other commodities transported by this line have included coal, rock, cement, mine supplies, rails, powder and sand.

Pittsburgh's Hills a Barrier

The narrow valleys and steep hills of the country near Pittsburgh make interurban railway construction extremely difficult. Nevertheless two roads are successfully handling much local freight and passenger traffic, namely, the Pittsburgh, Harmony, Butler & New Castle Railway and the Pittsburgh, Mars & Butler Railway. Both interurbans run to Butler, but the former also serves Evans City and New Castle. The two lines to Butler have carried in one year over 22,000 tons of freight.

The Pittsburgh Railways also operates an interurban line to Washington and Charleroi, over which both freight and passenger traffic is handled. Moreover, the West Penn Traction Company has an extensive network of lines in Westmoreland County, southeast of Pittsburgh.

Since Pittsburgh is a highly developed industrial center, there should be ample opportunity for increased freight service. The topography, however, is largely responsible for slow growth.

Owing to the extensive freight-producing characteristics of the Pittsburgh district, the interurbans entering Pittsburgh will, with proper encouragement, be able to increase their freight-handling facilities considerably. The territory served makes good use of the passenger facilities, and undoubtedly more can be done for the development of freight carrying than is now the case.

Packers Recognize Advantages of Electric Freight

Big possibilities exist in numerous communities for relief to meat packers and Kansas City, generally since the completion of the new Kansas City Freight Terminal. Since the completion of this terminal the trolley freight service has made it possible for packers every day to ship their products.

St. Joseph, Mo., is the location of packing houses belonging to Kansas City packers, and the Kansas City, Clay County & St. Joseph Railway assists considerably in making it possible to equalize the supply of these two markets. Formerly, four to six days were consumed for a shipment between one of these cities, while on the electric line three hours is the maximum. There are numbers of other cases in different parts of the country where packers are taking advantage of such service.

All interchange freight is handled in foreign cars, over existing connections with the steam roads.

Big Development in Kansas City From Small Beginning

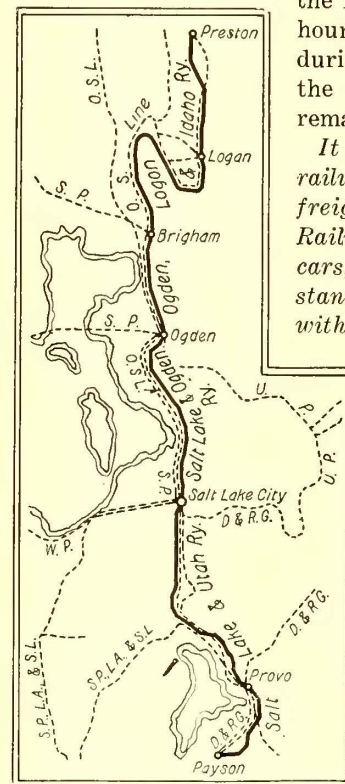
Kansas City, like several other large cities, has developed a comprehensive electric railway freight terminal. This is operated by the Kansas City Freight Terminal Company. Owing to the fact that at first freight cars could only be moved at night, delays were encountered. Eighty-four cars of freight at one time stood on the tracks of the Kansas City Railway. In order to relieve this situation, the Public Service Commission permitted the railway to operate

the freight service between the hours of 6 a. m. and 4 p. m. during the day on part of the line and all day on the remainder.

It is unusual to find a city railway handling steam road freight cars. The Kansas City Railways not only owns freight cars, but switches and hauls standard steam railroad cars with an electric locomotive on

a 12-mile line between Dodson and Westport Station. This latter point is the southern, residential district of Kansas City. Years ago this route was known as the old Westport & Belt Railway, which was a steam "dummy" line.

In recent years much passenger traffic has been diverted from this by constructing new routes, by operating more cars on one of the newer lines, the Country Club route, and by a commission order permitting switching in the day time.



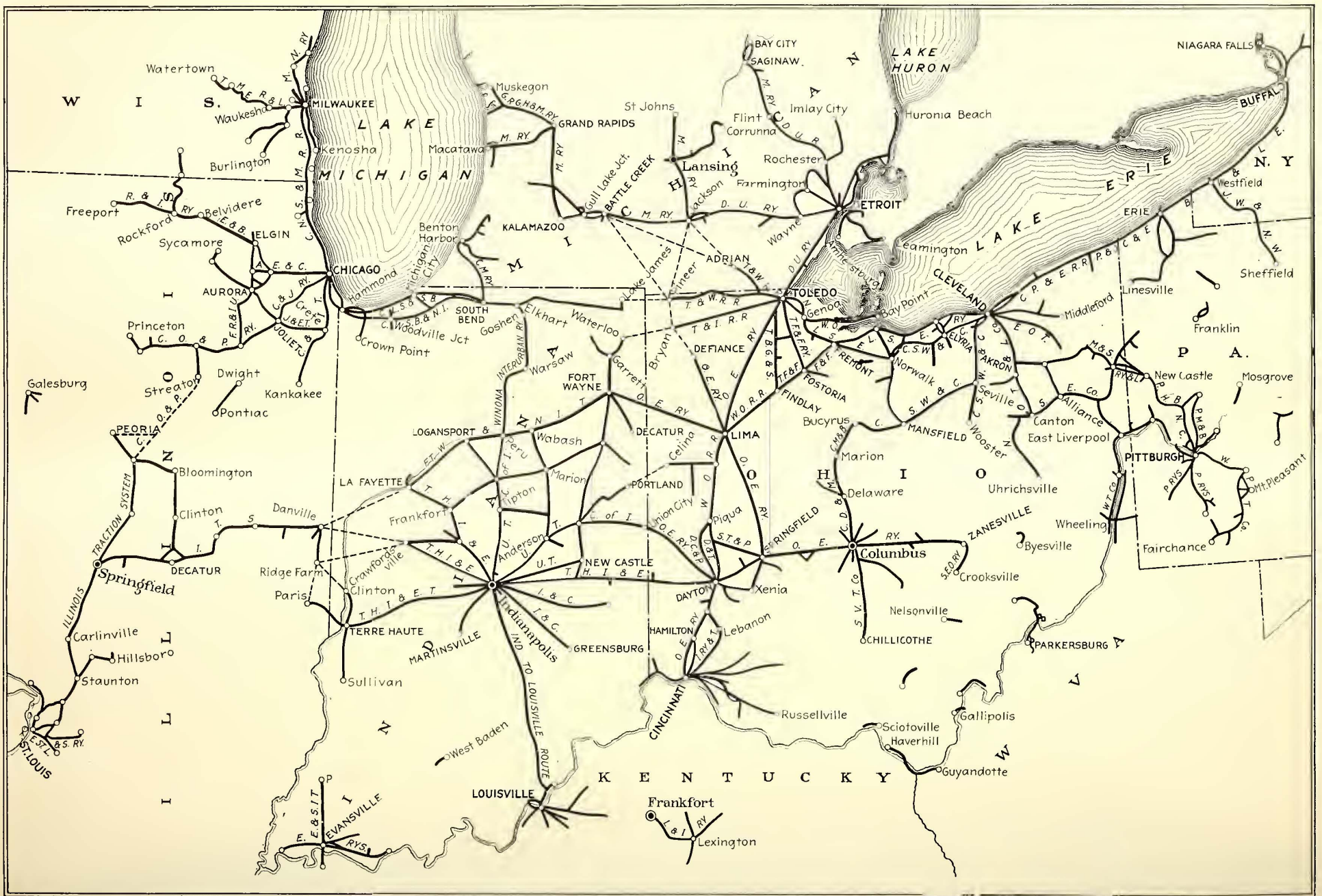
Salt Lake & Utah Railroad
Bamberger Electric Railroad
(Salt Lake & Ogden Railway)
Utah-Idaho Central Railroad
(O. L. & I. Ry.)

DUPLICATION OF SERVICE—
ELECTRIC RAILWAYS OF
UTAH (See page 895)

Lumber yards, coal yards, and other similar industries receive freight cars billed *via* the Kansas City Railways.

A most significant phase of this increase in freight operation is the wonderful service rendered to grocers and merchants along the line. *In Kansas City there are two of the largest retail grocers who secure their supplies from Chicago in carload shipments direct to their branches along the electric line. Many companies and individuals pool their shipments to secure combined full carloads routed direct to them over electric lines.*

The company handles a large number of steam road cars every day between its lines and the Missouri Pacific and Frisco Railroads. At Dodson terminal, which is the steam road interchange point, there is a receiving track 900 ft. long.



Solid lines show existing roads. Dotted lines indicate connections that would make through-route operation more flexible
 ELECTRIC RAILWAYS OF THE CENTRAL STATES

The new terminal is near the central warehouse and wholesale district, thus requiring only a short haul practically on the level. This terminal has been in operation several months, and its advantages are already producing increased traffic and uniform commendation from shippers and merchants. A great advantage that the shippers find is that goods for the various points on the different lines now may be delivered by one trip, which saves much time.

Electric Line Not Permitted to Build Siding

The Kansas City & Western Railway, which is one of the members of the Kansas City Freight Terminal Company, has been handling general interurban freight for a number of years. It offers direct shipment from Kansas City to Leavenworth, where there are several large institutions, including the State penitentiary and its allied industries.

Although this company is fully capable of handling freight to Fort Leavenworth, the administrative officials would not allow the electric railway to construct a siding because the steam facilities were considered sufficient. As the electric line is not permitted to lay its siding, the possibility of direct shipment into this fort is eliminated, all supplies being delivered by the steam railroads, which have platforms at the fort.

On the other hand, the merchants of Leavenworth have enjoyed so great an increase in retail trade due to the presence of troops that the freight business of the Kansas City & Western Railway increased more than 23 per cent within the last year.

The Kansas City, Kaw Valley & Western Railway, now operating between Kansas City and Lawrence, will be extended to Topeka. Carload freight is handled by two electric locomotives, and interchange transfer service is carried on between the electric line and the Rock Island, Kansas City Southern and Kansas City

Terminal Railroads through the terminal connection near Kansas City. More than twenty carloads of freight are interchanged each day. L.c.l. freight is handled by four 50-ft. motor-freight cars and one 40-ft. trailer. Each of these cars has a 60,000-lb. capacity.

Why Not Use Electrics More?

Economically, the electric line has its value in the community served, in many cases being responsible for the development and enhancement of real estate values. For this reason we should consider whether the electric railways of this country, embracing as they do practically one-seventh as much mileage as the steam railroads, and with a capitalization at the last census of approximately \$4,700,000,000, and annual operating revenues of approximately \$565,000,000, should not do more of the freight transportation of which this country now stands in such great need. Nevertheless the freight earnings of the electric roads in 1912, the year of the last available data, amounted to less than 2 per cent of the total operating revenue.

It is in the interest of the public that the present investment in both steam and electric lines be used to the fullest extent possible before providing at large expenditures other freight haulage facilities that are uneconomical and unable to move great quantities of freight at any one time.

This is an opportune time for the various states to look into the possibilities of "regulating" the motor truck, for there should be no unnecessary expenditure and duplication of investment.

Where Through Routes Are Most Desirable

A very large number of freight car routes are now in daily operation over various electric railway systems of this country. *The fact that these routes exist shows that there are possibilities in long distance freight*

Some Through Freight Rates in the Central States

THROUGH CAR ROUTES FROM INDIANAPOLIS

There are now in operation out of Indianapolis a large number of interurban freight car routes to points throughout the Central States. Several are listed below:

- From Indianapolis to South Bend, Ind., and Benton Harbor, Mich., via
Union Traction to Peru,
Winona Interurban to Goshen,
Chicago, South Bend & Northern Indiana, to South Bend,
Southern Michigan Railway to Benton Harbor, Mich.,
making a three-line operation.
- From Indianapolis to Garrett, Ind., via
Union Traction, via New Castle to Bluffton,
Fort Wayne & Northern Indiana Traction to Fort Wayne,
Fort Wayne & Northwestern Traction to Garrett, where
connection is made for Wells Fargo Express.
- From Indianapolis to Dayton, Ohio, via
Union Traction through Anderson, Muncie, and Union City,
Ohio Electric Railway, to Dayton.
- From Indianapolis to Louisville, Ky., via four lines:
Interstate Public Service to Seymour,
Indianapolis & Louisville to Sellersburg,
Louisville & Northern Railway & Light to Jeffersonville,
Indiana Southern to Louisville.
- From Indianapolis to Dayton, Ohio, via two lines:
Terre Haute, Indianapolis & Eastern Traction to Richmond,
Ohio Electric Railway to Dayton.
- From Indianapolis to Logansport, via
Union Traction.
- From Indianapolis to Wabash, Muncie and Kokomo, via
Union Traction.
- In addition to this through service, occasionally car loads go from Indianapolis to Toledo, Ohio, via connections at Fort Wayne, Ind., and Lima, Ohio; also carload movements to Kendallville, Ohio, via Fort Wayne, Michigan City, Ind., via South Bend; Columbus and Zanesville, Ohio.

9. The Terre Haute, Indianapolis & Eastern Traction Company loads daily freight cars from Indianapolis to Terre Haute; Danville, Ill.; Crawfordsville, Ind.; New Castle; Lafayette, Ind.; Frankfort, Ind.; Martinsville, Ind., all routed via its own line.

Freight from Indianapolis is transferred at Terre Haute for Sullivan and Clinton, Ind., and Paris, Ill.; at Dayton, Ohio, to all stations on the Ohio Electric Railway; Dayton and Troy Railway; Western Ohio Railroad; Dayton, Covington & Piqua Traction Company; and other stations on the Ohio Electric.

THROUGH ROUTES FROM DETROIT

Regular daily merchandise service is handled by the Detroit United System from Detroit to a number of Michigan points, including Saginaw, Bay City, Flint; Detroit to Battle Creek, Kalamazoo, Grand Rapids, and other points in the western part of the State via Jackson.

Detroit to Lima and Dayton, via
Detroit United to Toledo,
Toledo, Bowling Green & Southern, to Findley,
Western Ohio to Lima and Piqua,
Dayton & Troy to Dayton.

The Ohio Electric Railway System operates extensive through-line freight service over its entire system, and also a considerable interline service.

The network of interurbans throughout the central territory is so constructed that it is possible for practically any point on the inter-connecting lines to be reached. With the proper connecting up with the Indiana and Illinois systems additional freight routes could be established.

With the interurbans operating in Cleveland and Akron territory, a more extensive freight service will be possible to Toledo, Detroit, Columbus, Findley, Lima, Fort Wayne, Dayton and all principal cities located on the interurbans of the Middle West. Also, shipments could be made to Youngstown, Ohio; New Castle, Pa.; Buffalo and Utica, N. Y.; Erie, Pa.; Pittsburgh, Pa.; Alliance, Ohio and other points.

The Lake Shore Electric Railway operates through freight service between Cleveland and Detroit via the Detroit United.

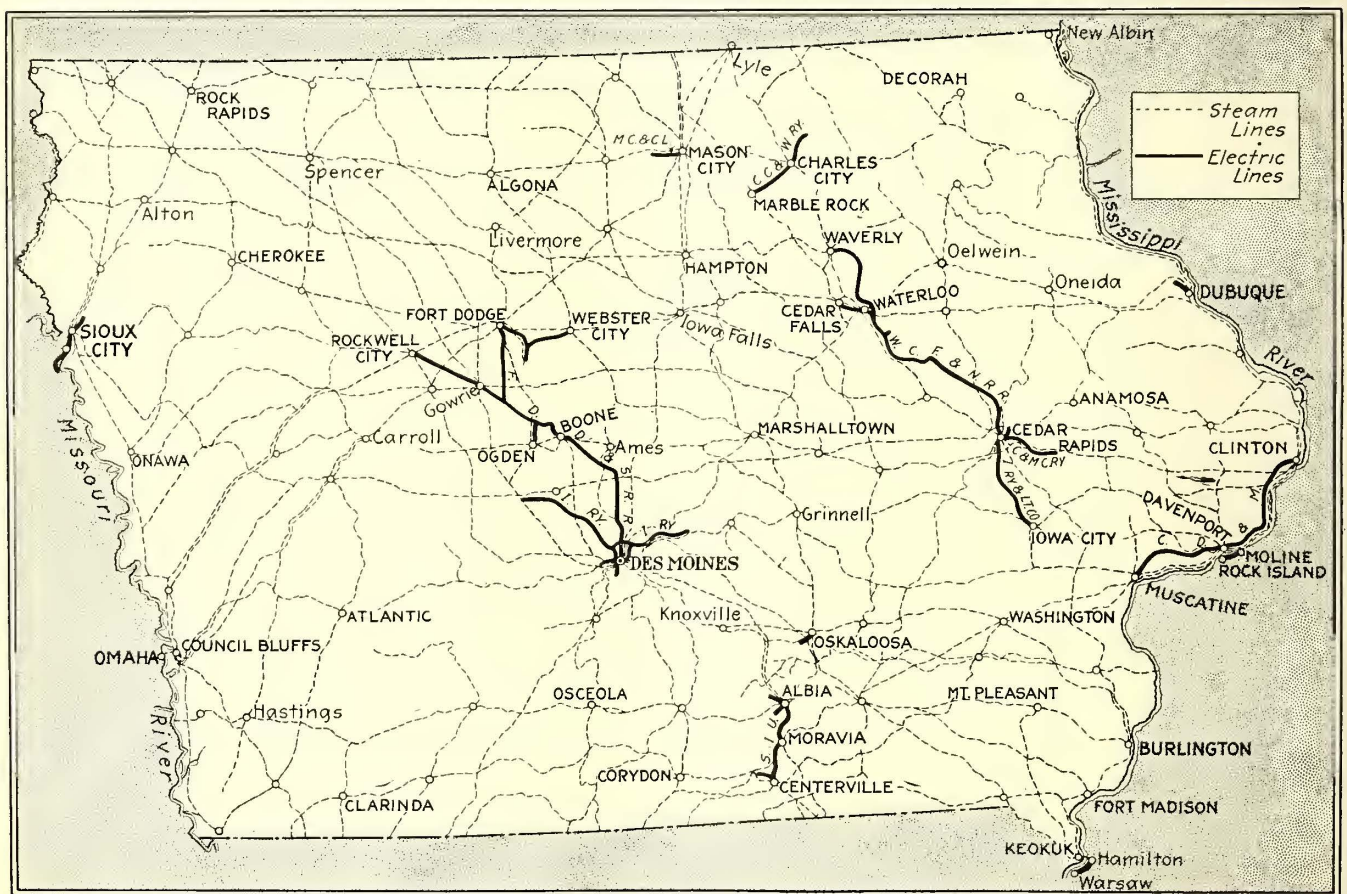
transportation by electric railways that have not been fully developed. While there are many restrictions which prevent a more extensive use of this valuable service in its present form, it is of inestimable value. The dispatch of freight, especially by through-car route, is of such importance that some lines find it necessary to place these through cars on limited passenger trains to expedite long distance shipments, thus giving the shipper the very best service.

In connection with the through routes that now exist, a general survey of the situation and possibilities for more of this long distance freight operation may be of interest.

There are short stretches of country separating some of the interurban properties where, it would seem, consideration should be given by one or the other or both companies for building the connecting link to handle

and Danville, a distance of only 40 miles, thus giving direct connection into Indianapolis. However, there are one or two other places where union could be made. That which would require the shortest section of track appears to be between Ridge Farm, Ill., on the Illinois Traction System, and Paris, Ill., (20 miles) on the Terre Haute, Indianapolis & Eastern Traction Company. There is also the possibility of closing the gap between Danville, Ill., and Lafayette, Ind. (45 miles.)

Traffic values and construction costs would naturally be the governing factors, but with the assistance of the Federal Government, there is no reason why this construction should not be considered. With a through route provided, it would be possible to make shipments from St. Louis, Mo., to Toledo, Detroit, Indianapolis, Dayton, Columbus, Cleveland, Buffalo and other points, with great relief to the steam roads.



The Fort Dodge, Des Moines & Southern Railroad, the Inter-Urban Railway of Des Moines and the Waterloo, Cedar Falls & Northern Railway are heavy freight carriers running generally north and south
ELECTRIC RAILWAYS OF IOWA, SHOWING NETWORK OF STEAM LINES

through freight and passenger traffic. Also it would in several instances relieve the steam railroads of short-haul traffic.

Referring to the map on page 916 of the Central States, it will be noted that the electric railway systems of Illinois, principally the Illinois Traction System, are not physically connected with those of the other Central States; namely, Indiana, Michigan, Ohio. To get a through haul from St. Louis to Buffalo and points East the gap between Danville, Ill., and any one of several points in Indiana should be closed. Possibly the most feasible procedure, from the standpoint of interurban traffic, would be to build between Crawfordsville, Ind.,

A study of the map of the Central States will show other places where the construction of short stretches of track would establish more direct routes between important points. For instance, the gap between Portland, Ind., on the Union Traction Company, and Celina, on the Western Ohio Railroad, would greatly assist in eliminating the extra mileage in through-car movements from Indianapolis to Lima, Toledo, Cleveland, and other points.

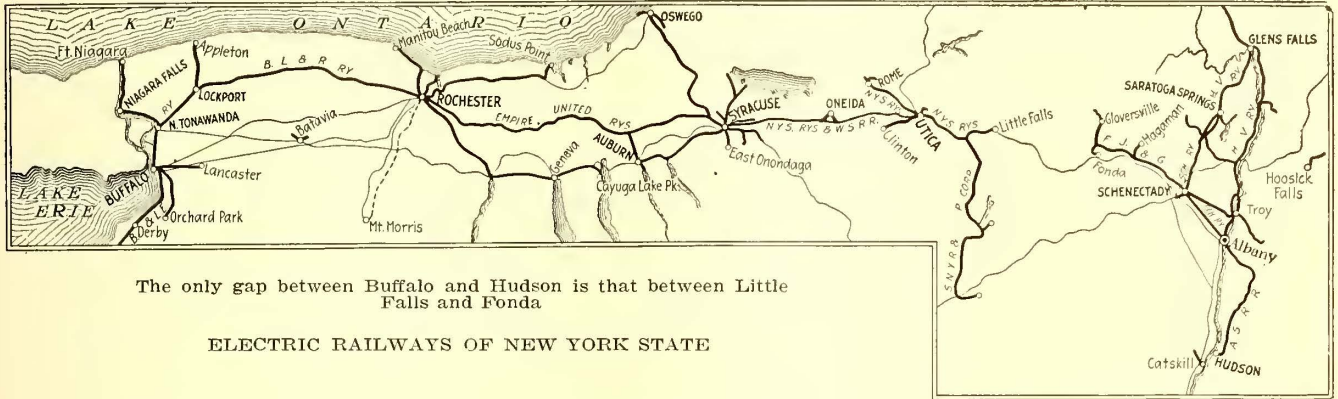
Connecting Kalamazoo and Dowagiac, Mich., or electrification of the K., L. S. & C. Ry. between Kalamazoo and Toquin, Mich., via Benton Harbor would shorten freight haul to Indiana and other points.

There already is a well-defined route between Terre Haute, Columbus, Dayton, Springfield, Indianapolis and Zanesville; also between Indianapolis and Benton Harbor, via South Bend. There is also no difficulty in reaching Louisville from Indianapolis.

Investigation proves that considerable roundabout mileage is necessary in handling shipments from West Central Michigan points to Toledo and Southward. If the short gap between Jackson and Adrian or Battle

Creek, Mich., and Pioneer, Ohio, on the Toledo & Western, and to Bryan, on the Toledo & Indiana, with possibly an extension south to Defiance, Ohio, where it would reach the Ohio Electric System. This extension would permit the handling of freight from western Michigan for Toledo and other Ohio and Indiana points by a direct electric route.

Owing to the extensive trunk-line steam road service between Toledo and Chicago, east and west, it is



Creek and Adrian, were closed, it would be possible to interchange freight from the Michigan Railway System through the Toledo & Western Railroad, and Toledo Terminal Railroad, with any steam or electric line entering Toledo. This would also make it perfectly feasible for a through shipment to go from Muskegon or Grand Rapids, Mich., to Cleveland or Buffalo, via the electric railway, or to any points in northern and central Ohio; from Grand Rapids to Cincinnati or Louisville, or even to St. Louis, by filling the gap between Danville, Ill., and Crawfordsville, Ind.

Another helpful connection could be made between

difficult to say whether an electric extension in that section is necessary now, irrespective of the fact that this territory needs electric railway service. However, a tying together of South Bend, Ind., and Pioneer, Ohio, could relieve the steam roads of much local traffic.

One more link worth consideration is between Waterloo, Ind., on the Fort Wayne & Northwestern Railway, and Bryan, Ohio, on the Toledo & Indiana Railroad. This would greatly shorten the haul from Grand Rapids, Kalamazoo, Battle Creek, Jackson, Toledo and Detroit to Indianapolis, St. Louis and Louisville.

Conclusions

1. The undisputed economic value of the electric railway is thoroughly evidenced by the foregoing brief covering existing conditions on interurban railway systems. From a purely economic standpoint, existing electric railway facilities should be used to their fullest capacity before the development of any other type of freight transportation is attempted.

2. The investment in electric railway systems of the present day is so great that it would be most uneconomical practically to disregard a highly developed system of transportation service such as electric railways can render under present conditions.

3. Many interurbans are handling traffic which is commensurate with that of steam railroad service, and

where facilities exist they are in a position to handle practically all short-haul traffic in their respective territories.

4. Federal assistance to the electric railways by supplying cars, improving physical alignment and freight terminal facilities would place the interurban railways in a position to handle a large percentage of the short-haul freight which is now congesting the steam railways.

5. Furthermore, the expenditure required to place the electric railways in the condition above mentioned, would not amount to one-tenth of that which would be needed for the extension of motor-truck freight haulage in the same territory now being agitated.

Therefore, immediate relief can be secured for the steam railroads through assistance from an existing facility which only needs proper fostering to become immediately an important factor in our national emergency and for the future. In order to affect this, there should be:

Universal interchange of freight rolling stock between steam and electric lines that can handle steam rolling stock, and federal financial aid to those electric lines that would be able to do so with the proper assistance.

Tabulation of Replies Received from War Board Questionnaire Sent to Electric Railways in Relation to Relief They Can Afford Steam Railroads

FREIGHT SERVICE

EASTERN MILITARY DISTRICT

| Name of Company | Nature of Relief Afforded | Steam Road Affected |
|--|---|--|
| Westchester Kennett & Wilmington Electric Railway (Pennsylvania) | Can handle all local less carload freight in territories served. | Pennsylvania Railroad Baltimore & Ohio Railroad |
| Ephrata & Lebanon Traction Company (Pennsylvania) | Could arrange to handle a great portion of less carload freight in this territory. | Philadelphia & Reading Railroad Cornwall Railroad |
| Yonkers Railroad Company (New York) | Can handle less carload freight locally and with connecting lines. | New York Central Lines |
| Buffalo, Lockport & Rochester Railway, (New York) | Can handle 50 per cent of carload and less carload freight in its territory. | New York Central Lines |
| The Western New York & Pennsylvania Traction Company (New York and Pennsylvania) | Can handle carload and less carload freight greatly in excess of present demand. | Buffalo, Rochester & Pittsburgh Railroad Erie Railroad Pennsylvania Lines Pittsburgh, Shawmut & Northern Railroad |
| Chambersburg, Greencastle & Waynesborough Railway (Pennsylvania) | Could handle freight. | Western Maryland Railroad Cumberland Valley Railroad |
| North Branch Transit Company (Pennsylvania) | Could handle all local freight, express and mail. | Delaware, Lackawanna & Western Railroad Pennsylvania Lines Philadelphia & Reading Railroad |
| New York State Railways (New York) | Can relieve steam lines of all local less carload freight between common points. | New York Central Lines Pennsylvania Railroad Lehigh Valley Railroad |
| Southern New York Power & Railway Company (New York) | Can handle less carload freight. | Delaware & Hudson Railroad Ulster & Delaware Railroad Lackawanna-Western Railroad West Shore Railroad New York Central Lines |
| Orange County Traction Company (New York) | Handles less than carload freight. | Erie Railroad Central New England Railroad |
| Northwestern Pennsylvania Railway (Pennsylvania) | Handles carload and less than carload freight; can handle all in its territory. | Bessemer & Lake Erie Railroad Pennsylvania Lines |
| Poughkeepsie & Wappingers Falls Railway (New York) | Can handle less than carload shipments locally and in connection with boat line. | Central New England Railway |
| Albany Southern Railroad (New York) | Can handle all carload and less than carload business in its territory. | New York Central Lines Boston & Albany Railroad |
| Elmira, Corning & Waverly Railway (New York and Pennsylvania) | Can handle less than carload, local shipments between Elmira and Waverly. Could handle like shipments between Elmira and Corning if franchise restrictions were removed. | Erie Railroad Delaware, Lackawanna & Western Railroad |
| Buffalo & Lake Erie Railway (Pennsylvania and New York) | Now handling large amount of less than carload freight. With added equipment and changes in terminals could double present business. | New York Central Lines New York, Chicago & St. Louis Railroad |
| Conestoga Traction Company (Pennsylvania) | Practically all local freight, less than carload and considerable carload freight under certain conditions. | Pennsylvania Lines Philadelphia & Reading Railroad |
| North Jersey Rapid Transit Company (New Jersey) | Provided proper grant could be secured in Patterson, N. J., considerable relief could be afforded by making a connection with the Hudson River line and the Public Service lines. | Erie Railroad |
| Schenectady Railway Company (New York) | Some relief could be afforded in the handling of less than carload freight. | New York Central Lines Delaware & Hudson Railroad |
| Bridgeton & Milville Traction Company (New Jersey) | Can handle less than carload freight between Bridgeton and Port Norris. | Central Railroad of New Jersey |
| York Railways Company (Pennsylvania) | Slight relief in handling less than carload freight. | Pennsylvania Lines |

NORTHEASTERN MILITARY DISTRICT

| | | |
|--|---|--|
| Exeter Hampton & Amesbury Street Railway (New Hampshire) | In conjunction with other electric railways in Northeastern Massachusetts and New Hampshire less than carload freight for the towns and cities served could be handled. | Boston & Maine Railroad |
| Concord, Maynard & Hudson Street Railway (Massachusetts) | Can handle less than carload freight. | Boston & Maine Railroad |
| Interstate Consolidated Railway (Massachusetts) | Now operating service, which could be increased for less than carload shipments. | New York, New Haven & Hartford Railroad |
| Worcester Consolidated Street Railway (Massachusetts) | Now handling less than carload freight, could handle more. | Boston & Maine Railroad New York, New Haven & Hartford Railroad |
| St. Albans & Swanton Traction Company (Vermont) | Could take care of less than carload freight between terminals. | Boston & Albany Railroad Central Vermont Railroad |
| Shore Line Electric Railway (Connecticut) | Could handle more carload and less than carload freight than now handled. | New York, New Haven & Hartford Railroad Central Vermont Railroad |
| Atlantic Shore Railway (Maine) | Can relieve steam roads of all less than carload freight and all carload except Biddeford. | Boston & Maine Railroad |
| Brockton & Plymouth Street Railway (Massachusetts) | Can relieve steam roads of a portion of less than carload freight between Boston and Plymouth. | New York, New Haven & Hartford Railroad |
| Cumberland County Power & Light Company (Maine) | Now relieving railroads by performing switching service. Also handle carload and less than carload freight. | Maine Central Railroad Boston & Maine Railroad Grand Trunk Railroad |
| Union Street Railway (Massachusetts) | Could partially relieve steam road of freight service between New Bedford and Fall River. | New York, New Haven & Hartford Railroad |
| Springfield Street Railway (Massachusetts) | Can absorb some of the freight traffic between Springfield, Worcester, Fitchburg and Providence, which could be augmented by additions to facilities and equipment. | New York, New Haven & Hartford Railroad Boston & Maine Railroad Boston & Albany Railroad Central New England Railroad Central Vermont Railroad |

Tabulation of Replies Received from War Board Questionnaire (Continued)

| Name of Company | Nature of Relief Afforded | Steam Road Affected |
|---|--|---|
| New Bedford & Onset Railway (Massachusetts) | Could partially relieve steam railroad of freight traffic in territory served. | New York, New Haven & Hartford Railroad |
| Boston & Worcester Street Railway (Massachusetts) | Handling less than carload freight and can handle more with additional equipment which is promised in April. | Boston & Albany Railroad Boston & Maine Railroad New York, New Haven & Hartford Railroad |
| SOUTHERN MILITARY DISTRICT | | |
| Charleston Consolidated Railway & Lighting Company (South Carolina) | Can handle local freight, less than carload, to Charleston Navy Yard and other manufacturing plants on Navy Yard and North Charleston division. | Southern Railway Atlantic Coast Line Seaboard Air Line |
| SOUTHEASTERN MILITARY DISTRICT | | |
| Union Traction Company (Tennessee) | Handle all less than carload freight business in its territory. | Louisville & Nashville Railroad |
| SOUTHWESTERN MILITARY DISTRICT | | |
| Oklahoma Railway (Oklahoma) | Can handle all local traffic and inter-line business provided through rates are installed. | Atchison, Topeka & Santa Fe Railroad |
| Sand Springs Railway (Oklahoma) | Can handle all freight business between Tulsa and Sand Springs. | Chicago, Rock Island & Pacific Railway Missouri, Kansas & Texas Railway |
| WESTERN MILITARY DISTRICT | | |
| Pacific Electric Railway (California) | <i>Local Carload Freight:</i> Could relieve steam roads between Los Angeles and points common to both lines where team track service is all that is required, and in case of private industry track where interchange switching arrangements are in effect. This would result in substantial relief. <i>Less than Carload Freight:</i> Could relieve steam roads of local merchandise freight from Los Angeles to four stations, amounting to approximately 8,000,000 lb. per month. It is estimated that thirty cars per day would be saved to the steam railroads, in addition to the depot switching at Los Angeles and delivering stations. | Southern Pacific Company Los Angeles & Salt Lake Railroad Atchison, Topeka & Santa Fe Railway |
| Pacific Northwestern Traction Company (Washington) | Can handle practically all less than carload freight between Seattle, Ballard, Everett. And can handle more of the carload freight between these same points, particularly where team track loading or delivery will suffice. | Great Northern Railway Northern Pacific Railway Chicago, Milwaukee & St. Paul Railway |
| Puget Sound Electric Railway (Washington) | Can entirely relieve steam roads of less than carload freight in territories served. Can handle all carload freight in territories served where team track loading or delivery is required. With terminal co-operation of steam roads can handle a greater proportion of through Seattle-Tacoma carload freight. | Southern Pacific Company Great Northern Railway Chicago, Milwaukee & St. Paul Railway |
| Salt Lake & Utah Railroad (Utah) | Can take care of all carload and less than carload business in their territory which will amount to about three times their present handling. One 50-ton locomotive held in reserve and not being used. Has steam-line connections and can be of great relief in this territory. | Denver & Rio Grande Railroad Los Angeles & Salt Lake Railroad Utah Coal Railway Union Pacific System Western Pacific Railroad |
| Bamberger Electric Railroad (Utah) | Can handle carload and less than carload freight in its territory and jointly with connecting electric lines. All power generated hydroelectric plant, thus considerable coal saving would result. | Oregon Short Line |
| Willamette Valley Southern Railway (Oregon) | Can handle carload and less than carload freight. | Southern Pacific Company |
| Peta Luma & Santa Rosa Railway (California) | Can handle all freight shipments between San Francisco, Peta Luma, Santa Rosa and Sebastopol. | Northwestern Pacific Railroad |
| CENTRAL MILITARY DISTRICT | | |
| Cleveland, South Western & Columbus Railway (Ohio) | Can practically take care of all local freight business between terminals (Cleveland, Wooster, and Bucyrus). | New York Central Lines Baltimore & Ohio Railroad Erie Railroad Pennsylvania Lines |
| Milwaukee Electric Railway & Lighting Company (Wisconsin) | Could relieve steam roads of carload and less than carload freight from Milwaukee to Waukesha, Oconomowoc, Watertown, Burlington, Wauwasota, North Milwaukee, South Milwaukee, Cudahy, Mukwonago, Racine and Kenosha. | Chicago & Northwestern Railroad Chicago, Milwaukee & St. Paul Railway Wisconsin Central Railroad |
| The Interurban Railway & Terminal Company (Ohio) | Could relieve steam lines operating in the same territory of all less than carload freight between Cincinnati and Lebanon. | Pennsylvania Lines (Cincinnati, Lebanon & Northern Railway) |
| Western Ohio Railway (Ohio) | With present equipment little relief could be afforded but with additional equipment and improved terminal facilities practically all freight business in territory served could be handled, including a great amount of through business between Dayton, Lima, Toledo and Detroit. | Lake Erie & Western Railroad Baltimore & Ohio Railroad |
| Fort Wayne & Decatur Traction Company (Indiana) | Can handle all freight business in its territory between Fort Wayne and Decatur. With Erie and Cloverleaf connection, could handle additional carload business to and from Fort Wayne destined to points beyond Decatur. | Erie Railroad Toledo, St. Louis & Western Railroad |
| Omaha, Lincoln & Beatrice Railway (Nebraska) | Can handle all carload and less than carload shipments to territory served by connection with Missouri Pacific. | Missouri Pacific Railroad Chicago, Rock Island & Pacific Railway |
| Wisconsin Traction Light, Heat & Power Company (Wisconsin) | Can very materially relieve steam lines on carload and less than carload in city served. | Chicago & Northwestern Railway Chicago, Milwaukee & St. Paul Railway |
| Minneapolis, Anoka & Cuyuna Range Railway (Minnesota) | Carload and less than carload freight and switching service. | Northern Pacific Railway Great Northern Railway |

Tabulation of Replies Received from War Board Questionnaire (Continued)

| Name of Company | Nature of Relief Afforded | Steam Road Affected |
|--|---|--|
| Toledo & Western Railroad (Ohio) | Can handle both carload and less than carload freight. | New York Central Lines Detroit, Toledo & Ironton Railroad Cincinnati Northern Railroad Wabash Railroad |
| Dayton, Covington & Piqua Railway (Ohio) | Can handle all carload and less than carload freight except livestock. | Dayton, Toledo & Chicago Railroad Pennsylvania Lines |
| Milwaukee Northern Railway (Wisconsin) | Can handle all less than carload freight in its territory. If it had track connection with Chicago & Northwestern at Cedar Grove, could remove necessity for carload freight from points north from passing through Milwaukee. | Chicago, Milwaukee & St. Paul Railroad Chicago & Northwestern Railroad |
| Springfield & Xenia Railway (Ohio) | Can handle all less than carload freight between terminals. | Pennsylvania Lines. |
| Chicago Elevated Railways (Illinois) | If granted an ordinance by the city of Chicago could handle great amount of less than carload freight. | Chicago freight terminals of many railroads. |
| Chicago, North Shore & Milwaukee El. Railroad (Illinois and Wisconsin) | Could handle carload and less than carload freight. Could handle Chicago packinghouse freight to Fort Sheridan and Great Lakes Naval Training Station. Could also facilitate the moving of carload freight by having E. J. & E. (Chicago Outer Belt Line) deliver carload shipments for points between Highland Park and Milwaukee to this line, thus eliminating the delay in handling through Chicago, which would tend to avoid congestion in Chicago terminals. | Chicago & Northwestern Railway Chicago, Milwaukee & St. Paul Railway |
| Fort Wayne & Northwestern Railway (Indiana) | Can handle 200 tons per day with additional terminal facilities at Fort Wayne. | |
| Union Traction Company of Indiana (Indiana) | Can handle 25 per cent. more less than carload. | Grand Rapids & Indiana Railway New York Central Lines Lake Erie & Western Railroad Big Four Railroad Pennsylvania Lines Wabash Railroad Toledo, St. Louis & Western Railroad Chesapeake & Ohio Railroad Central Indiana Railroad Monon Railroad |
| Ohio Electric Railway (Ohio) | Handles carload and less than carload freight. | A number of railroads in the central, southwestern, western and northwestern portions of Ohio. |
| Clinton, Davenport & Muscatine Railway (Iowa) | Can handle carload and less than carload freight. Can afford considerable relief by closing four agency steam road stations. | Chicago, Burlington & Quincy Railroad Chicago, Milwaukee & St. Paul Railway Chicago, Rock Island & Pacific Railway |
| East St. Louis & Suburban Railway (Illinois) | Can afford relief in the transportation of less than carload freight. | Vandalia Railroad Baltimore & Ohio Railroad Big Four Railroad Chicago & Alton Railroad Wabash Railroad Chicago, Peoria & St. Louis Railroad Illinois Central Railroad Louisville & Nashville Railroad Southern Railroad Toledo, St. Louis & Western Railroad Wabash Railroad Pennsylvania Lines Grand Rapids & Indiana Railway Lake Erie & Western Railroad New York Central Lines Nickel Plate Railroad Erie Railroad |
| Fort Wayne & Northern Indiana Traction Company (Indiana) | Handles less than carload freight. | Baltimore & Ohio Railroad New York Central Lines Toledo & Ohio Central Railroad Wabash Railroad Rock Island System New York Central Lines |
| Toledo, Bowling Green & Southern Traction Company | Can relieve steam lines of 50 per cent. of less than carload freight and some carload freight. | Erie Railroad New York Central Lines Pennsylvania Lines Baltimore & Ohio Railroad Pittsburgh & Lake Erie Railroad Chicago & Eastern Illinois Railroad |
| Rock Island & Southern (Illinois) | Could handle all carload and less than carload freight in its territory. | Chicago & Northwestern Railroad Soo Line |
| Toledo & Indiana Railroad (Ohio) | Can handle all freight traffic between Toledo and Bryan. | New York Central Lines Nickel Railroad Pennsylvania Lines |
| Mahoning & Shenango Railway (Ohio) | Can relieve steam roads of practically all less than carload freight in its territory provided additional facilities were installed. | Grand Rapids & Indiana Railway Pere Marquette Railroad Grand Trunk Railway |
| Chicago & Interurban Traction Company (Illinois) | Can handle additional less than carload freight. | Michigan Central Railroad New York Central Lines Grand Trunk Railway Detroit & Toledo Railroad Canadian Pacific Railway |
| Eastern Wisconsin Electric Company (Wisconsin) | All less than carload freight. | Detroit, Toledo & Ironton Railroad Detroit Terminal Railroad Wabash Railroad Pere Marquette Railroad Ann Arbor Railroad Baltimore & Ohio Railroad Hocking Valley Railroad Pennsylvania Lines |
| Lake Shore Electric Railway (Ohio) | Handle large amount of less than carload freight. | Wheeling & Lake Erie Railroad Toledo & Ohio Central Railroad Toledo Terminal Railroad Detroit, Bay City & Western Railroad Cincinnati Northern Railroad |
| Grand Rapids, Grand Haven & Muskegon (Michigan) | Can care for all less than carload freight shipments originating at its terminals. | |
| Detroit United Railway (Michigan and Ohio) | Can handle twenty-five additional flat or gondola cars per day now handled by steam roads. If box cars are provided can handle twenty or thirty additional cars per day. | |

Tabulation of Replies Received from War Board Questionnaire (Continued)

| Name of Company | Nature of Relief Afforded | Steam Road Affected |
|--|---|---|
| Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company (Minnesota) | Well located for use as a belt line. | Chicago, St. Paul, Minneapolis & Omaha Railroad Chicago, Milwaukee & St. Paul Railroad Chicago, Great Western Railroad Chicago, Rock Island & Pacific Railroad |
| Michigan Railway (Michigan) | Can handle both carload and less than carload freight; has considerable equipment, warehouse and team track delivery at all stations. | Père Marquette Railroad Grand Rapids & Indiana Railway Michigan Central Railroad Grand Trunk Railroad New York Central Lines |
| Aurora, Elgin & Chicago Railroad (Illinois) | Handles carload and less than carload freight. Possibilities for extending less than carload freight business if able to provide proper terminal facilities at Chicago, are great. Carload business now being handled quite extensively and is prepared to handle team track freight to all points along the line and to industries reached by other lines. | Chicago & Northwestern Railway Chicago, Burlington & Quincy Railway Chicago, Milwaukee & St. Paul Railway Chicago, Great Western Railroad |
| Ohio Valley Electric Railway (Ohio and West Virginia) | Handles less than carload freight. | Chesapeake & Ohio Railroad Baltimore & Ohio Railroad Norfolk & Western Railway Detroit, Toledo & Ironton Railroad Cincinnati, Hamilton & Dayton Railway Ashland Coal & Iron Railroad |
| Mason City & Clear Lake Railroad (Iowa) | Can absorb all carload or less than carload into Clear Lake, having joint tariffs with all steam lines. Can perform switching service between steam roads in Mason City. | Chicago, Milwaukee & St. Paul Railway Chicago, Rock Island & Pacific Railway Chicago, Great Western Railroad Chicago & Northwestern Railway and Minneapolis & St. Louis Railroad |
| Northwestern Ohio Railway & Power Company (Ohio) | Can handle all less than carload and most of carload shipments to all points served. | Wheeling & Lake Erie Railroad Lake Shore & Michigan Southern Railroad Lakeside & Marblehead Railway |
| Eastern Wisconsin Electric Company (Wisconsin) | Can handle all less than carload freight for Sheboygan Falls, Plymouth and Elkhart Lake. | Chicago & Northwestern Railway Chicago, Milwaukee & St. Paul Railway |
| Evansville Railways (Indiana) | Can absorb all less than carload freight between Evansville, Mount Vernon, Rockport, Indiana, and Henderson, Ky., and carload freight between Evansville and Rockport. | Louisville & Nashville Railroad Southern Railway Louisville, Henderson & St. Louis Railway Illinois Central Railroad. |
| Chicago, Lake Shore & South Bend Railway (Indiana and Illinois) | Can handle practically all local freight between its terminals. | Baltimore & Ohio Railroad Chesapeake & Ohio Railway Grand Trunk Railway Michigan Central Railroad New York Central Lines Pennsylvania Lines Wabash Railroad |

Asphalt Mastic Makes Good Shop Floor

Twin City Rapid Transit Company Has Had Such Floor in Use for Six Years With Excellent Results

IN AN ACCOUNT of the then new forge and structural shop of the Twin City Rapid Transit Company, Minneapolis, Minn., published in the issue of the *ELECTRIC RAILWAY JOURNAL* for Oct. 11, 1913, page 674, mention was made of an asphalt mastic floor which was at the time something of an experiment. The editors of this paper recently addressed an inquiry to W. J. Smith, master mechanic of the company, for the purpose of learning how satisfactory the floor had proved. It will be remembered that the floor is a 1½-in. layer of asphalt mastic laid on a concrete foundation. The composition is 65 per cent gravel, rock and bank sand and 35 per cent mastic and flux.

In reply to the inquiry Mr. Smith states that this floor has given excellent satisfaction. It has had hard service but no repairs have been necessary and it is in first-class condition to-day with the one exception that it is somewhat marked up where the pieces of heavy material have been piled or where jack screws and heavily loaded horses have stood. Sometimes from 20 to 30 tons of steel has been piled in a small space and the weight of this material caused the bars and sections to mark up the floor, especially in warm weather.

However this has never caused any great trouble although it somewhat mars the appearance of the floor. Where the floor has not been subject to this heavy piling it is smooth and free from cracks and in fine condition.

Experience has shown that when a floor of this kind is laid it is very important to have firm ground or if it is to be laid on a reinforced concrete slab to have this in good condition. This mastic asphalt floor is made of the same material and is laid in practically the same way as paving asphalt, with the possible exception that a larger proportion of finely crushed rock is mixed with the asphalt. The company uses the same material on the back platforms of all passenger cars. When first used there was some trouble with the floor becoming soft in warm weather, but this difficulty was overcome by using a larger proportion of finely crushed rock. As much of this fine rock was used as could be worked into the mixture without preventing the possibility of troweling it out. It is important to use a flux to coat the concrete. Any contractor familiar with putting down asphalt pavement could do a satisfactory job on floor work. The more service the floor gets the better it appears to be, as it gradually becomes smooth and firm but never hard and slippery.

It would be an excellent plan to use a light steel reinforcing over the concrete slab to prevent any cracking in the asphalt that might occur as the floor gets old. Expanded metal lath would be satisfactory.

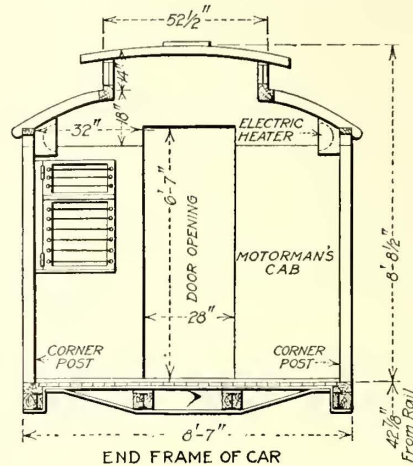
Passenger Cars Rearranged for Freight Hauling

MANY electric roads are anxious to do their bit by hauling freight and express but they have insufficient equipment available. It is quite possible that there are many old passenger cars in existence which could be turned into emergency freight cars or combination freight and passenger cars at comparatively little expense. Cars already provided with side entrances are readily adaptable to a type necessary for handling freight.

An interesting study of the changes necessary for such an alteration is illustrated in the accompanying drawings. The car considered in this study is one of the wooden cars used on the elevated lines of the Brooklyn Rapid Transit Company but now superseded.

The drawings show a method of providing a baggage and express compartment by removing the seats and heater equipment from a little more than one-half the length of the car body and by partitioning off this space from the passenger compartment. These cars have side doors at present not in use. By removing the seats the side doors are made available for the handling of freight. No changes in the windows are suggested other than to provide bars and slats across them to prevent injury. It would be advisable to provide a substantial floor and the suggestions include the laying of a floor on top of the present one. The removal of the seats would necessitate shifting the heater equipments which are at present installed under them. These could be readily reinstalled overhead along the sides of the car. With this arrangement a space approximately 21 ft. x 8 ft. x 7 ft. would be provided for freight. The car axles and springs are of ample design to withstand a load of 10,000 lb. per axle.

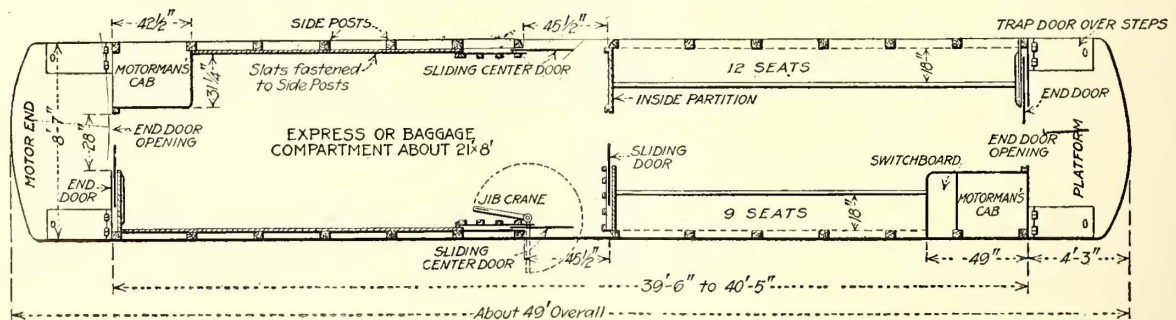
The passenger compartment still provides seats for twenty-one passengers, which is sufficient for many lines during periods when the traffic is light and when the hauling of freight and express can be carried on to the best advantage. By limiting the freight haulage to such periods no increase in power house or line capacity is necessary. These cars are at present equipped with two 150-hp. motors mounted on one truck, and in the reconstruction of the baggage and express compartment it would be desirable to locate this over the motor truck end so as to utilize the freight load to give increased traction. The capacity of the equipment is sufficient so that where



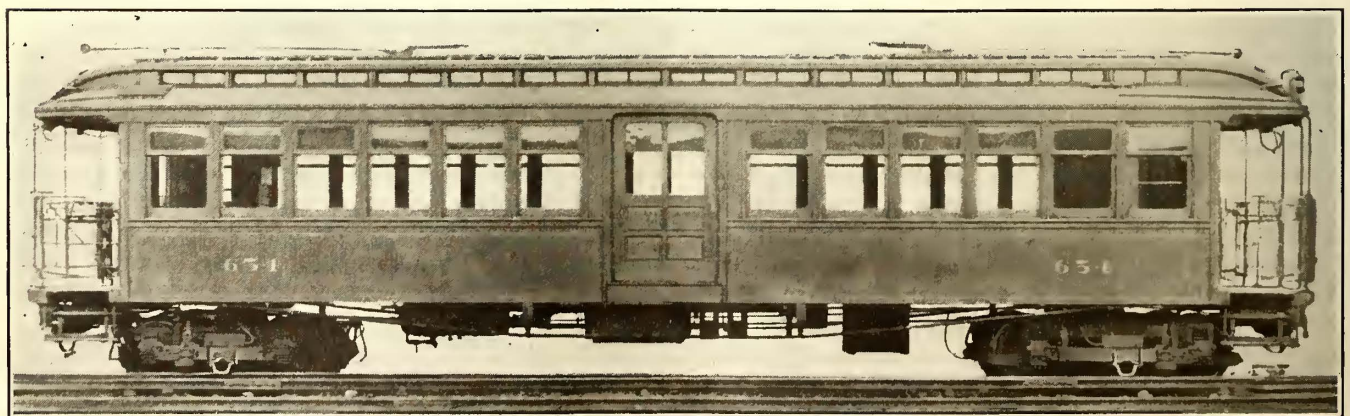
FREIGHT COMPARTMENT WITH HEATERS OVERHEAD

train operation is possible trail cars could be included in the train make-up. Under ordinary service conditions a five-car train could have two trailers weighing with load about 26 tons each without exceeding the capacity of the equipment. Multiple-unit control is already provided so that train operation is possible without any equipment changes.

A conservative estimate of the cost for making these changes based on the present-day prices of labor and material is \$350 per car with no allowance for scrap materials.



RECONSTRUCTED CAR WITH BAGGAGE AND EXPRESS COMPARTMENT



EXTERIOR OF CAR AS USED IN PASSENGER SERVICE

LETTERS TO THE EDITORS

Scale Impedes Hot Water Circulation

MONONGAHELA VALLEY TRACTION COMPANY

PARKERSBURG, W. VA., MARCH 18, 1918.

To the Editors:

I have read with interest the article on "Circulating Water in Car Heaters" which appeared in the issue of the ELECTRIC RAILWAY JOURNAL of Feb. 2, 1918, page 239. Our method of handling heaters of this type is as follows:

In early fall before the stoves are fired for the winter the piping system is thoroughly cleaned out. This is done by disconnecting the expansion chamber above the stove, and connecting the city water pressure to one pipe while the other is extended outside of car. The pressure is left on until clear water only comes from the system. This removes all sediment, scale, etc., and thoroughly cleans the system, leaving it full of clean water with nothing to obstruct circulation. The water will not circulate if the system is clogged even to a slight extent. Circulation is started by heating the water in the usual manner.

C. W. FOLWELL, Master Mechanic.

Mr. Beeler Gives Further Data on Washington Skip Stop

WASHINGTON, D. C., May 6, 1918.

To the Editors:

In the past the common practice in introducing the skip stop in any city has been to begin with one or two lines only in the outlying districts and to continue using all stops in the business district as hitherto. In the choice of the new stopping places, arbitrary rules have often been used to determine the locations, such as the omission of every other stop. This has resulted in the poor location of some of the stops. Frequently the stopping places, even with the skip stop system, have been left unnecessarily close together.

In Washington, the matter was handled on an entirely different basis, which from the results obtained would seem to be the right one. The system was inaugurated first in a very small part of the most congested district over a stretch of but 2300 ft. of track, where a number of important lines converge. This was in the heart of the business section. It was made to apply to all lines operating over this track in such a way as to relieve the congestion. This effected an immediate improvement on all lines entering this section, and the results reached far beyond the congested point.

The stopping points in the congested district were located a little more than an eighth of a mile apart and proved immediately satisfactory. The stops were located so as to get the best results from a traffic standpoint and not according to any arbitrary rule. Some of them were placed on the near side of the street and some on the far side.

An interesting detail of the plan is the location of stopping places where lines diverge, so that the cars on one line do not hold back the cars of the other line. This is done by making the stops in both directions

beyond the junction points, the near side stops being on the track approaching the junction, and the far side stops on the track leaving the junction. This feature alone has had a marked effect in reducing congestion.

After the system had been in use in this particular location in Washington for about two months, it was extended to another portion of the business district where the congestion was nearly as severe as in the first case. Still later it was made to include the entire city and also the suburban territory near by. A recent tabulation of the distances between stops in Washington shows that the average is 818 ft., or six-and-one-half stops to the mile. Following is a table showing the average distances in the District of Columbia:

| | Average Distance, Ft. | Number per Mile |
|-------------------------|-----------------------|-----------------|
| City districts..... | 596 | 7.03 |
| Suburban districts..... | 965 | 5.47 |
| Average all stops..... | 818 | 6.46 |

By the inauguration in Washington of the skip stop system in the business district first, and of course the same plan could be followed equally well in any large city, an immediate improvement is made in the service on all lines entering this district, and the way is prepared for further improvement when the system is extended to the residence districts. If, however, the plan is started in the residence districts first, according to the usual plan, delays will still occur in the congested district, which will make it difficult to show any improvement in service. In fact, the delays are likely to be aggravated by the cars rushing into the congested territory and piling themselves up in each other's way so that all that has been gained outside is lost down town.

The new schedules which have been adopted show a decrease in running time amounting to from 10 to 15 per cent. The saving in time has not been used to take cars off the routes but to give more frequent headway, so that the public obtained at once a double improvement in faster and more frequent service.

An interesting result is that the improvement in speed is much more marked than would be indicated by the decrease in running time. This is due to the fact that under the old system the cars rarely were able to keep on schedule and on the rush hour trips were usually from five to ten minutes late. A idea of the improvement can be had from the following statement of one of the government officials:

Since I have been located here I have been living at some distance from the office, so that I have had to use the street cars. Since the inauguration of the skip-stop system I find that the ride which formerly required twenty minutes in the morning or evening now requires only about ten minutes. The improvement is due, I think, to the great amount of time that was formerly lost in loading and unloading on account of the extremely crowded condition of the cars, and a great deal more time was lost due to the fact that the cars run at very close intervals at certain times of the day, so that the stopping of one car frequently held back several others.

Signs bright and distinct were placed exactly opposite the point where the car step was to stop. Another important feature is to limit the stopping places for interurban lines entering the city to a greater extent than those for city cars. The interurban stops on one line here are designated by distinctive signs, which are placed wherever possible on the same stanchion as those for city cars.

I have found a most important point to be the exercise of good judgment in the location of individual stops. After the places for stopping have been definitely located, those responsible must not lose their nerve but must make no changes other than those conclusively proved to be the proper thing. Of course there must be some good reason for each stop, but the spacing must at the same time be as nearly uniform as practicable. Staggered stops may be employed to advantage in some instances, although the straight skip stop has generally been found preferable in Washington.

Much publicity was accorded the installation of the new stopping plan by many news stories and large notices carried in all the cars for a week prior to the changes. These were most important factors in insuring the success of the skip stop.

JOHN A. BEELER.

More About Track Spiral Standardization

MINNEAPOLIS STREET RAILWAY COMPANY,
MINNEAPOLIS, MINN., MAY 6, 1918.

To the Editors:

The writer has examined the track spirals as proposed by E. M. T. Ryder and finds that two of these are substantially the same as the standard spirals which have been in use by this company for several years. There would be no particular change in the conditions so far as operating is concerned if our curves were laid out by the use of the proposed new formulas. The companies manufacturing special work state that there would be no economy in using the new formulas but they would produce more varieties of templates with no reduction of expense.

The writer agrees with A. E. Harvey in his conclusions as given in your issue of April 20, and would be willing to co-operate with other companies if the committee on way matters of the American Electric Railway Engineering Association adopts and recommends these spirals as good practice to be used in the future so as gradually to eliminate the different methods which are now in use.

GEORGE L. WILSON,
Engineer Maintenance of Way.

Electric Railways vs. Motor Trucks

NICHOLS-LINTERN COMPANY, INC.

RAILWAY MATERIALS.

CLEVELAND, OHIO, May 4, 1918.

To the Editors:

You may be interested in seeing the inclosed copy of a letter which I have sent to-day to the transportation department of the Cleveland Chamber of Commerce.

WILLIAM LINTERN, President.

LETTER TO CHAMBER OF COMMERCE
May 4, 1918.

The Chamber of Commerce,
Transportation Department,
Cleveland, Ohio.

Gentlemen:

Probably due to our association with electric railways, we believe that the same effort applied to get local shipments handled by them will be of greater benefit to the country than by motor trucks. The efficiency of the electric road undoubtedly can be made greater than is possible for any system of highway transportation when the distance exceeds say 20 miles. The proper propaganda to awake the

shippers and the electric railway people to the great possibilities right at hand for handling all freight within their areas will solve our congestion problems with the greatest economy to the country.

Consider the capacity of say three electric railway cars handled by two men to, say, Toledo, as against motor truck transportation.

Seemingly the electric railway people are not awake to their possibilities, due mostly to their financial status. They will require sympathetic co-operation on the part of shippers and bankers, as well as the various municipal authorities who, by the way, will find the problems of road upkeep a perplexing one under heavy motor transportation. Every ton transported by the electric railways decreases the labor demand for direct transportation as well as for road and motor upkeep.

The real solution for freight transportation within the areas served by the electric railways is utilization of the service they are capable of rendering.

At the present time the science of road building is not up to building roads that will stand under the strain of heavy motor transportation. Why experiment when the maintenance of electric roads can be figured accurately?

Respectfully yours,
THE NICHOLS-LINTERN COMPANY.
By William Lintern, President.

AMERICAN ASSOCIATION NEWS

Convention Committee Holds Meeting in Cleveland

A MEETING of the convention committee of the American Electric Railway Association was held in Cleveland on Tuesday of this week. Those in attendance were Charles L. Henry, Indianapolis, chairman; B. A. Hegeman, Jr., New York; Thomas Finigan, Chicago; R. P. Stevens, Youngstown, Ohio (representing the Transportation & Traffic Association); F. R. Phillips, Pittsburgh (representing the Engineering Association), and R. E. MacDougall, Rochester, N. Y. (representing the Claims Association); John J. Stanley, Cleveland, Ohio; James B. Mortimer, New York; E. F. Wickwire, Mansfield, Ohio and E. B. Burritt and H. C. Clark of the New York office of the association. F. W. Brooks, Detroit, was also in attendance at the committee meeting for a short time.

After a general discussion of the convention arrangements, a sub-committee on program was appointed consisting of Messrs. Mortimer, Hegeman and Clark who later during the meeting presented a definite program which was discussed. It will be made public as soon as definitely decided upon.

E. F. Wickwire was appointed chairman of the entertainment committee with power to choose his associates.

The committee also drew up a tentative allotment of the various items of expense in connection with the coming convention.

In the recent Centennial edition of the *News-Record* of Springfield, Ill., the Illinois Traction System carried a striking and beautifully illustrated full-page advertisement showing the progress made in the 100 years of Illinois history in transportation facilities. When Illinois was admitted to the Union in 1818 the streams and ox-teams were about the only means of transportation. Successive pictures bring the reader down to the present-day modern electric interurban cars.

News of the Electric Railways

TRAFFIC AND TRANSPORTATION

FINANCIAL AND CORPORATE • PERSONAL MENTION • CONSTRUCTION NEWS

How Cleveland Looks at It Considers Cleveland Railway Assumed Liberal Attitude Toward Employees in Wage Discussion

The favorable turn in affairs in connection with the Cleveland (Ohio) Railway wage dispute has resulted in expressions of satisfaction by business men who are interested in the production of war materials and in the general welfare of industrial and commercial progress. In particular, it is recognized that J. J. Stanley, president of the company, adopted a very generous course in finally relinquishing the demands for an open shop and the employment of women as conductors. As Mr. Stanley has explained it was his idea so to place the company that it would be able to furnish proper service under all conditions. In this he has been successful for it is understood that the men will agree to consider the question of the employment of women, if it becomes impossible to secure men.

The feeling is general in Cleveland that the men are unreasonable in their demand for an increase of 25 cents an hour in their wages. The maximum is now 35 cents. The present rate of fare is the maximum under the service-at-cost grant and it would be far too small to cover the additional amount that would have to be collected to advance pay. In fact, it has been regarded for some time as almost certain that the fare would eventually have to be increased even with the present wage scale in force.

A date for a hearing before the federal board will be fixed as soon as possible. It is the desire of both sides to get the matter out of the way, so that the new basis may be adapted to the operating cost. Until this is done, all those with a material interest in the conditions under which the company operates will be working in the dark, since any new wage fixed must date from May 1.

Session on Chicago Proposal

In stating the basis on which they would negotiate with the city in drawing up a unified plan of operation, Leonard A. Busby, spokesman for the surface and elevated railways, asked that the city allow the companies 1½ per cent more interest per year than had been recommended by the Chicago Traction & Subway Commission. This was refused on May 3 by the sub-committee of the City Council on local transportation. The sub-committee also rejected the idea of allowing the companies a maximum return of 8 per cent on their

investment. The action of the sub-committee was unanimous.

Walter L. Fisher, special counsel for the committee, again proposed his plan for having a board of trustees take over the control of the unified lines and operate them at cost. The sub-committee did not pay much attention to Mr. Fisher's latest appeal.

Before the sub-committee convened Alderman Henry D. Capitain, chairman of the main committee, prepared a chart showing just what was demanded by the companies and about what the city stood for in the proposed negotiations.

Summarized, the various proposals are:

Traction & Subway Commission— Recommends an indeterminate franchise, a period of thirty years being mentioned, for a new corporation to operate the unified surface and elevated lines and to build a subway system. A limit on the return to the companies of 8 per cent is fixed.

Companies— Want what is allowed by the commission and an additional return of 1¾ per cent.

Mr. Fisher— Proposes a plan for having a board of public spirited citizens take over the lines and operate them at actual cost.

The sub-committee will meet again in a day or two to continue the negotiations.

Wage Increase Hinges on Fare Raise

Negotiations between the executive board of Division 517 of the Amalgamated Association of Street Railway Employees, representing the motormen and conductors of the Gary (Ind.) Street Railway and the Gary & Valparaiso Street Railway, and the two companies have been concluded and an agreement has been signed. By the terms of the agreement a substantial increase in pay will be given to the employees of the companies when the Public Service Commission of Indiana grants to the Gary Street Railway the right to charge a straight 5-cent fare in the cities of Gary, Hammond and East Chicago. The bonus payment agreed upon will increase the wages of the men on the Gary lines to the scale that is in force in the city of Chicago.

The Gary Street Railway filed its application with the Public Service Commission in February, asking permission to charge a straight 5-cent fare in the cities of Gary, Hammond and East Chicago and to discontinue the sale of six-for-a-quarter tickets. The commission has not yet set the matter for hearing.

Short Kansas Strike Settled Road to Fort Leavenworth Was Tied Up By Insistence of Men Upon Unionization

The striking trainmen of the Kansas City-Western Railway, Kansas City, Kan., returned to work on the afternoon of May 3, after the company had put several cars in service with loyal employees. Service was restored by the company at the request of the army representatives. The immediate necessity was a Red Cross event on the line from Fort Leavenworth. Soldiers from that post were carried on the cars.

The men struck on the afternoon of April 18. They demanded a contract with the union, which was organized after the trainmen had quit their jobs. There was no other demand at any time. At a meeting of trainmen on May 3, attended by officials of the company, the demand was made again for a contract with the union. C. F. Holmes, president of the company, told the men that contracts with organizations had little value and that he did not care to tie himself up with them. The final proposal of Mr. Holmes to the men, made that afternoon, was that there would be no discrimination against union men, and that he would be glad to treat with any employee from time to time. He was soon informed that the men were returning to work and by May 3 the city cars in Leavenworth, the cars from the fort, and the interurban cars between Kansas City and Leavenworth were again in operation.

Mr. Holmes made this statement:

THE COMPANY'S OFFER

"I agree to reinstate every employee of the company that was in the employ of the company on April 1, 1918. Every such employee, without regard to whether he is a union or non-union man, may remain as long as he performs his duties in a proper manner. I further agree to make no objection to the men continuing with the union organization and will not discriminate against union men. It is my desire that the men shall have fair wages and hours and fair treatment and consideration in every respect, and I shall be glad to treat with any of the employees from time to time in regard to any question they wish to take up. This is for acceptance in order that service may be resumed at once."

The strike started among the men operating the local lines in Leavenworth. Mr. Holmes announced that if the Public Service Commission grants increased fares, the company will readjust the wages of the men.

New Draft of Proposed Boston Relief Bill

Relief Measure for Boston Elevated Changed to Meet Suggestions of Governor and Others

The House members of the committees on metropolitan affairs and street railways of the Legislature of Massachusetts have prepared a redraft of the Boston Elevated Railway relief bill. Several changes have been made in the measure as a result of conferences with the committee on ways and means and because of the attitude of Governor McCall as recently made public.

SOME OF THE CHANGES IN THE BILL

One provision which has now been inserted specifies that if at the end of ten years of public control the property goes back to private control, it shall do so under a service-at-cost plan. The so-called option section, which specifies the terms under which the State may take over the property during a ten-year period, has been entirely rewritten, and a provision added to the effect that the option provided for shall not affect the right of the State to acquire the road at any time by exercise of the right of eminent domain. A new section also provides that if any part of the act is declared unconstitutional, the validity of the remainder of the act shall not be affected thereby.

A redrafted section now provides that the act shall take effect only when it has been accepted by a majority of all the stock of the Boston Elevated Railway, and by a majority of the stock of the West End Street Railway, and when the company shall certify that \$3,000,000 of preferred stock, for rehabilitation and reserve, shall have been issued, and at least 30 per cent of it paid for in cash. The provision of the original bill that members of the Legislature may be eligible for service on the board of trustees has been stricken out.

Governor McCall declined to state whether he will approve the bill in its present form, in a press interview granted soon after its preparation had been completed. He was pleased that the committees have adopted his suggestion that the bill should not be made a permanent contract between the company and the State, but is to be limited to ten years, under trustees appointed by the terms of the bill. The Governor does not consider the payment of the trustees to be desirable, and he is strongly of the opinion that the trustees should be appointed by the Governor and not by the Mayor of Boston. To representatives of the press he said:

KEEP THE ROAD OUT OF POLITICS

"I have no doubt that Mayor Peters would select excellent men, but Mr. Peters will be Mayor of Boston for only four years. If the Mayor of Boston is to have the appointment of two of the trustees, it would mean that the control of the Boston Elevated Railway would become a big issue in Boston politics, because these trustees are to have control, not alone of the com-

pany's finances, but also of the employment of men in its service. Then again, the trustees should operate the system in the interest of the entire community which it serves, rather than in the interest of any individual city or town. These are some of the reasons why I believe that the Governor should have the appointing power, particularly in view of the fact that the Executive Council will be a check upon any unwise selections."

The bill was brought up for discussion in the House on May 8, and various amendments were introduced. One of these provides for a referendum on the measure at the next State election to the voters of Boston and the suburban cities and towns in which the company operates. It appears to be recognized among the leaders on Beacon Hill, however, that such a postponement of relief would be disastrous to the company and the communities alike. Other amendments offered tend to bring the bill into accord with the views of Governor McCall as expressed in his recent communication to the committee members having the bill in charge.

So far no opposition has been shown to the general plan of passing a public control measure with provision for fare adjustments necessary to meet the full cost of transportation service in the metropolitan district.

PRESIDENT BRUSH HOPEFUL

To a representative of the ELECTRIC RAILWAY JOURNAL M. C. Brush, president of the company, said on May 8 that the outlook was bright for the passage of a constructive bill of fundamental value and nation-wide significance, equally fair to the interests of the public, car-riders, stockholders and employees. The bill has probably not reached its final form, and during the next few days interest will center upon the discussion of proposed amendments.

Detroit Strike Settlement Basis

The two propositions presented by the Detroit (Mich.) United Railway to its trainmen for the settlement of the recent short strike were as follows:

"1. The men to go back under the old conditions and wages and submit all differences to the Federal Mediation Board for adjustment, the award to take effect on June 1, or

"2. Go back to work at the following rates: First three months, 35 cents an hour; next nine months, 40 cents an hour; thereafter, 45 cents an hour.

"Other differences, if any, raised by either side to be adjusted by the Federal Mediation Board.

"It is understood that no discrimination shall prevail against the employment of women and colored men as necessity arises."

The men selected the first proposition. Company officials had been negotiating with a committee representing the Amalgamated Association for the purpose of adjusting, if possible, the demands made by the union, the last meeting adjourning at 5 o'clock on the afternoon of April 22 to meet again at 2 o'clock on the afternoon of April 25, at which time it was thought that a conclusion would be reached.

Nothing transpired to warrant any belief that the negotiations would not continue in an orderly way, it being understood that arbitration would follow any possible failure to reach an agreement. On the night of April 23 some of the men congregated and in violation of their agreement called a strike to take effect at once, no notice being given to the company of their intention.

Agree on Pittsburgh Wages

The likelihood of a strike of the employees of the Pittsburgh (Pa.) Railway would seem to be entirely removed. Representatives of the union and the receivers of the railway following separate, protracted conferences with United States District Attorney E. Lowry Humes, who acted as mediator, announced on May 4 that a tentative agreement had been reached on the men's demands for higher wages.

The men had demanded an increase of 10 cents an hour. This would have given them from 42 to 50 cents an hour, according to length of service. In the conferences that were held the receivers offered an advance of 2 cents an hour and the men's representatives are understood to have scaled their demand to 8 cents.

In the first stages of the conferences, concessions in regard to working conditions were tentatively accepted by the men, so that only the wage question remained for final settlement.

The motormen and conductors of the company on May 6 accepted the wage scale agreement reached in joint conference. The vote was 1925 for ratification and 526 against it.

The new agreement will continue for a year. It dates back to May 1, and provides an increase in pay of 5 cents an hour distributed as follows: First six months' service, 37 cents; first year, 39 cents; second year, 41 cents; third year and thereafter, 45 cents. Men reach the maximum pay after three instead of five years' service.

Extra pay is provided for overtime work. On holidays the men will receive time and a half pay after eight and one-half hours' work; on straight runs, time and half pay after eleven hours' service on runs which must be completed within 12½ hours; on swing runs time and a half pay after fourteen hours' service on runs which must be finished within fifteen hours. Extra men for anything inside of five hours' work will receive \$2 instead of \$1.65. For reporting for extra work the men will receive 50 cents instead of 25 cents, in case they are not assigned.

News Notes

Six-Cent Wage Increase Asked.—Requests have been made by the employees of the Wilmington & Philadelphia Traction Company, Wilmington, Del., for an increase in wages of 6 cents an hour, to become effective on May 13.

Southern Road Increases Wages.—An increase in pay to all employees of the Columbus (Ga.) Railroad, effective at once, was announced on May 1. The new schedule ranges from 23 to 30 cents an hour, the men being paid according to the length of service. The increase just made, which is the second this year, amounts to 2 cents an hour.

Seek Wage Increase.—The employees of the Shore Line Electric Railway, Norwich, Conn., have asked for a minimum wage of 35 cents an hour and a maximum of 45 cents an hour, and time and a half for all working hours in excess of nine hours. The present wages are, minimum, 28 cents and, maximum, 35 cents an hour, with 10 cents an hour additional for overtime work.

Increase in Wages in Allentown.—The Lehigh Valley Transit Company, Allentown, Pa., has announced a voluntary increase in wages of the trainmen of 2 cents an hour. This is the second increase granted since the first of the year. The rates paid are now 31 cents an hour for first-year men, 32 cents for second-year men, 33 for third-year men, 34 for fourth-year men and 36 for those in the employ of the company five years or longer.

Will Not Recognize Union.—The sympathetic strike involving all organized trades in Waco, Tex., called to aid the striking conductors and motormen of the Texas Electric Railway, has been declared off by labor leaders. This action was taken after federal mediators had advised such a course. This leaves the railway strike just where it was. The company has been operating cars with little inconvenience. It has announced that it will not recognize the union. This is the only point of difference between the strikers and the company.

Union Activity Restrained.—The Nashville Railway & Light Company, Nashville, Tenn., recently secured an injunction to prevent its conductors and motormen from being organized into a branch of the Amalgamated Association of Street & Electric Railway Employees of America. A bill recently filed in the chancery court charges that J. B. Lawson, an agent of that union, had been in the city several days endeavoring to organize the men. The bill further states that the men could not join the union without violating the two-year

contract entered into with the company on June 30, 1917. The injunction was granted on that ground.

President Has Power to Take Over Lines.—Under the amendment to the emergency shipping fund provisions of the urgency appropriation act, approved by President Wilson on April 22, 1918, the President is authorized "to take possession of, lease or assume control of" any street or interurban railway, or cars, franchises or parts thereof, when necessary for the transportation of government shipyard workers. The compensation is to be determined by the President, but if the amount is unsatisfactory to the person entitled to receive it, he will be paid 75 per cent of this amount and may then sue the government to recover the balance of his just compensation for the property devoted to public use.

Barclay Parsons & Klapp to Report on Cleveland.—The Cleveland (Ohio) Rapid Transit Commission has arranged with Barclay Parsons & Klapp, New York, N. Y., to make a survey and preliminary engineering plans for the underground terminal and subway system which is proposed for that city. This was made conditional upon the approval by the Federal Capital Issues Committee of a \$100,000 bond issue to cover the expense. It is believed that the survey and plans will cost about \$50,000. H. M. Brinkerhoff, consulting engineer of the firm, estimates that the survey can be made and preliminary plans completed in about six months. Should the bond issue be approved, negotiations will be closed for the preliminary work.

Stone & Webster Texas Men Meet.—Managing officials of the Stone & Webster properties in Texas met at Houston recently for a conference with M. M. Phinney of Boston, president of the company, and with L. C. Bradley of Houston, district manager for the company in Texas. It was agreed that none but imperative improvements and extensions should be undertaken during the war, but that every effort should be directed toward keeping up the high standard of efficient service with the equipment on hand. Conservation, both in electric power and in materials and equipment, was the keynote of the conference. It was agreed that the companies in the various cities should cooperate with the government to the fullest so as to do their part in winning the war.

To Work on New Cincinnati Contract.—E. W. Edwards, chairman of the Cincinnati (Ohio) Rapid Transit Commission, and Chris Schott have been appointed by the commission to serve with two members of the City Council on a conference committee to work out terms for a new franchise agreement with the Cincinnati Traction Company. C. W. Culkins, street railroad director, has compiled figures showing that the city would have received more money from the company under the contract declared void by the Supreme Court

than under the old 6 per cent plan. The difference is due to the fact that the gross receipts of the company have fallen off about \$50,000 since the first of the year, as compared with the same period a year ago.

Increased Wages on Indiana Union Traction.—Announcement was made on May 4 that an increase of 2 cents an hour has been granted to the interurban and city trainmen of the Union Traction Company of Indiana. The advance in wages was unsolicited by the employees. It will date back to April 1. The increase will add approximately \$25,000 annually to the payroll. The wages of interurban men, which under the old schedule were 24 to 34 cents an hour, will be advanced to 26 to 36 cents an hour. Conductors and motormen operating city cars in Anderson, Muncie, etc., will receive a wage scale of 22 to 27 cents an hour instead of 20 to 25 cents. Trainmen on the Broad Ripple line, operating between Indianapolis and Broad Ripple, will receive 23 to 29 cents an hour in place of the wage scale of 21 to 27 cents an hour formerly in effect.

More Discussion in Toledo.—F. R. Coates, president of the Toledo Railways & Light Company, Toledo, Ohio, invited representatives of the carmen's and electrical workers' unions to meet with him on May 3. As a result the impression became general that the company had some kind of a proposition to make in an effort to settle the wage question. Mr. Coates said after the meeting that no one seemed to have changed his mind in the least and as long as this was true little could be done. It had been reported that the men were willing to accept less than 10 cents an hour increase, as demanded, but this was not apparent in the discussion at that time. No plan had been advanced by the City Council for allowing the company a rate that would warrant an increase in wages. The company, as a result, was not prepared even to make a suggestion on the matter of wages.

Wage Increase in San Francisco.—An increase of wages to the platform men of the United Railroads, San Francisco, Cal., effective immediately, was announced on April 22. The new rate raises the minimum from 30 cents to 33 cents an hour and gives a 2-cent advance after six months' work. A sliding scale then becomes effective. This provides for an increase of 1 cent an hour for each subsequent year, up to a maximum of 42 cents an hour. The yearly increase goes to each man upon the anniversary of his date of employment. The former wage of 30 to 42 cents was established last November. It was fixed to increase the scale 5 cents an hour maximum to those who had remained with the company during the August strike last year. The present increase is the fourth made during the presidency of Jesse W. Lienthal. When he became the head of the company the scale ranged from 25 to 33 cents an hour.

Financial and Corporate

Northern Electric Finances

Application Made to California Commission for Approval of Amended Reorganization Plan

The reorganization committee of the Northern Electric Railway, Chico, Cal., has filed with the California Railroad Commission an application for approval of an amended plan of reorganization, which plan has received the approval of a majority of the respective creditors of the company.

A new corporation will be created to take over all of the properties of the Northern Electric Company, the Northern Electric Railway, the Northern Electric Railway Company—Marysville and Colusa Branch, and the Sacramento & Woodland Railroad. This will be done by foreclosure of the various bond mortgages and by the committee purchasing the properties at the foreclosure sales and turning the same over to a new corporation.

The new corporation will not assume any of the indebtedness of the present companies. It will have a capital stock of 52,000 shares of the par value of \$100 each, or \$5,200,000, divided into \$1,902,200 first preferred—dividend not to exceed 6 per cent non-cumulative to be paid out of surplus and net profits, first to first preferred and next to second preferred stock—\$957,800 second preferred and \$2,340,000 common.

The company will create an issue of 5 per cent twenty-year bonds amounting to \$5,500,000 divided into Class "A" bonds for \$2,012,400 on which the interest is to be a fixed charge from July 1, 1917, Class "B" bonds for \$951,200 on which the interest is to be a fixed charge from July 1, 1919, and prior thereto only to the extent of net earnings, Class "C" bonds for \$1,268,200 on which the interest is to be a fixed charge from July 1, 1922, and prior thereto only to extent of net earnings, and Class "D" bonds for \$1,268,200 on which the interest is to be a fixed charge from July 1, 1927, and prior thereto only to the extent of net earnings.

Class "A" bonds are to be callable at 102 and Classes "B," "C" and "D" are to be callable at par.

A sufficient number of Class "A" bonds will be sold to provide for prior liens, receiver's certificates, receiver's expenses and fees, trustees' expenses, reorganization expenses, repairs, reconstruction, rolling stock, equipment, and for such other purposes necessary to the accomplishment of the plan of reorganization as may be approved by the committee.

The amount of securities actually issued by the new corporation will depend to some extent on the assessments paid by the various classes of creditors.

In the original application, authority was asked to issue stocks, bonds and notes as follows:

| | |
|--|--------------|
| Stock | \$2,000,000 |
| First mortgage bonds..... | 500,000 |
| General Mortgage Bonds..... | 5,284,000 |
| (a) To be exchanged for bonds held by public | \$3,106,000 |
| (b) To be exchanged for bonds pledged | \$2,178,000 |
| Income mortgage bonds..... | 6,980,000 |
| (a) To be exchanged for bonds held by public | \$1,030,000 |
| (b) To be exchanged for bonds pledged | \$5,482,000 |
| (c) To be pledged for present unsecured debt... .. | \$ 468,000 |
| Five-year notes to be issued in lieu of notes and claims to be assumed | 6,498,770 |
| (a) Face amount of notes and claims | \$6,093,590 |
| (b) Unpaid interest on notes to June 30, 1915 (plan provides that all unpaid interest on notes shall be added to face of new note) | \$ 405,179 |
| Interest coupons representing unpaid interest on bonds up to July 1, 1915..... | 266,871 |
| Total stocks, bonds and notes | \$21,529,641 |

Adirondack Line to Be Sold

The property of the Adirondack Lakes Traction Company, Gloversville, N. Y., is to be sold at public auction in Gloversville on June 12. The sale will be made by Frank S. Sexton, trustee under the company's mortgage. The amount due is \$100,000 of principal and \$73,500 of interest from July 1, 1903. The sale is at the request of holders of more than one-third of the bonds outstanding, the principal being declared now due under terms of the indenture.

The Adirondack Lakes Traction Company, a 5-mile line, is the successor of the Mountain Lake Railroad. The old company was covered by a \$100,000 mortgage, the one referred to above. In 1903 the company suffered a serious accident, which drove it into bankruptcy. The property was afterward sold, subject to the mortgage, to a syndicate which organized the Adirondack Lakes Traction Company.

A controlling interest in the new company was subsequently acquired by the Fonda, Johnstown & Gloversville Railroad. The property has continued operation by the Adirondack subsidiary, but not at a profit. Now, unless the line is purchased by outside interests, it is expected that operations will be discontinued after the sale. None of the foregoing, of course, has any bearing whatever upon the credit and financial standing of the Fonda, Johnstown & Gloversville Railroad.

Hearing on Abandonment

Receiver Tells Commission Fares Must Be Increased or Part of Road Abandoned

George Bullock, receiver of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., told Commissioner Barhite of the Public Service Commission for the Second District, at a hearing in Buffalo on April 29 that unless the company received permission to increase its rate of fare between Fredonia and the New York State line, it would be forced to abandon this part of the route and scrap its line between the two points. For the last fiscal year there was a deficit of \$45,000 for this division. He declared that a rate of 2½ cents a mile should be established.

Commissioner Barhite said informally that the commission had no authority to fix the rates of fare in towns where the company has agreements relative to fares, but that the commission would go over the evidence and make what it considered a fair proposition so that the matter could be submitted to the towns.

Officials of Fredonia, Westfield, Brocton and other towns and cities between Fredonia and the New York State Line attended the hearing. They agreed to co-operate with the company so it would not be necessary for it to abandon this part of its Buffalo-Erie line and scrap this division.

After hearing the evidence of the railway, Commissioner Barhite recommended that the company file with the commission a concrete proposition, covering all points it desires the commission to consider, including the proposed increase in rates. This proposition in turn will be submitted by the commission to the communities along the division.

Pending the efforts of the company to adjust this matter, no action will be taken in regard to the company's application to the commission for the right to abandon its belt line around the city of Dunkirk.

St. Louis Deposits Urged

Richard McCulloch, president of the United Railways, St. Louis, Mo., has sent circulars to all stockholders of the company notifying them of the passage and signing of the franchise settlement ordinance and calling attention to its provisions that the company's capitalization must be reduced to conform to a valuation of \$60,000,000. The circular says that before the company accepts the ordinance it is desirable to know what capital value will be established by the State Public Service Commission and whether the commission will authorize an increase in fares. Pending the settlement of these issues, Mr. McCulloch urges holders of stocks and bonds to turn over their securities to the reorganization committees, which have been formed, so that if the franchise bill is accepted the company's capitalization may be reduced.

Expenses Almost Consume Revenues

Kansas City Railways Net for 1918 Will Fall \$1,200,000 Short of Meeting Its Fixed Charges

The Kansas City (Mo.) Railways at a hearing on April 29 and 30, before the Missouri Public Service Commission, presented extensive exhibits of its revenues and expenses during the last four years, and especially during the last six months of 1917 and the first three months of 1918. The figures showed that the operating expenses are increasing at a rapid rate and now almost consume the entire revenues, leaving practically nothing for interest and dividends. The company borrowed \$400,000 in December to meet interest charges. The accompanying statement gives the recent earnings record.

According to the company's calculations, the earnings for the calendar year 1918, after the deduction of operating expenses and fixed charges, will be \$1,520,690 less than they were during 1917. Upon Dec. 31, 1918, the net earnings will fail by \$1,242,639 to meet the fixed charge and by \$1,551,623 to equal 6 per cent return upon the fair value of the property.

PROBLEMS OF WAGES AND FUEL

A feature of the hearing was the emphasis placed on higher wages and the cost of fuel. In regard to the former point several employees testified that except for long service and property in Kansas City they would long ago have accepted more remunerative positions with better hours. Officers of the employees' organization testified that they had with difficulty kept many of the workmen on their jobs, urging them to wait until the commission had had a chance to grant increased fares, in which case the company would be able to pay better wages. The testimony of the men seemed to impress many local business men at the hearing.

As for the cost of fuel, the evidence indicated that the fuel bill had increased 103.23 per cent in three years, or \$1,110,170. Under the former contract, the company was securing coal at \$2.16 a ton; it has recently been paying \$3.80 a ton. Fuel oil was formerly \$0.785, and it is now \$2.38. In spite of the higher cost, the coal is not of as good a quality, and the company is having trouble getting enough to keep the plant operating.

It had a contract for Illinois coal, but the coal company, though tendering on the contract, cannot deliver because Kansas City has been placed outside the zone within which Illinois coal can be delivered. Furthermore, the railway has tried in vain to get some definite indication from the fuel administrators as to when the ban may be lifted. It is in a quandry in the making of contracts with Southwestern operators because of the uncertainty as to whether Illinois coal will be allowed in Kansas City, under a modification of zoning orders such as is said to have been made in other districts.

The company has been conducting a conservative but persistent campaign of publicity in regard to its fare application. The work has included newspaper displays, car cards, a weekly bulletin distributed on the cars, and pamphlets designed to prepare the public for a favorable decision by the commission. The entire campaign is based on the necessity for service of the best possible quality, emphasis being placed on the fact that the company would not make a profit from higher fares, and that the cost of service must be met if any utility is to be maintained in Kansas City.

FIRST SETTLEMENT WITH CITY

It is already apparent that the publicity effort has been exceedingly serviceable. There is practically no fight against the higher fare in Kansas City, except from city officials, and no opposition, except from this source, to the submission of the question to the Public Service Commission. A recent change of city administration has a bearing on the situation which cannot now be gaged until the new officials have had opportunity to act. They were scheduled to present their case at an adjourned hearing on May 9.

The Kansas City Railways recently made its first settlement with the city. The franchise provides that the surplus income shall belong to the city, but that it shall be expended for extensions and improvements until \$6,000,000 has been so used. This total shall be added to capital account, and the city's surplus thereafter shall go toward the purchase of the property. There was a provision, however, that the personal injury claims accumulated during the receivership should be a prior lien on the surplus, and that these might be paid from the first surplus or financed by certificates payable over thirty years. A later agreement with the city provided that the claims should be paid before the city began to share.

CITY SHARE NOW \$98,000

During March the claims, which had finally been collected, were paid with the exception of a few, for which a reserve fund of \$200,000 was set aside. The surplus earnings of the company from the date of the franchise to June 30, 1917, were \$1,235,387. With claims paid amounting to \$351,806 in cash and \$584,911 in certificates, and the \$200,000 of reserve, the city's share remaining was \$98,589. A certificate was given the city indicating this amount of participation in the company. Since June 30, 1917, there has been no increase in the city's interest; the company had not even made 6 per cent on the investment.

COMPARATIVE INCOME STATEMENT OF KANSAS CITY RAILWAYS FOR PERIODS FROM JULY 8, 1916, TO MARCH 31, 1918

| | Jan. 1, 1918 to Mar. 31, 1918 | July 1, 1917 to Dec. 31, 1917 | July 1, 1916 to June 30, 1917 |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| Revenue from transportation..... | \$1,558,009 | \$3,368,555 | \$6,909,602 |
| Revenue from other operations..... | 25,830 | 52,502 | 100,520 |
| Revenue from power..... | 252,346 | 571,093 | 1,041,966 |
| Operating revenues..... | \$1,836,186 | \$3,992,150 | \$8,052,089 |
| Maintenance of way and structures..... | \$136,352 | \$294,251 | \$802,060 |
| Maintenance of equipment..... | 125,375 | 233,036 | 374,899 |
| Maintenance of power plant and buildings..... | 60,726 | 117,619 | 65,153 |
| Power—operating..... | 303,088 | 442,005 | 734,957 |
| Conducting transportation..... | 500,551 | 962,136 | 1,866,037 |
| Traffic..... | 87 | 6,335 | 2,041 |
| Board of control..... | 7,214 | 11,783 | 31,307 |
| Injuries and damages after July 8, 1914..... | 168,550 | 209,525 | 321,755 |
| Amortization of franchise..... | 250 | 500 | 1,000 |
| General and miscellaneous..... | 105,875 | 280,114 | 322,722 |
| Total operating expenses..... | \$1,408,071 | \$2,557,308 | \$4,521,934 |
| Taxes..... | 128,851 | 261,155 | 473,149 |
| Auxiliary operations—power..... | 289,214 | 574,328 | 644,070 |
| Total operating expenses and taxes..... | \$1,826,137 | \$3,392,792 | \$5,639,155 |
| Operating income..... | \$10,049 | \$599,358 | \$2,412,934 |
| Special operating expenses account "Injury and Damage Claims Prior to July 8, 1914"..... | 3,427 | 1,218 | 853,398 |
| Gross income..... | \$6,622 | \$598,139 | \$1,559,535 |
| Miscellaneous income—company..... | \$4,468 | \$1,963 | \$18,815 |
| Miscellaneous income—joint..... | 1,828 | 6,192 | 17,669 |
| Total..... | \$6,296 | \$4,229 | \$36,484 |
| Net income..... | \$12,919 | \$602,368 | \$1,596,019 |
| Surplus above 6 per cent on capital value to be applied as provided in the franchise..... | | | 413,984 |
| Company's share of income..... | \$12,919 | \$602,368 | \$2,010,004 |
| Deductions from company's income: | | | |
| Bond interest..... | \$378,053 | \$725,451 | \$1,442,568 |
| Bond discount and expenses..... | 7,235 | 4,004 | 1,523 |
| Services of registrars and trustees..... | | 2,254 | 4,032 |
| Interest on Kansas injury and damage certificates..... | 1,735 | 3,471 | 6,937 |
| Interest on -issuor injury and damage certificates..... | 8,774 | 17,549 | 34,342 |
| Taxes..... | | | 1,106 |
| Miscellaneous..... | 910 | 16,847 | |
| Premium on bonds retired..... | | | |
| Total deductions..... | \$396,709 | \$769,578 | \$1,490,510 |
| Profit and loss..... | \$383,790 | \$167,210 | \$519 |

* Deficit.

Union Traction Net Falls

Heavy Cost of Operation Overbalances Increase in Receipts — Purchase of Coal Mine Beneficial

The great decrease in net income, from \$188,745 in 1916 to \$42,142 in 1917, on the part of the Union Traction Company of Indiana was caused by the large increases in the cost of practically every item of operating expense. The gross revenues gained \$277,124 or 9.93 per cent, but the expenses increased \$407,638 or 25.22 per cent.

The net income for 1917 therefore showed a decrease of \$146,603. After deduction of sinking funds, a deficit of \$17,649 was shown, to be compared with a surplus of \$132,227 for 1916, a decrease of \$149,876.

The complete comparative figures are given in the table below.

The earnings and expenses of the Muncie-Portland line for the first six months of 1916 are not included in the figures stated for that year, operation of that line by the Union Traction Company of Indiana not having been begun until July 1, 1916.

The operating expenses for 1917 included \$366,641 for maintenance of way and structures and \$227,902 for maintenance of equipment, making the total sum charged for maintenance of the property \$594,543. This equalled 19.40 per cent of the gross earnings for the year, equivalent to \$1,406 per mile of single track operated, exclusive of city tracks of other companies at Indianapolis, Logansport and Wabash.

A total of \$169,097 is the net amount charged for additions and betterments for the year, \$147,195 being the amount expended on way and structures, including track, bridges, buildings, lands, and the like. Of this sum the lessor companies, the Muncie & Portland

Traction Company and the Indianapolis, New Castle & Eastern Traction Company, contributed \$47,000 for expenditures on or for the leased properties. These expenditures are in addition to \$20,846 advanced during the year to the Traction, Light & Power Company and expended for light and power equipment, and are also in addition to the \$59,791 paid out on account of sinking fund.

The rapidly advancing prices and the scarcity of coal early in 1917 compelled

par to \$135,000, is held equally by the four traction companies mentioned, which take the output of the mine in equal proportions. Control of this mine has been of substantial benefit, in respect to both the supply of coal and the price.

The company has just petitioned for authority to advance the base interurban rate of 2 cents per mile. This rate is the maximum fixed by the 2-cent fare law. It is not believed that that law applies to interurban companies, but it clearly does apply to the steam railroads, with whose lines the interurban companies are in direct competition. An increase in this base fare appears to be imperative, however, if the company is

| | 1917 | 1916 |
|--|------------|------------|
| Passengers carried, interurban lines..... | 11,307,816 | 9,992,101 |
| Passengers carried, city lines..... | 8,375,460 | 8,457,814 |
| Total passengers carried..... | 19,683,276 | 18,449,915 |
| Freight handled (tons)..... | 100,234 | 90,300 |
| Express handled, exclusive of Wells Fargo & Company | | |
| Express (tons)..... | 7,816 | 7,689 |
| Mileage of cars, interurban lines..... | 6,915,933 | 6,558,913 |
| Mileage of cars, city lines..... | 1,675,822 | 1,722,141 |
| Total mileage of cars..... | 8,590,755 | 8,281,054 |
| Coal consumed at all plants (ton*)..... | 120,045 | 96,850 |
| Power generated (a. c.) at all plants (kw.-hr.)..... | 50,397,180 | 47,652,790 |
| Power generated (d. c.) at all plants (kw.-hr.)..... | 28,591,247 | 28,191,304 |

attention to the matter of insuring an adequate supply of coal at reasonable cost. After consideration of several plans, the company joined with the Indianapolis Traction & Terminal Company, the Terre Haute, Indianapolis & Eastern Traction Company and the Fort Wayne & Northern Indiana Traction Company in the organization of the Shirley Realty Company, which purchased an operating coal mine in Sullivan County, Ind. The purchase was financed through the sale of the preferred capital stock of the Shirley Realty Company, amounting at par to \$265,000. The entire common capital stock of the company, amounting at

to continue to furnish proper service. The appeal of the company to the commission in the matter of fares is reviewed briefly on page 935 of this issue.

Miscellaneous statistics for 1916 and 1917 are shown in the accompanying table.

War Finance Directors Confirmed

The Senate has confirmed the appointment as directors in the War Finance Corporation of Messrs. McLean, Harding and Meyer. The President has sent to the Senate the nomination of Clifford M. Leonard of Illinois in place of Allen B. Forbes, who found himself unable to accept appointment. The organization of the corporation was reviewed briefly in the ELECTRIC RAILWAY JOURNAL for May 4, page 875.

| | 1917 | | 1916 | |
|---|-------------|----------|--------------|----------|
| | Amount | Per Cent | Amount | Per Cent |
| Revenue from Transportation: | | | | |
| Passenger..... | \$2,588,176 | 84.40 | \$2,332,219 | 83.62 |
| Baggage..... | 8,966 | 00.29 | 9,475 | 0.34 |
| Parlor chair and special car..... | 7,787 | 00.25 | 11,225 | 0.40 |
| Mail..... | 1,836 | 00.05 | 1,821 | 0.06 |
| Express..... | 107,330 | 03.50 | 91,844 | 3.29 |
| Milk..... | 15,011 | 00.48 | 24,882 | 0.89 |
| Freight..... | 262,721 | 08.59 | 250,560 | 8.99 |
| Total..... | \$2,991,830 | 97.56 | \$2,722,026 | 97.59 |
| Revenue from operation other than transportation: | | | | |
| Station and car privileges..... | \$ 13,478 | 00.44 | \$ 10,337 | 0.38 |
| Parcel rooms and storage..... | 1,028 | 00.03 | 998 | 0.04 |
| Rent of tracks and facilities..... | 2,922 | 00.09 | 7,558 | 0.27 |
| Rent of equipment..... | 2,510 | 00.08 | 4,246 | 0.15 |
| Rent of buildings and other property..... | 9,050 | 00.29 | 8,412 | 0.30 |
| Power..... | 44,867 | 01.49 | 35,196 | 1.25 |
| Miscellaneous..... | 776 | 00.02 | 567 | 0.02 |
| Total..... | \$ 74,636 | 02.44 | \$ 67,314 | 2.41 |
| Operating revenues..... | \$3,066,466 | 100.00 | \$2,789,342 | 100.00 |
| Way and structures..... | \$ 366,641 | 11.95 | \$ 310,067 | 11.10 |
| Equipment..... | 227,902 | 07.46 | 172,406 | 6.15 |
| Power..... | 496,420 | 16.18 | 279,578 | 10.02 |
| Conducting transportation..... | 547,091 | 17.84 | 476,084 | 17.06 |
| Traffic..... | 16,218 | 00.52 | 11,689 | 0.49 |
| General and miscellaneous..... | 369,334 | 12.04 | 349,422 | 12.52 |
| Extraordinary flood expense..... | | | 16,726 | 0.59 |
| Total..... | \$2,023,609 | 65.99 | \$1,615,972 | 57.93 |
| Net operating revenue..... | \$1,042,857 | 34.01 | \$1,173,370 | 42.07 |
| Taxes..... | 142,589 | 4.65 | 136,460 | 4.89 |
| Operating income..... | \$900,268 | 29.36 | \$1,036,910 | 37.18 |
| Other income..... | 16,531 | 0.54 | 16,983 | 0.61 |
| Gross income..... | \$ 916,799 | 29.90 | \$ 1,053,893 | 37.79 |
| Deductions..... | 874,657 | 28.52 | 865,148 | 31.02 |
| Net income..... | \$ 42,142 | 1.38 | \$ 188,745 | 6.77 |

Financial News Notes

New West End Director.—Eugene C. Huttman, Quincy, Mass., has been elected a director of the West End Street Railway to succeed Charles A. Williams.

Report of Central Line.—The income statement of the Chicago, Harvard & Geneva Lake Railway, Walworth, Wis., for the year ended Dec. 31, 1917, shows the following items: Gross revenues, \$39,032; operating expenses and taxes, \$24,796; net revenues, \$14,236; bond interest, \$3,375; interest on bills payable, \$1,169; net income, \$9,692.

Portland Stock Decreased.—The Portland Railway, Light & Power Com-

pany, Portland, Ore., has filed articles showing a decrease in the capital stock of the company from \$40,000,000 to \$35,000,000. The amendment to the articles of incorporation was authorized at the annual meeting of the stockholders in Portland on April 3.

Sold Under Foreclosure.—The property of the Northern Cambria Street Railway, Patton, Pa., was sold on March 31 by the Cambria Title, Savings & Trust Company, Ebensburg, Pa., trustee, to M. D. Kittel, A. W. Buck, James H. Allport, W. H. Deulinger and W. B. Adair, representing the bondholders. A meeting of the bondholders was called for May 1 at which time it was proposed to elect a board of directors and other officers.

Bond Hearing Closed.—The Public Service Commission for the Second District of New York on May 4 heard the petition of the Southern New York Power & Railway Corporation, Coopers-town, N. Y., for an amendment of an order of the commission on Oct. 19, 1916, so that there shall be authorized a \$5,000,000 mortgage and the issuance of \$1,000,000 in bonds, the rate of interest to be fixed by the directors and not to exceed 6 per cent. Decision was reserved. The application, filed on April 11, was noted in the ELECTRIC RAILWAY JOURNAL of April 20, page 784.

Appeals Frontier Decision.—The Erie Railroad Company has filed with the Public Service Commission for the Second District of New York, a petition for a rehearing and a revocation of the commission's order of March 19 last, granting permission to the Pennsylvania and the Delaware, Lackawanna & Western railroads to acquire the stock of the Frontier Electric Railway. The commission will take immediate action upon the petition. It was held by the

commission in a memorandum which accompanied its order of March 19 that the record showed that the entire shipping interests of the Niagara frontier demanded that the application be granted.

Pittsburgh Valuation Work Started.—The joint commission of five engineers selected to value the property of the Pittsburgh (Pa.) Railways, as noted in the ELECTRIC RAILWAY JOURNAL of March 23, page 582, has held several meetings to perfect the organization. Ford, Bacon & Davis, whose valuation manager, J. A. Emery, is one of the company's representatives, have placed on the property forty men, including accountants and mechanical, electrical and civil engineers. Thus far the activities have been of a preliminary nature, in subdividing the work and in preparing forms. It is planned to secure the reproduction cost new and the original cost of the railway.

Would Issue New Stock.—The Union Street Railway, New Bedford, Mass., has an application pending before the Massachusetts Public Service Commission for permission to issue \$812,500 of new stock. The proceeds will be applied to paying for a new power station. The company now has \$1,635,000 of stock outstanding. On this it is paying dividends of 8 per cent. Testifying for the company, H. A. Gilman of the banking firm of Estabrook & Company, Boston, said that unusual competition existed in the securing of capital. Because of this it is necessary to offer attractive prices to prospective investors. Street railway securities were wanted by no one now, and they were being disposed of in large quantities by those holding them. He accounted for this condition by the publicity thrown upon the affairs of the

companies. H. H. Crapo, president of the company, believed that the securing of capital through a stock issue would relieve the banks now supplying money for the undertaking. He pointed out that there has been no change in the capitalization of the company since 1909. Since 1900 the company has added \$1,500,000 to the value of the road. The floating debt is \$375,000.

Receiver Would Cancel Debt.—Wallace B. Donham, receiver of the Bay State Street Railway, Boston, Mass., on April 24 was authorized by the United States District Court to pay and cancel \$27,000 of the bonds of the Lowell, Lawrence & Haverhill Street Railway. Mr. Donham also desired to liquidate an indebtedness of \$50,000 to the Salem Five-Cent Savings Bank on a short-time note, but the hearing on this matter was put over temporarily. The receiver stated in his petition that under the mortgage of the Lowell, Lawrence & Haverhill Street Railway, the sinking fund provisions require the payment of \$27,000 annually. The short-time note now held by the Five-Cent Savings Bank was part of the \$50,000 which the Bay State Street Railway borrowed on March 15, 1917, for one year through the Old Colony Trust Company, Boston. Of the total amount, \$135,000 was used at that time in refunding bonds of the Old Colony Street Railway, the remainder, amounting to \$717,000 in cash, was used by the Bay State, which gave as collateral for the entire loan \$1,196,000 of the bonds of the Boston & Northern and the Old Colony Companies. The Salem Bank purchased a \$50,000 collateral note with the collateral security. Mr. Donham has asked for authority to liquidate the note by allowing the bank to keep the collateral.

Electric Railway Monthly Earnings

| CITIES SERVICE COMPANY, NEW YORK, N. Y. | | | | | | NASHVILLE RAILWAY & LIGHT COMPANY, NASHVILLE, TENN. | | | | | |
|--|-------------------|--------------------|------------------|---------------|--------------|---|-------------------|--------------------|------------------|---------------|------------|
| Period | Operating Revenue | Operating Expenses | Operating Income | Fixed Charges | Net Income | Period | Operating Revenue | Operating Expenses | Operating Income | Fixed Charges | Net Income |
| 1m., Mar., '18 | \$1,975,211 | \$36,768 | \$1,938,443 | \$191 | \$1,938,252 | 1m., Feb., '18 | \$198,928 | *\$127,155 | \$71,773 | \$40,626 | \$31,147 |
| 1m., Mar., '17 | 1,721,480 | 31,312 | 1,690,168 | 225 | 1,689,943 | 1m., Feb., '17 | 197,593 | *118,630 | 78,963 | 40,970 | 37,993 |
| 12m., Mar., '18 | 19,850,979 | 373,635 | 19,477,344 | 2,648 | 19,474,696 | 12m., Feb., '18 | 2,454,308 | *1,596,230 | 858,078 | 489,526 | 368,552 |
| 12m., Mar., '17 | 13,391,411 | 268,593 | 13,122,818 | 127,917 | 12,994,901 | 12m., Feb., '17 | 2,408,600 | *1,469,090 | 939,510 | 505,200 | 434,310 |
| CUMBERLAND COUNTY POWER & LIGHT COMPANY PORTLAND, ME. | | | | | | NORTHERN TEXAS ELECTRIC COMPANY, FORT WORTH, TEX. | | | | | |
| 1m., Feb., '18 | \$211,037 | *\$188,824 | \$22,213 | \$70,702 | †\$48,489 | 1m., Feb., '18 | \$237,353 | *\$141,189 | \$96,164 | \$28,238 | †\$77,509 |
| 1m., Feb., '17 | 217,275 | *164,986 | 52,289 | 66,304 | †14,015 | 1m., Feb., '17 | 158,578 | *96,565 | 62,013 | 29,114 | 32,899 |
| 12m., Feb., '18 | 3,068,576 | *2,126,916 | 941,660 | 829,466 | 112,194 | 12m., Feb., '18 | 2,740,100 | *1,534,565 | 1,205,535 | 858,108 | †906,024 |
| 12m., Feb., '17 | 2,911,408 | *1,843,347 | 1,068,061 | 810,201 | 257,860 | 12m., Feb., '17 | 1,967,490 | *1,175,735 | 791,755 | 347,465 | 444,290 |
| EL PASO (TEX.) ELECTRIC COMPANY | | | | | | PENSACOLA (FLA.) ELECTRIC COMPANY | | | | | |
| 1m., Feb., '18 | \$103,875 | *\$66,475 | \$37,400 | \$6,513 | \$30,887 | 1m., Feb., '18 | \$35,228 | *\$23,829 | \$11,399 | \$7,996 | \$3,403 |
| 1m., Feb., '17 | 111,254 | *64,067 | 47,187 | 5,312 | 41,875 | 1m., Feb., '17 | 26,909 | *15,083 | 11,826 | 7,800 | 4,026 |
| 12m., Feb., '18 | 1,274,162 | *813,815 | 460,347 | 69,477 | 390,870 | 12m., Feb., '18 | 368,874 | *222,194 | 146,680 | 94,020 | 52,660 |
| 12m., Feb., '17 | 1,141,886 | *693,623 | 448,263 | 60,290 | 387,973 | 12m., Feb., '17 | 288,287 | *162,614 | 125,673 | 92,462 | 33,211 |
| GALVESTON-HOUSTON ELECTRIC COMPANY, GALVESTON, TEX. | | | | | | PHILADELPHIA (PA.) RAPID TRANSIT COMPANY | | | | | |
| 1m., Feb., '18 | \$181,822 | *\$125,615 | \$56,207 | \$38,977 | \$17,230 | 1m., Feb., '18 | \$2,262,611 | \$1,463,493 | \$799,118 | 815,670 | †\$16,552 |
| 1m., Feb., '17 | 148,284 | *104,790 | 43,514 | 36,761 | 6,553 | 1m., Feb., '17 | 2,205,349 | 1,274,258 | 931,091 | 813,678 | 117,413 |
| 12m., Feb., '18 | 2,152,766 | *1,425,212 | 727,554 | 455,470 | 272,084 | 8m., Feb., '18 | 19,761,968 | 11,855,406 | 7,906,562 | 6,496,713 | 1,409,849 |
| 12m., Feb., '17 | 1,953,997 | *1,248,750 | 705,247 | 439,456 | 265,791 | 8m., Feb., '17 | 18,490,282 | 10,363,493 | 8,126,789 | 6,514,716 | 1,612,073 |
| INTERBOROUGH RAPID TRANSIT COMPANY, NEW YORK, N. Y. | | | | | | TAMPA (FLA.) ELECTRIC COMPANY | | | | | |
| 1m., Mar., '18 | \$3,649,670 | *\$2,025,425 | \$1,624,245 | \$1,175,342 | †\$713,525 | 1m., Feb., '18 | \$87,102 | *\$47,303 | \$39,799 | \$5,261 | \$34,538 |
| 1m., Mar., '17 | 3,682,520 | *1,833,961 | 1,848,559 | 1,014,102 | †\$897,837 | 1m., Feb., '17 | 90,359 | *45,766 | 44,593 | 4,372 | 40,221 |
| 9m., Mar., '18 | 30,144,018 | *16,896,992 | 13,247,026 | 9,998,674 | †\$5,601,780 | 12m., Feb., '18 | 992,187 | *\$69,706 | 422,481 | 57,836 | 364,645 |
| 9m., Mar., '17 | 29,576,392 | *14,364,560 | 15,211,832 | 9,000,085 | †\$6,740,664 | 12m., Feb., '17 | 972,512 | *\$52,768 | 439,744 | 52,351 | 387,393 |
| LAKE SHORE ELECTRIC RAILWAY, CLEVELAND, OHIO | | | | | | TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN. | | | | | |
| 1m., Feb., '18 | \$141,162 | *\$111,370 | \$29,792 | \$36,297 | †\$6,505 | 1m., Mar., '18 | \$835,293 | \$614,391 | \$220,902 | \$160,666 | \$60,206 |
| 1m., Feb., '17 | 118,242 | *\$87,189 | 81,053 | 34,382 | †\$3,329 | 1m., Mar., '17 | 916,605 | \$610,439 | \$306,166 | \$150,094 | \$56,072 |
| 2m., Feb., '18 | 282,717 | *\$226,677 | 56,039 | 72,423 | †\$16,384 | 3m., Mar., '18 | 2,457,390 | 1,881,090 | 576,300 | 466,190 | 110,170 |
| 2m., Feb., '17 | 247,748 | *\$183,116 | 64,632 | 63,756 | †\$4,124 | 3m., Mar., '17 | 2,641,912 | 1,799,459 | 842,453 | 435,039 | 407,384 |

*Includes taxes. †Deficit. ‡Includes non-operating income. αIncludes accruals under rapid transit contracts with city payable from future earnings.

Traffic and Transportation

Lehigh to Increase Fares

Statement by President Fehr Gives Reasons for Changes to Go Into Effect on May 1

The Lehigh Valley Transit Company, Allentown, Pa., has made application to the Public Service Commission of Pennsylvania for an increase in some of its rates, effective on June 1. The company is advertising the reasons why it is compelled to seek increases in fare. A statement in explanation made by H. R. Fehr, president and general manager of the company, says:

THE REASON WHY

"The Lehigh Valley Transit Company had hoped that it would be possible to get through the war without having to raise rates. The company, in common with all other public utility companies, has been forced to meet large increases in operating costs. The cost of power has increased 136 per cent since 1915; the same amount of power cost us over \$200,000 more in 1917 than before the war. We have advanced wages four times since the war began, while a further increase of 2 cents an hour in the wages of motormen and conductors became effective on May 1. Our increased labor cost aggregates over \$275,000, or approximately 50 per cent. Every class of material which enters into our operations has largely increased in price. Wire costs 100 per cent more than it did before the war. The cost of journal bearings for car trucks has increased 269 per cent, motors and parts therefor 75 per cent to 144 per cent. Car wheels, for which we formerly paid \$18.75, now cost \$45. We formerly paid \$31 a ton for rails, while they now cost us \$75 a ton. Ties have advanced from 49½ cents to 75 cents each. Everything we buy and use costs us from 50 per cent to 358 per cent more than three years ago.

"It is necessary for us to increase our revenues to offset at least a portion of these increased expenses.

"President Wilson has said that 'it is essential that these utilities should be maintained at their maximum efficiency, and that everything reasonably possible should be done with that end in view.'

"We have reached the point where our service would be impaired unless we can secure additional revenues.

WHAT THE CHANGES MEAN

"I want to make it very clear that the rates are not increased for the purpose of increasing dividends. We estimate the additional revenue will about equal the increase in our power bill, leaving unprovided for the other increases in expenses which have occurred. In revising the rates we have endeavored to localize the increases to

those classes of service in the handling of which we were incurring a heavy loss.

"In general, the changes in rates effective on June 1, 1918, are as follows:

"The length of the fare zones for local service on the Philadelphia Division has been standardized as nearly as possible on a 2½ mile zone basis. The fare on the limited cars from Allentown to Philadelphia has been increased 5 cents.

"The length of the fare zones on the Slatington Division has also been equalized, increasing the cash fare between Allentown and Slatington 10 cents.

"Our new interurban rates are much lower per mile than the rates approved by the Interstate Commerce Commission and the various state commissions.

"In accordance with established precedent, we have, in so far as possible, abolished reduced rate round trip tickets, charging double the one way rate.

"Commutation rates have been standardized on the basis of 4 cents a zone. We are at the same time greatly extending the commutation privilege. Anyone traveling regularly through two or more specific fare zones can purchase at any of our ticket offices a forty-six, fifty, fifty-four or sixty-trip commutation book, as he may elect, good for the calendar month."

Columbus Company Urges Relief

The most recent higher-fare advertisements of the Columbus Railway, Power & Light Company, Columbus, Ohio, consist of material based upon the recent statements by President Wilson and Secretary McAdoo in regard to the necessity of adequate rates for public utilities. The company filed its request for immediate financial relief with the City Council on February 25, six days after the President indicated what ought to be done in such circumstances.

According to one of the advertisements, which are issued over the signature of Samuel G. McMeen, president, the Council without a hearing, without knowledge and without any consideration, except what could be made in seven minutes by seven men, refused to carry out the plea for relief.

Another advertisement says that the people of Columbus have up to now been complacent over the failure of the Council to act as recommended by the President. Inasmuch as they have responded to every other appeal of the government, this complacency must be attributed to interest in the great things of the war, which interferes with a complete consideration of the duties at home. But is it too much, the advertisement continues, now to ask that the City Council follow the recommendations of the President?

Increase for Kansas Line

Kansas City - Western Railway to Charge Two Cents a Mile Between Leavenworth and Kansas City

The Public Utilities Commission of Kansas on May 4 granted the Kansas City-Western Railway the right to charge 2 cents a mile straight on the business between Leavenworth and Kansas City. The company filed its application for a 2-cent rate in November, 1914. In January, 1918, it amended the application, asking for a 2½-cent rate, on the through traffic, and revision of the local schedules. The revision of the local schedules is now being worked out by the company and the commission. The company had been selling tickets for one-way trips between Leavenworth and Kansas City at 50 cents, with round trips for 75 cents. It had also been selling commutation tickets on the following basis, with the rates per trip as indicated for the 25-mile ride: Fifty rides in one year, \$14—28 cents per trip; fifty rides in ninety days, \$11—22 cents per trip; twenty-five rides in six months, \$7.50—30 cents per trip; twenty-five rides in sixty days, \$6—24 cents per trip.

OLD RATES ONE CENT A MILE

These rates were obviously in some cases under 1 cent a mile. The rate of 75 cents for single round trips was 1½ cents a mile. The commission's order allowing the company to charge a straight 2 cents a mile rate on the through traffic, provides 50 cents a trip, with no reduction for round trip tickets. The 50-cent fare, however, takes the patron to the company's terminals in Kansas City, Kan., Fourth and Minnesota, and Leavenworth, Third and Delaware.

The route to these terminals is to be exactly 26 miles, but the commission "threw off" the extra mile. At the Kansas City terminal the Leavenworth line connects with the Kansas City Railways and the city fare of 5 cents is collected by the latter company. In Leavenworth, the Kansas City-Western operates the local line.

The commission made no increase in the fare on the Leavenworth city lines to the Soldiers Home and to a mining camp, outside the city limits, where the fare continues at 5 cents.

There was no opposition to the increase in the through traffic fare between Leavenworth and Kansas City. At a hearing on May 1, at Leavenworth, city officials and business men requested the commission to grant the increase.

The interurban has much traffic from residents along the line. It has operated a zone system of fares on a 5-cent basis. The new schedule is to be on the mile basis. Though rates will not in general be much changed for regular patrons, the revenue being probably from 1 1/3 to 1½ cents a mile, when tickets are bought providing for forty rides in thirty days between specific points. Local casual traffic probably will pay the 2-cent-a-mile rate.

Hearing on J. & P. Rates

Company Wants Two and One-Half Cent Fare in Missouri—Conditions Different from in Kansas

The second hearing of the Public Service Commission of Missouri on the application of the Joplin & Pittsburg Railway for a 2½-cent-a-mile rate on the Missouri end of the company's line was held in Kansas City on April 29. The 5-cent zone arrangement operating on the Missouri part of the system brings returns of about 1.9 cents per mile now.

The hearing in Kansas City dwelt largely on the question of valuation upon which the return of the company would be based. The engineers of the commission considered the increased value of real estate, but made no allowance for the present increased value of equipment, on the theory that the present high costs are abnormal. All equipment was figured in the valuation on the basis of what it cost. Engineers testified that not more than \$5,000 of equipment had been bought at war prices.

CONDITIONS IN KANSAS

It will be remembered that the company was authorized by the Kansas commission to charge 2 cents a mile in that State outside of the towns. The old Kansas rates, figured from the receipts under the 5-cent zone system, gave 1.6 cents per mile; the zones usually included the short ride from the interurban terminals in the towns, no distinction being made between urban or outside origin or destination of passengers. Present orders issued by the Kansas Public Utilities Commission permitted the company to charge a 5-cent city fare within city limits, and the company is now trying out the new system with 2 cents a mile on interurban business before deciding whether to make a new application for a 2½-cent fare in Kansas.

While the company is hoping that the Kansas rate will provide adequate revenues, it is realized that 2 cents a mile outside cities in Missouri would prove inadequate as the hauls inside the cities in Kansas are short, usually about a mile. For this service 5 cents is received. In Missouri, however, the hauls in the cities are longer. There they sometimes run to 4 or 5 miles, and only 5 cents is received for the hauls within the city. It is therefore necessary to get slightly more for the hauls in Missouri outside the city to make up for the long city hauls.

Find Trenton Equipment Poor

The investigators sent out by the State Board of Public Utility Commissioners of New Jersey to inquire into the operation and maintenance of the Trenton & Mercer County Traction Corporation made a report to the commission on May 7.

H. C. Eddy, senior inspector of traffic for the commission, had charge of the Trenton survey. He testified that there was a striking lack of discipline

among the employees of the company, and that the rules of the company for the operation of its cars were persistently violated. He introduced photographs showing overcrowding of cars and defective tracks and cars. Mr. Eddy said that while the company had sixty double-truck and forty single-truck cars, only seventy-eight were operated. Of the forty single-truck cars, only twenty-five were fit for operation. He said the poor condition of the cars was due to deferred maintenance. According to Mr. Eddy, facilities at the carhouses for repairing cars were inadequate.

Skip Stop for Kansas City

City Representative on Board of Control Presents Plan to Eliminate from 10 to 12 Per Cent of Stops

Robert T. Woods, city member of the Board of Control of the Kansas City (Mo.) Railways, has presented a skip-stop plan to the City Council for approval. This plan proposes the use of the three types of skip stop, that is, "odd and even," "alternate return" and "full skip," separately and in combination over about twenty-eight lines.

It is not proposed to skip any stops in the inner retail business zone, bounded by the Missouri River and by Twenty-fourth, McGee and Washington Streets. Outside of this district there are now 1301 possible passenger stops on lines proposed for skip stops in Missouri, one-way safety stops being excluded. Under the proposed plan 398 of these stops, or about 30 per cent, would be permanently skipped.

In the traffic checks made it was found that an average of 502 of the 1301 possible stops, or about 39 per cent, are actually skipped under present conditions because no passengers desire to leave or board at these points. It is thus obvious that many of the designated places where cars will be scheduled to stop will not be used at times.

The proposed plan is estimated to result in reducing the number of stops by from 10 to 12 per cent. The average distance between possible stops on the twenty-eight lines under consideration is now 422 ft., corresponding to twelve and a half stops per mile. Under the proposed skip-stop plan the average distance between possible stops is 598 ft., corresponding to eight and four-fifths stops per mile.

In the foregoing plan transit lines running only through the business section in Missouri, or having a limited mileage in Missouri, and some sub-urban stub lines have not been included. These are no doubt subject to special treatment. The Troost and Brooklyn lines have not been included, because the "odd and even" skip stop has already been in successful operation for seven years. The Prospect and Woodland lines, it is said, are susceptible of further development of the skip-stop idea by the application of the "odd and even" system during rush hours.

Interurban Wants Increase

Indiana Union Traction Asks Commission to Sanction Advance of One-Half Cent a Mile

A petition for an increase in rate of fare from 2 cents to 2½ cents a mile was filed with the Public Service Commission on May 6, by the Union Traction Company of Indiana. The company sets out the higher cost of material, labor and taxes since the outbreak of the European war and especially since the United States entered the war in April, 1917. A list of prices of 1914 as compared with 1918 is included in the petition.

EXPENSES INCREASED 25.22 PER CENT

The gross revenue of the company increased for 1917 over 1916 a total of \$277,124, or 9.93 per cent, but the expenses of operation increased \$407,638, or 25.22 per cent, thus making the increase in 1917 greater by \$130,513 than the gain in gross revenue. These figures do not include \$167,097 expended in 1917 for the improvement of the system.

The petition then takes up the first three months of 1918:

"The gross operating revenues of petitioner for the first three months of 1918 being the latest period for which complete figures are available, decreased from \$659,357 for the like period of 1917 to \$644,164, a total of \$15,193, or 2.15 per cent, and the expenses of operation and maintenance for the same period increased from \$428,275 for the like period of 1917 to \$514,985, a total increase of \$86,709, or 20.21 per cent, thereby creating a loss of \$100,840 in net operating revenue for the three months, as compared with the like period of 1917."

The petition says that net revenues must be increased to maintain efficient service. The company has never paid any dividends on its common or second preferred stock, and in 1914 it discontinued paying dividends on the \$1,000,000 of first preferred stock, "which represents actual cash expended in the construction, extension and betterment of said system."

PROMPT HEARING ASKED

The fixed charges for 1917 were \$874,657, or including sinking funds, \$934,448. For 1918 the amount will be practically the same. According to the petition net revenues cannot be increased by decreasing expenses of operation and maintenance without at the same time reducing service and impairing the property.

In 1914 the "copper zone" system of 1 cent a half-mile was established by the Public Service Commission. The petition filed on May 6 asks for a prompt hearing on the request for an increase to 2½ cents a mile.

The report of the company for the year 1917 showing how the heavy cost of operation overbalanced the increase in receipts is digested on page 923 of this issue

Decision in Tacoma Franchise Test Case

State Supreme Court Holds Commission Not Vested With Power to Raise Fares Beyond Statutory Limitation

The Supreme Court of the State of Washington on April 27 at Olympia, denied the application of the Tacoma Railway & Power Company for a writ directing the Public Service Commission to investigate the company's financial condition, and to raise fares or grant other relief necessary. In its decision, the court holds that the Public Service Commission has no authority to permit railways to charge more than a 5-cent fare within the city limits, or to relieve a company of any of its franchise obligations.

NOT MORE THAN FIVE CENTS IN CITY

The court holds that the public service commission act limits the authority of the commission, and specifically provides that not more than a 5-cent fare shall be charged within city limits by a railway serving the community. According to the court the act does not give the commission authority to relieve the companies of any franchise obligations. The remedy of the companies is declared by the court to be legislative rather than judicial. The decision of the seven judges was unanimous. It was written by Judge John F. Main.

The court holds that the Public Service Commission has power to regulate rates so long as these do not exceed 5 cents, and to require adequate and sufficient service within this limitation, having due regard to the right of the company to earn a reasonable return upon the value of the property devoted to public use. This language is interpreted to mean that while a railway cannot avoid payment of gross earnings tax, paving charges, contribution to the cost of bridges, and other requirements included in the franchise it accepted, and may not charge more than a 5-cent fare, it can be required to furnish only such service as it may under these conditions and still earn a reasonable return upon the value of its investment. In case of congested traffic, it will remain for the commission to decide whether the company can be ordered to operate additional cars, or otherwise improve its service, within the statutory restrictions, as to franchise conditions and fare limitations which the court holds to be clear and decisive.

In brief, the court decision sustains the power granted cities by the enabling act of 1890 to authorize or prohibit the construction of railways upon its thoroughfares against the contention of the railway interests of Seattle and Tacoma that through the public service commission act the police power of the State had later been extended over franchise jurisdiction. The franchise right is held to be a clear and specific grant by the State to the city of authority to impose terms and conditions upon which its streets may be used, a transfer by the Legislature to

the city of the whole of the State's police power for this purpose. The Supreme Court, in its decision, said in part:

"Whether the Legislature has power to confer upon the Public Service Commission the right to abrogate conditions in franchises to street car companies which had been granted prior to passage of the Public Service Commission law is not before us and we neither express nor intimate an opinion thereon.

"The public service law is remedial legislation and should be given liberal construction for the purpose of carrying out the will of the Legislature, but the rule of liberal construction does not mean that the court shall write conditions and provisions into the statute where the Legislature has passed none, or write out of the act a section which the Legislature has placed there when the various sections of the statute are not in irreconcilable conflict and may be harmonized."

J. B. Howe, general counsel for Stone & Webster, had argued that section 25 of the public service law, fixing street car fare limit at 5 cents and section 53 of the same act, requiring adequate, sufficient service upon condition that the company be able to earn a reasonable return upon its investment, were in conflict when it had been proved to the commission that the company could not furnish adequate service when its income was not sufficient to pay a reasonable return, and that section 53 as the latter enactment, took precedence over 25.

The Supreme Court holds section 25 to be an express mandate of the Legislature that fares are not to exceed 5 cents and there was no intention by section 53 to confer power upon the commission to abrogate the express declaration. By assuring the company a reasonable return within the franchise conditions and fare limitation imposed the court brings the two sections into harmony and holds the act thus declarative to the plain intent of the Legislature. As to further consideration the court says:

THE COURT'S WORDING

"If, as found by the commission, the revenue of the petitioner, based upon a 5-cent fare, is not sufficient to provide adequate service, and at the same time afford reasonable and proper income, the remedy is with the legislative branch of the government and not with the court. It is the duty of the court to construe the law as it finds it. The writ is denied."

The case came up from Tacoma on application by the Tacoma Railway & Power Company for a writ of mandate directing the Public Service Commission to order adequate service, regardless of franchise requirements and fare limitation, if the commission found

these prevented the company supplying such service. In a previous hearing the company had pleaded better service impossible on present earnings.

Commissioners F. R. Spinnings and A. A. Lewis, rendered a majority opinion holding the commission powerless to abrogate franchise requirements and to increase the fare above 5 cents. At the same time they declined to order increased service on the company's showing of inability to do so on its income and still make a reasonable return.

Chairman E. F. Blaine held the commission to be invested with power to abrogate any franchise or fare conditions that prevented the rendering of adequate service, and by private counsel appeared before the Supreme Court in support of the writ asked by the company W. V. Tanner, as Attorney-General, was to appear for Spinning and Lewis, but on the morning the hearing was called they refused to verify Mr. Tanner's presentation of their case on the ground that it was technical rather than decisive of the issue involved.

SEES CITY AS VICTOR

Hugh M. Caldwell, Corporation Counsel of Seattle, in discussing the decision said:

"The decision sustained the contention we have been making to the effect that the Public Service Commission has no authority to grant an increase in rates above the 5-cent maximum fixed by the Statute, nor to relieve the companies of any of their franchise obligations.

"The decision as I understand it, means that the Public Service Commission must now decide in favor of the city, in the case which it has held under advisement since last July, in which we contended that the commission has no jurisdiction to relieve the Puget Sound Traction, Light & Power Company of its franchise obligations."

A. W. Leonard, president of the Puget Sound Traction, Light & Power Company, in a recent communication to the Mayor and City Council, asked that the franchise provisions of the company be suspended during the period of the war, without prejudice to the right of the city to enforce them thereafter. The particular franchise provisions which the company desires set aside during the period of the present emergency are the 5-cent fare limitation, the requirement to pay 2 per cent of its gross earnings into the city treasury, and the requirement that it pave its right-of-way and 18 in. on each side of the tracks on paved streets. In his communication, Mr. Leonard called attention to the far-reaching effect of the decision in which the Supreme Court held that the Public Service Commission was without authority to relieve a utility company of its franchise obligations. Mr. Leonard's communication was referred to the franchise committee of the Council.

Mayor Hanson has urged the city authorities to be very careful before

changing the terms of the original grant without a vote of all the people of Seattle. The Mayor points out that the company now comes to the City Council for relief which it failed to obtain from the Public Service Commission and the courts. He regards it as unfortunate that the company did not approach the city authorities in the first place. He says the city is interested in service first, last and all the time.

Denver Fare Appeal

Company There Wants Increased Fare or Other Relief from Burdensome Conditions

The Denver (Col.) Tramway on May 3 filed with the Public Utilities Commission of Colorado a petition for increased fares or other relief. The petition recites that because of the increase in the cost of labor and material and the necessity for further increasing the wages of employees and the imperative requirements in track construction, new rolling stock and replacements of equipment, the company requires greater revenues than are produced by the 5-cent fare. The company is publishing its petition in full in all the daily newspapers and is asking thorough, frank consideration of the problem by the entire community.

EMPLOYEES APPROVE MOVE

The Tramway Brotherhood, composed of all tramway employees, discussed the company's situation at several meetings prior to the filing of the petition. Resolutions were adopted by the Brotherhood similar to resolutions passed by the committee of twenty-one employees which had previously conferred upon the same subject. These resolutions follow:

"Resolved, that it is the sense of this committee that, first, tramway employees have full confidence in the fairness of the officers of the company and their desire and effort to deal squarely with the men in wages and working conditions; second, that the tramway employees should earnestly help the company to secure higher fares; third, that while we feel we should have and fully expect higher wages than we are now receiving, we believe that the best and most important help of the employees is first to stand solidly by the management in the campaign for higher fares and see that no one in the company or out of the company is permitted to rock the boat on the wage question."

In its petition the company does not suggest what relief the commission shall give and does not ask for any specific increase in rates nor any specific interest return, but leaves all to the commission's findings after consideration of the facts.

On May 6 the commission ordered a complete inventory and appraisal of all tramway property. The entire commission organization will be put to work on the application.

Bay State Zone Case Closed

Main Points in Zone Location Tentatively Settled in Bay State Street Railway Rate Case—General Principles Reviewed

S. H. Pillsbury, counsel for the Bay State Street Railway, informed the Public Service Commission of Massachusetts at a recent hearing on the company's proposed zone rates that as the result of conferences with municipal representatives and citizens in the various communities served by the road, the main questions of zone location had been very nearly settled. A number of the suburban communities had requested the establishment of special commutation tickets; but W. B. Donham, receiver of the company, felt that it would be inexpedient at this time to take up the question of additional tickets, on the ground that if general commutation tickets were to be established in the suburban districts or inter-urban zones, where workingmen's tickets only exist, it would involve an adjustment of the latter.

Both of these matters (Bay State schedules No. 75 and No. 62) are under consideration by the commission for decision, having been formally heard during the winter. The company holds that it cannot attempt to deal with the matter of general commutation tickets until after the board has acted.

Mr. Pillsbury said that the general principle of the zone system appeared to be satisfactory to almost everybody engaged in the conferences.

Robert B. Stearns, vice-president of the Bay State Company, then reviewed the conferences held by the company's representatives and to community groups, discussing in detail the local zone and fare points gone over.

Representatives of Revere expressed a desire for a 6-cent fare to Boston, pointing out that this rate obtained between Malden and Boston on the Bay State lines. It was indicated by the company that the special tickets planned, if applied to Revere, would give a 6¼-cent off-peak rate to Scollay Square, as well as a 7-cent all-day rate.

EXTENSION OF ZONE LIMITS DESIRED

Various extensions of the zone limits were requested by representatives of the Lynn district and were tentatively conceded by the company. Saugus representatives desired a lower minimum than a 6-cent fare and suggested covering two zones for 5 cents; but the company did not feel that it could reduce the minimum rate below 6 cents. These conferees also desired that the zone limits be not made a point, but an area to cover, say, the first and second pole stops in either direction beyond the zone limits outlined in the company's zone schedule No. 77.

Mr. Stearns said that the establishment of a zone area limit rather than a zone point limit would lead to extremely bad practice in overlapping zones with very difficult fare collection problems, with a reduction of revenues and an interminable amount of trouble,

not really essential to the successful application of the zone system. An extension of zones was also desired to reduce the rate to Lynn, the intimation being given that patronage would otherwise be deflected to a paralleling steam line. The company could not see its way clear to this concession and pointed out that the steam railroad fare from Franklin Park station to Lynn was 10 cents against a present 6-cent rate and proposed 8-cent rate, with an intermediate off-peak proposed ticket rate of 6¼ cents and an all-day ticket rate of 7 1-7 cents on the Bay State road.

WORKINGMEN'S TICKETS A PROBLEM

In Peabody, the company was disposed to adopt a workingmen's ticket to Lynn with transfer to any part of the city zone in Lynn, at a rate of 11.2 cents, or 70 per cent of the cash fare, as between the cities of Lynn and Salem. This was in place of a 10-cent rate proposed by Peabody representatives, and was designed to facilitate travel between the plants of the General Electric Company at Lynn and the neighboring communities of Salem and Peabody.

Mr. Stearns said that the Danvers zone points were acceptable in conference, and that the company inclined toward a 7-cent workingmen's ticket from Danvers to any part of the city zone of Peabody, Beverly or Salem. The receiver had under consideration the propriety of adjusting the rates between certain outlying points through the medium of a reduced rate ticket, perhaps good all day and sold at a higher rate than the workingmen's ticket. On such event the workingmen's tickets paralleling such reduced rate tickets would be cancelled.

For Essex, Mass., it was urged that the fares established were excessive and would destroy business. It was contended that a low fare would promote traffic, but the company pointed out that while such might apply to the cities, it was doubtful if there was any short-haul traffic to promote in such a district as Essex. It was also pointed out that while the company was reducing the city fare unit in its new schedule, it was also materially cutting down the length of haul. No concessions could be offered by the company for North Reading, which will have the regular rate per mile on its through line and a somewhat higher rate on a spur line which has a very low traffic density, and is under consideration for abandonment. The company was willing to extend the city zone limit in Lowell from Keefe Square to Pleasant Street, but did not favor concessions to the Vesper County Club in view of the automobile travel to and from the latter. Workingmen's tickets were conceded to Billieria Center from Lowell at 9.8 cents and to High Street to and

from Lowell at 8.4 cents. Receiver Donham could not agree with Lake View Park summer cottage residents that reduced rates should be granted to persons fortunate enough to spend their summer in the country.

There was some demand for a wholesale extension of the stub ends of the city zones into the outer zones, but this could not be conceded. A relocation of the traffic center to the intersection of Lawrence and Essex Streets, Lawrence, was agreed upon, with a statement by the company agreed to by the representatives of the community that there was no occasion for the company to establish a public waiting room on a city system. The company agreed to consider establishing a special ticket at 8½ cents per ride from Elm Square, Andover to Lawrence, to avoid jitney competition which is not desired by the best opinion in Andover.

Representatives of Newburyport desired two 3-cent zones in place of the two 2-cent zones outside the Massachusetts northeastern line leaving the city, combined with a 5-cent fare on the latter. It was suggested that the Bay State Company institute these 3-cent zones so that residents of the community concerned could ride to the middle of the second zone for 3 cents instead of 4 cents as at present planned. The Bay State Company felt that the zone points should be left as planned, but was ready to establish a charge of 3 cents per mile.

PATRONS SOUTH OF BOSTON REASONABLE

With regard to the lines south of Boston, Mr. Stearns said that representatives of the Quincy district requested that the first zone on the Rockland-Braintree route south of Lincoln Square should be at the rate of 2 cents instead of 2.5 cents. The company considered this a reasonable request and was willing to act on the matter favorably, in view of the density of population on this route. It was also willing to extend the limit of workmen's tickets from Alger's Corner to Eastondale Post Office.

The company was asked to establish a workmen's ticket at the rate of twenty rides for \$1.50 between North Dighton and the Taunton city zone in place of the scheduled 10-cent fare. The receiver felt that no concession in this matter should be made at present in view of the serious inroads of the various demands upon the company's estimated revenue.

Minor changes in zones or ticket arrangement were looked upon favorably by the company in conferences with representatives of the Bridgewater district, Brockton, Fall River and other communities in the southeastern part of Massachusetts. At Fall River there was some demand for a 5-cent fare from points in the city zone to the transfer station with a 1-cent transfer or through ride charge. Combined with some zone changes outside, but the company could not concede any general change in fares in one city without treating the other cities uniformly.

It appeared that the zone rates now proposed meet the conditions better than general suggested changes of local origin. Under the new schedule the longest ride for 6 cents is about 3 miles.

The hearing was closed after a detailed discussion of the local effect of the proposed zone system was presented by representatives of the cities and towns affected.

Indianapolis Case Serious

Local Company Unable Promptly to Meet Its Franchise Obligations Because of Insufficient Funds

The Indianapolis Traction & Terminal Company, Indianapolis, Ind., notified the city of Indianapolis on May 1 that owing to the fact that the revenues of the company had not produced sufficient funds, due to war conditions, the company would be unable promptly to pay the franchise tax of \$30,000 due the city on May 1.

REVIEW OF FARE MOVEMENT

The company has been seeking for several months past to present its case to some public body in an effort to obtain the elimination of the reduced rate tickets sold on the city lines in Indianapolis and to establish a straight 5-cent fare.

At the hearing on the petition of the company before the Public Service Commission in November, 1917, the commission ruled that it did not have jurisdiction in the case. An appeal was taken to the Circuit Court of Marion County, but the court sustained the ruling of the commission. The case was then appealed to the Supreme Court of the State and argued on Feb. 7, but no decision has yet been handed down in the matter.

Efforts to have the city authorities take action to modify the franchise contract so as to provide an increase in fares which will produce sufficient revenue to meet increased operating expenses have failed to obtain results.

AROUSING THE PUBLIC INTEREST

As a result of the failure of the company to pay its franchise tax on May 1, the interest of the newspapers and the public has been drawn to the case. In a quarter page advertisement on May 5, the company states that it has for months been seeking some official body that had the power and willingness to hear the facts relative to its need for more revenue in order to give adequate service; that Indianapolis is not getting adequate service at present because an average of thirty cars a day are left in the carhouses on account of lack of men to run them; that the employees deserve more pay, but that the company is unable to increase wages under present conditions. An appeal is made to the citizens to insist that some public authority take up the question of railway service in Indianapolis, investigate it thoroughly and act in the public interest.

Transportation News Notes

Pottsville Asks for Higher Rates.—The Eastern Pennsylvania Railways, Pottsville, has filed an application for an increase in fares.

Toronto May Use Women.—The Toronto (Ont.) Railway proposes to advertise for women for use on its cars at the same rates of pay received by men.

Paducah Increase Allowed.—The Board of Commissioners of Paducah, Ky., has granted the request of the Paducah Traction Company for an increase in fares from 5 cents to 6 cents.

Skip Stops for Seattle Suburban Line.—The Seattle & Rainier Valley Railway, Seattle, Wash., has petitioned the City Council for permission to discontinue seventeen stops on its line, as a means of providing faster service. The petition has been referred to the franchise committee.

Commerce Body Urges Fare Increase.—The Chamber of Commerce of Trenton, N. J., on May 6 filed with the Board of Public Utility Commissioners a petition asking for increased fares for the Trenton & Mercer County Traction Corporation. The City Commission is opposed to the proposed increase.

Patriotic Number of Utility News.—Dan G. Fisher, who edits *Texas Utility News*, the company paper of the Texas Power & Light Company, has given the April issue a distinctly patriotic aspect. Many of the articles relate to the war, there is a double-page group of the Red Cross Girls of the Dallas office, and the honor roll of the company appears on the two final pages.

Another Illinois Company Wants Increase.—The Sterling, Dixon & Eastern Railway, Dixon, Ill., has filed a petition with the Public Utility Commission of Illinois asking for a 6-cent fare in Dixon and Sterling, a 10-cent fare between Dixon and the State Epileptic Colony and a 30-cent fare between Sterling and Dixon, with transfer privileges included in the increase to 30 cents between the two cities.

Passengers Asked to Step Inside.—The Trenton & Mercer County Traction Corporation, Trenton, N. J., is having distributed to its patrons by members of the Mercer County Central Labor Union cards bearing the following request: "Please step inside the car. In the interest of safety and better service, passengers are asked not to stand on the platforms when there is room inside the car. Peter E. Hurley, general manager."

Ten-Cent Fare in Manistee.—The City Council of Manistee, Mich., has passed an ordinance raising the regular city fare on the Manistee City Railway to 10 cents, with a commutation

rate of three tickets for 25 cents and seven for 50 cents. The fare has been 5 cents for adults, with 2½ cents for school children. Manistee has a population of about 13,000. The railway there is controlled by the Commonwealth Power, Railway & Light Company.

Tariff Changes Put Off.—The Public Service Commission of the Second District of New York has ordered that the operation of tariff schedule of the Binghamton Railway, proposing to effect a stoppage of sale of reduced rate tickets, be further suspended until June 29. Residents of Binghamton and Johnson City filed a complaint against the railway and the commission began an investigation. It is stated that an extension of time has been asked by the interested parties to give them further opportunity to adjust the differences.

Northampton Fare Hearing Set for June 11.—A hearing upon the proposed increase in fares on the Northampton, (Mass.) Street Railway has been set for June 11 by the Public Service Commission of Massachusetts. Counsel for the company and for the citizens of the territory served agreed at a preliminary hearing in Boston on May 7 to a postponement pending action by the Legislature on a general service-at-cost bill for electric railways exclusive of the Boston Elevated, for which a public control bill has been drawn.

Will Not Act on Bridge Fares.—The Public Service Commission of the First District of New York has replied to Alderman Vladeck saying that until "the city entered in the proper kind of a contract" with the Bridge Operating Company, a subsidiary of the Brooklyn Rapid Transit Company operating cars over the Williamsburg Bridge, it would take no action looking toward a reduction in the fare charged on the line. The company is now operating under a temporary permit. Alderman Vladeck wanted the fare reduced from 2 cents to 1 cent.

Vancouver Ads Reproduced.—The British Columbia Electric Railway, Ltd., Vancouver, B. C., has published in the form of a sixteen-page pamphlet the series of advertisements recently used in the Vancouver daily papers. The advertisements appear in the same size as they did in the newspapers. Their purpose was to make the patrons of the company acquainted with its business, and they covered the general fundamental principles of electric railway economics. They are now reprinted for those interested in the complete story of utility operation.

New Fall River-Newport Tariff.—A new passenger tariff has been announced by the Bay State Street Railway for Fall River, Newport and intermediate points. It becomes effective on May 29 and increases the fare between Newport and Fall River, 6 cents, though at either end transfer privileges are operative within the city limit. The fare in Newport and in Middletown remains 5 cents in each zone. The only

change made is in reality the splitting of Portsmouth into two zones, as Fall River already has the 6-cent fare.

Adverse Report on Women Conductors.—Operation of street cars is one of the last occupations into which women should be "lured or forced." Such is said to be the conclusion reached as the result of an official investigation by the Federal Bureau of Labor Statistics, made in New York City by Benjamin M. Squires. The full report will appear in the May issue of the *Monthly Review of Labor Statistics*, now on the press. According to the preliminary announcement of the findings, Mr. Squires believes that "it must be evident to any thinking person that it is practically impossible to make the conditions of street railway employment even tolerably endurable to women employees." Two adverse conditions are said to be the length and the irregularity of the hours.

Public Service Hearings Resumed.—The hearings on the higher-fare application of the Public Service Railway, Newark, N. J., which were last noted in the *ELECTRIC RAILWAY JOURNAL* of April 6, were continued on May 8 and 9. After the long adjournment city counsel began the cross-examination of company witnesses, the first being Thomas Conway, Jr., professor of finance at the University of Pennsylvania. Mr. Conway expressed himself as favoring the principle of the service-at-cost plan and also as sympathetic toward a zone system. He said, however, that he was opposed to the chopping up of properties into zones without careful study. He thought that a horizontal increase in unit fare, at least as a temporary measure, would be best, and then, if advisable, the zone question could be investigated as rapidly as possible.

Fare Increase Granted to Peekskill Company.—The village trustees of Peekskill, N. Y., have passed a resolution, authorizing the Peekskill Lighting & Railroad Company to increase its fare from 5 to 6 cents, with the stipulation that it reopen the Putnam Railway between Peekskill and Oregon. This road got a separate franchise when the Rev. Dr. Ladd, Oregon, organized and built it. Later it was leased by the Peekskill company which abandoned it a month ago because of jitney competition. Residents along the line have banded together and agreed to patronize the Putnam line, and the Peekskill company can collect another cent on all lines if it resumes operations to Oregon. Fares which were raised in Peekskill several weeks ago without the village's consent were reduced again as a result of the Court of Appeals decision.

Metal Ticket Supply Exhausted.—The Dallas (Tex.) Railway has experienced such a lively demand for the new metal tickets, which are sold at twenty-two for \$1 for regular adult fares and forty for \$1 for children's half fare or school students' fares, that it has been found necessary to order an additional

supply. The company at first ordered 50,000 of the regular adult fare tickets, 50,000 of the school students' tickets and 10,000 of the children's half-fare tickets. The company has placed an order for 50,000 more of the adult fare tickets and 10,000 more of the children's half-fare tickets. The new cash fare register boxes have been installed on all cars in the city and the metal tickets are now in use.

Jitneys a Problem Again in Portland.—On May 17 the voters of Portland, Ore., will be asked to pass upon the ordinance providing for the regulation of jitneys in that city. The City Council unanimously voted to place on the ballot an ordinance providing for a bond of \$1,000 for each jitney operated, or a bond of \$10,000 for any organization operating more than ten cars. The Jitney Drivers Union backs this measure, and under its terms the union could operate any number of cars by providing one bond. An independent driver entering the business would have to furnish a bond of \$1,000. The Portland Railway, Light & Power Company is circulating initiative petitions to secure sufficient signatures to permit of a second ordinance being placed on the ballot providing for jitney regulation.

Fare Cases of Small Jersey Roads Heard.—The Board of Public Utility Commissioners of New Jersey on May 7 held hearings in the cases of the Atlantic & Suburban Railway, Pleasantville, and the Jersey Central Traction Company, Keyport, which are seeking higher rates. The Atlantic & Suburban Railway wants to increase the rate from Pleasantville to Absecon from 5 cents to 6 cents, and from Pleasantville to Somers Point or Atlantic City from 10 cents to 12 cents. The Atlantic City & Shore Railroad also has an application on file for an increase between Pleasantville and Atlantic City from 10 cents to 12 cents. A hearing will be held later on the matter. The Jersey Central Traction Company wants to increase its fare from 5 cents to 7 cents from Perth Amboy to other towns.

Electric Included in New England Increase.—Increases in class freight rates ranging between 5 and 15 per cent, and in passenger rates to 2¾ cents a mile on New England railroads were allowed on April 27 by the Interstate Commerce Commission. The commission ordered that mileage rates be increased to an average of 2½ cents, and authorized other changes in passenger schedules. Among the changes is one providing for increased zone fares on the Providence, Warren & Bristol branch of the New York, New Haven & Hartford Railroad as proposed, subject to further consideration as indicated in the report. This line is operated by electricity. It extends from Providence to Warren, R. I., where it divides into two branches, one running to Bristol, R. I., and the other to Fall River, Mass. The distance from Providence to Fall River is 19.4 miles and from Providence to Bristol 16.19 miles.

Personal Mention

V. J. Hanley has resigned as train dispatcher of the Eastern Wisconsin Electric Company at Oshkosh, Wis., to enlist in the engineering corps.

John Bauer has resigned as master mechanic of the Eastern Wisconsin Electric Company at Oshkosh, Wis., to enlist as a mechanic in the aviation corps.

George Hudson, formerly with the Tampa (Fla.) Electric Company, is now superintendent of equipment with the Monongahela Valley Traction Company at Fairmont, W. Va.

B. L. Grooms, for some time superintendent of transportation of the Savannah (Ga.) Electric Company, is now filling a similar position with the Key West (Fla.) Electric Company.

Joseph E. Bonfils, Jr., agent for the Bluegrass Traction Company, at Paris, Ky., has accepted a position in the auditor's office at Lexington. He has been succeeded at Paris by S. E. Borland.

C. Brazel, auditor of the Ottumwa Railway & Light Company, Ottumwa, Iowa, has been appointed auditor of the construction department of the Northern States Power Company, with headquarters at Minneapolis.

Prof. Dugald C. Jackson, in charge of the department of electrical engineering at the Massachusetts Institute of Technology, has been commissioned a major in the Engineer Reserve Corps and has been ordered "over there."

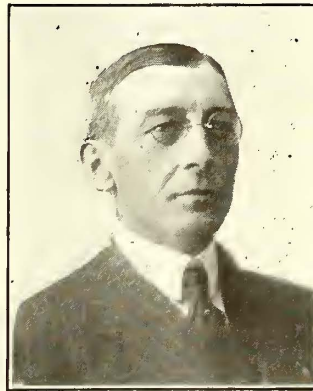
J. F. Owens, vice-president and general manager of the Oklahoma Gas & Electric Company, Oklahoma City, Okla., was elected president of the Oklahoma Gas, Electric & Street Railway Association at the annual convention in Oklahoma City on April 22-24.

William N. Bissell, assistant treasurer of the Houghton (Mich.) County Traction Company and Houghton County Electric Light Company, has resigned to enlist with the Headquarters Department Thirteenth Engineers, Railway, U. S. Army, American Expeditionary Force.

Le Roy T. Harkness, who is now a major in the United States Officers Reserve Corps, attached to the ordnance section and engaged in administrative duties at Washington, has resigned his position as chief of rapid transit under the Public Service Commission for the First District of New York.

H. A. Cowgill, formerly with the traction department of the St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., is now general superintendent of the Mansfield Public Service & Utility Company. The Mansfield system has now the equivalent of 22 miles of track including the interurban railway to Shelby.

Garrett O. House, whose appointment as superintendent of the St. Paul (Minn.) City Railway, Twin City Lines, was noted briefly in the ELECTRIC RAILWAY JOURNAL for May 4, will take office on or about May 20. Mr. House is a native of New York State. For fifteen years previous to 1904, when he came to St. Paul, he was engaged in civil engineering work, municipal, state and railroad. He acted as city engineer of Poughkeepsie, N. Y., for several years and was an assistant engineer under the State engineer of New York State engaged in the enlargement of the Erie Canal and State highways. He was identified with the location and construction of the Troy & Sand Lake Electric Railway and also



G. O. HOUSE

with the change in motive power on Poughkeepsie City Railway from horses to electricity. In 1904 Mr. House went to St. Paul as the representative of Eastern capitalists promoting the public utility corporation now known as the Northern States Power Company. He helped to obtain the necessary franchises and directed the installation of steam and electric equipment. In 1909 Mr. House performed special work, directing the installation of large, electrically operated coal docks for the North Western Fuel Company at Superior, Wis., including 13,000-volt trolley lines and all auxiliary equipment. Since 1912 Mr. House, as general superintendent, has reorganized and readjusted the business methods and equipment of the St. Paul Water Department. His administration has gained the confidence and approval of the general public in St. Paul and demonstrated his ability as a technical-business executive.

Alfred Sweeney, who has been assistant general manager of the Cumberland County Power & Light Company, Portland, Me., since last October, has

been appointed general manager of the Lewiston, Augusta & Waterville Street Railway, which is controlled by the Cumberland County Power & Light Company. Mr. Sweeney will hereafter make his headquarters at Lewiston instead of Portland, but still retains his connection with the Cumberland County Power & Light Company. A portrait and biography of Mr. Sweeney were published in the ELECTRIC RAILWAY JOURNAL at the time of his advancement from assistant to the general manager of the Cumberland County Power & Light Company to the position of assistant general manager.

Obituary

Thomas H. Smallman, vice-president of the London (Ont.) Street Railway and a prominent citizen of London, is dead.

Arnold von Siemens, of Siemens & Halske, is dead, according to a dispatch from Berlin. He was born in Berlin in 1853.

Frederick G. Brownell, who constructed the first street railway in Muncie, Ind., is dead at his home in Malden, Mass. The line, known as the "dummy," was operated by small locomotives. After the system in Muncie was electrified Mr. Brownell went into other business.

B. P. Waggener, one of the promoters of the Atchison Railway, Electric Light & Power Company, Atchison, Kan., and afterward a vice-president of the successor company, the Atchison Railway, Light & Power Company, now included in the properties of the Illinois Traction System, died at his home in Atchison recently at age of seventy-one.

Joseph Speidel, prominent in business and banking circles in Wheeling, W. Va., is dead. Mr. Speidel was born in Wheeling seventy-five years ago. He founded the Speidel Grocery Company many years ago. Later he became interested in other business enterprises and at one time is said to have held the controlling interest in the Wheeling & Elm Grove Railway, now included in the system of the West Virginia Traction & Electric Company, Wheeling.

John J. Cummings, president of the McGuire-Cummings Manufacturing Company, Chicago, Ill., and chairman of the board of directors of the Chicago & West Towns Railway, died on May 4 in Chicago after a short illness. Mr. Cummings had been associated with his brother, Walter J. Cummings, in the manufacture of street and interurban railway cars and trucks for the last fifteen years. He was also financially interested in several electric railway properties, one of which is the Denver & Inter-Mountain Railroad, Denver, Col., now owned by the Denver Tramway. He is survived by his widow and three children.

Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (*) indicates a project not previously reported.

Recent Incorporations

*Cooke County Transit Company, Lewiston, Mont.—Incorporated to construct a line from a point near Gardiner along the Yellowstone River to the Lamar River to Soda Butte Creek. Capital stock, \$1,500,000. Tom Stout, Lewiston, is among the incorporators.

Cincinnati & Dayton Traction Company, Cincinnati, Ohio.—Incorporated as a reorganization of the Cincinnati, Dayton & Toledo Traction Company, which is operated as a part of the Ohio Electric Railway. Capital stock, \$1,250,000. Among the incorporators are J. M. Hutton, chairman of the bondholders, protective committee, and Leo J. Van Lahr, vice-president of the Columbus, New Albany & Johnstown Traction Company.

Franchises

Mobile, Ala.—The Mobile Light & Railroad Company has received a franchise from the City Council to construct a single track connecting with the track now on Charleston Street at the intersection of St. Emanuel Street, southwardly along St. Emanuel Street to Texas Street and westwardly on Texas Street to connect with the line on Cedar Street. The construction of the line is intended to furnish street car service for shipyard employees.

Chester, Pa.—The Philadelphia Rapid Transit Company has received a franchise from the City Council granting permission to make various improvements and extension to its traction system to facilitate the transportation of workers to the munition and shipyard plants in Chester and Eddystone.

Track and Roadway

Shore Line Electric Railway, Norwich, Conn.—It is reported that the Shore Line Electric Railway will reconstruct its tracks at Ocean Beach, New London. Heavier rails will be laid.

New Orleans Railway & Light Company, New Orleans, La.—Work will be begun at once by the New Orleans Railway & Light Company on the construction of an extension to the proposed site of a shipbuilding plant on the Ship Basin and Industrial Canal.

Winnipeg (Man.) Electric Railway.—It is reported that the Winnipeg Electric Railway will complete work involving the expenditure of \$2,000,000.

Washington, Baltimore & Annapolis Electric Railroad, Baltimore, Md.—All efforts have been temporarily abandoned by the Washington, Baltimore & Annapolis Electric Railroad to secure permission to loop its cars around the block bordered by Thirteenth Street, New York Avenue, Twelfth Street and H Street.

Boston (Mass.) Elevated Railway.—The new Mystic River bridge of the Boston Elevated Railway has been practically completed. The bridge is a part of the new elevated structure which is being built by the company to Everett. The structure is double-tracked and extends a little more than a mile from Sullivan Square to a temporary terminal station near Bowdoin Street. It is expected that the line to Everett will be ready for operation early in the fall.

Kansas City (Mo.) Southern Railroad.—Electric power will be installed by the Kansas City Southern Railroad on its drawbridge across the Neches River at Beaumont, Tex.

*Scottsbluff, Gering & Southern Railway, Scottsbluff, Neb.—Plans have been proposed by A. D. Bowen, Grinnell, Iowa, to the Commercial Club of Scottsbluff, for the construction of an electric railway to connect Scottsbluff and Gering. The following committee was appointed to investigate the plans: H. Leslie Smith, Cullen Wright, Fred H. Roberts, William Morrow and T. L. Green.

Public Service Railway, Newark, N. J.—The routes of the Woodbury and National Park branches of the Public Service Railway from Camden will be changed through Washington Park at the request of the Government, which is building a large bag-loading and distributing plant along the Delaware River.

Trenton & Mercer County Traction Corporation, Trenton, N. J.—The City Commission has granted permission to the Trenton & Mercer County Traction Corporation to string its wires on poles on South Broad Street, between Liberty Street and Cedar Lane, belonging to the Public Service Corporation and the Bell Telephone Company.

Cincinnati (Ohio) Traction Company.—Mayor John Galvin has requested the Cincinnati Traction Company to proceed at once with the construction of an extension of its Warsaw Avenue line.

Lake Shore Electric Railway, Lorain, Ohio.—Work has been begun by the Lake Shore Electric Railway on its Cromwell extension.

Philadelphia, Pa.—Mayor Smith and Director of City Transit Twining recently conferred on the status of transit work now in progress. Director Twining reported that construction operations have been stopped everywhere except in the City Hall section of the Broad Street subway, where the contractor has about 300 men working.

Levis County Railway, Levis, Que.—It is reported that the Levis County Railway contemplates improvements to its electric railway amounting to \$150,000.

Seattle (Wash.) Municipal Railway.—The Board of Public Works, Seattle, recently awarded to the Industrial Machinery Company, Seattle, contract for 514 gross tons of 60-lb. No. 1 relay rails at \$68 a ton, including angle bars, to be used in the construction of the new municipal railway into the industrial district. C. Geske & Company, Seattle, received the contract for material and construction of the second section of the elevated line, beginning at a point 500 ft. north of West Spokane Street, on East Marginal Way, then on West Spokane Street to the west line of Kipsap Avenue. Initial work on the extension of the municipal car system was begun recently when grading commenced on the portion of the line between Holgate and Horton Streets, which is to be a surface railroad.

Shops and Buildings

Piedmont & Northern Electric Railway, Charlotte, N. C.—The 4 C's Company, Charlotte, has been awarded a contract for the construction of a passenger station for the Piedmont & Northern Electric Railway at Charlotte. The structure will be 40 ft. x 110 ft., one-story, semi-classic style, exterior trimmed with tapestry stone and brick.

Lake Shore Electric Railway, Lorain, Ohio.—Work will soon be begun by the Lake Shore Electric Railway on the construction of a new station in the village of Huron.

Power Houses and Substations

Kansas City (Mo.) Railways.—A contract will soon be awarded by the Kansas City Railways for the erection of a substation at 1017 Oak Street, to cost about \$25,000.

Manila Electric Railroad & Light Corporation, Manila, P. I.—The J. G. White Management Corporation, New York, N. Y., recently placed an order with the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., for a new 7500-kva. turbine as an addition to the power house installation of the Manila Electric Railroad & Light Corporation, which it controls.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS

FOR THE MANUFACTURER, SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES • MARKET QUOTATIONS • BUSINESS ANNOUNCEMENTS

Scrap Dealers Allowed a Commission on Sales

The War Industries Board Acts Favorably On the Application—Strict Conditions of the Order

For a while the impression prevailed that dealers in scrap metal would not be allowed a commission by the War Industries Board in handling their business, although they requested it urgently. The board, however, has acted favorably on the application, deciding that 3½ per cent would be allowed, effective May 1. The formal order to that effect follows:

1. Consumers of scrap iron and steel employing an agent to purchase scrap for them, at their discretion, may pay as compensation for such service, a sum not exceeding 3½ per cent of the agreed price at which such material is to be delivered, in cases where the agent guarantees the quality and delivery of an agreed tonnage of the material. This compensation shall be shown as a separate charge in billing; the material may not be invoiced at any price in excess of the maximum announced.

2. Under no circumstance may a dealer or broker split or divide this extra sum which may be allowed him by a mill with any other dealer, broker or producer, and the highest price that any one under any circumstances may pay is the maximum price as stated in the announcement of the War Industries Board under date of March 26, 1918.

Price at Shipment—Rigid Rule on Rails

Orders Only Accepted by Mills at Their Convenience for Rolling and Shipping

A report that there is a scarcity of all sections of rails with only occasional lots from unexpected rollings available for immediate shipment is confirmed by the large producers. One of the Eastern mills is about to roll 80 to 85-lb. sections and has made a few sales of "seconds" from stock. Industrial railways are constantly in the market for medium section rails, running from 75 to 85 lb., and mining roads and lumber camps are seeking to place orders for light sections. Government contractors are also buying rails and track supplies, including frogs and switches and switch stands. Some of these orders are being placed directly by the government.

Some time ago the ELECTRIC RAILWAY JOURNAL mentioned that a leading Eastern subway system was in the market for 10,000 tons of heavy sections for

its 1919 requirements. The company is still seeking to place the order. The mills decline to accept its terms it was stated by one of the largest steel rail producing concerns in the country. This concern stated that rails of this kind were all of special rolling, and that there had been no change in price, 500 ton lots, A.S.C.E. standard rails, being quoted at \$65 a ton; smaller quantities at \$70 to \$80 a ton.

To-day this and other plants will not take orders except at the convenience of the mill for manufacturing and shipment. The price is to be that prevailing at the time of shipping only. This is the rule and it is rigidly enforced. Merchant steel for miscellaneous electric railway material comes in such small lots, in comparison to rails, that it is hard to say when a rolling would be made.

Record Coal Production

Bituminous Output Still Rising—Last Week of April Shows Highest Rate in Twelve Months

The week ended April 27 recorded not only the highest rate of production of bituminous coal during the past twelve months, but the third successive week of rising production, it is reported by the Geological Survey.

Production of bituminous coal (including lignite and coal made into coke) is estimated at 11,668,000 net tons, an

increase of 5.7 per cent over the preceding week. The average production per working day is estimated at 1,946,000 net tons compared with 1,840,000 net tons last week, and 1,680,000 net tons during April, 1917.

Production for the month of April, 1918, is estimated at 46,478,000 net tons, an increase of 4,400,000 net tons, or 10 per cent over April of last year. Production for the four months ended April, 1918, is estimated at 181,992,000 net tons, an increase of more than 5,000,000 net tons or 3 per cent compared with the same four months of 1917. There has also been an improvement in car shortage conditions to mines.

Anthracite shipments slightly increased during the week of April 27.

Weatherproof Wire Marked Up

Increasing Cost of Cotton is the Cause—Scarcity of Tin May Affect Rubber Covered

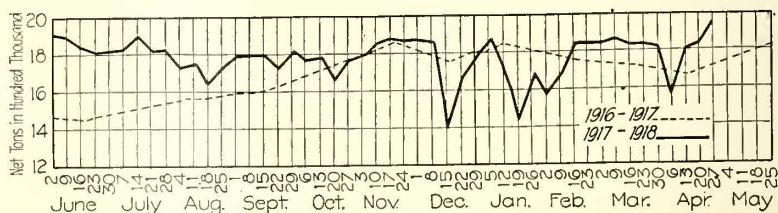
Weatherproof wire has responded to the increasing cost of cotton by an advance of from 1 to 2 cents a pound recently. Cotton has more than doubled in cost within a year and therefore weatherproof manufacturers feel justified in adding their extra expense to the finished article. In fact, the cost of production has steadily been going up fractionally for some time. Jute, which is used as an insulating material on copper cable, is also high and difficult to obtain, and therefore a revision of quotations may also be made on the goods.

A difference of figures is noted with various producers. One large company, selling in quantities, quotes 26½ cents a pound for weatherproof, declaring no change in price has occurred for several months. A second manufacturer of equal standing, which specializes on power house orders, quotes from 25 to 26 cents, and states it is glad to handle all business it can get at that figure. With 23½ cents as the government price on raw copper the concern says it finds ample margin in such transactions. A third firm, which also sells almost exclusively to power

houses, confessed it was high in naming 27½ cents.

Jobbers estimate their requirements on a 30 cent base, the ELECTRIC RAILWAY JOURNAL, in its "Electric Railway Material Prices," in this department, quoting weatherproof, in 100-lb. lots, New York, 30.40 to 34¼ cents; Chicago, 33.42 to 38.35 cents, which has ruled for some time. Jobbing houses accept these prices, but it is probable an order of some size may be booked on a closer figure. One prominent distributor has notified the trade of an advance of 2 cents a pound, effective at once.

Rubber covered wire, on account of the unprecedented cost of tin, may also be subjected to a revision if the



BITUMINOUS COAL PRODUCTION SHEET

metal goes much higher. This week Straits tin cannot be bought at any price, and it is nominally quoted over \$1 a pound, with a possibility of \$1.50 next month. Chinese tin, not so pure as Straits and containing a greater percentage of arsenic, but answering perfectly for coating bare copper wire for rubber operating, sold at \$1, May arrival, during the week.

Transformer Demand Has Dropped Considerably

Shipments Can Now Be Made Under Six Months on All Sizes and Types

Since early last fall transformer business has dropped from the high level occasioned by the entry of the United States into the war. Present-day demand is probably in the neighborhood of 70 per cent of what it was ten months to a year ago. During the past few weeks the demand has been noticed to rise somewhat, and indications are for a continuance of the present volume of business.

While it is true that the manufacturers have by no means entirely caught up with old business, deliveries are now much closer to normal. In some sizes and types stocks are beginning to accumulate. Present manufacturing capacity is now in excess of the current demand.

Shipments on all sizes, even for special construction, are now being made well under six months. On regular equipment shipments unless for stock can be had from four weeks to four months. Only recently some very large power transformers were tested and shipped slightly under sixteen weeks.

There does not seem to be any tendency toward lower prices, while there is some talk by manufacturers of higher prices if raw materials continue to advance. Present contracts, of course, will not be affected, but new contracts may be made on a different schedule or price basis. Boiler plates and cotton thread are at present the most alarming of the raw materials. Transformer oil deliveries are now in better condition, and the supply of oil drums is freer.

New Magnet and Controller Company Incorporated

Ohio Electric & Controller Company, 5900 Maurice Avenue, Cleveland, has been incorporated with a capital stock of \$200,000 for the purpose of manufacturing lifting magnets and electrical controlling devices. Lifting magnets will be built at once and controlling devices later. The officers of the new company include F. W. Jessop, president; W. B. Greene, vice-president, and A. D. Walter, secretary and treasurer. Mr. Jessop was formerly works manager of the Electric Controller & Manufacturing Company, Cleveland. He has had an extensive experience in the manufacture of lifting magnets and apparatus for the control of motors.

Machine Tool Delivery Is Improved

Quick Shipments Increase Cost—Manufacturers Swamped With Orders—Exports Curtailed

With the general line of machine tools, such as lathes, milling machines, boring appliances, shapers, hammers, shears, slotters, and general power house and railway repair shop equipment, deliveries have improved. This is particularly true of the smaller machines and tools of every kind when shipped out of stock, to quote one manufacturer of prominence, who said deliveries could be made in sixty days, subject to embargoes of course. As this is up to the buyer or consignee the manufacturer was not borrowing trouble on that account. Other manufacturers were of the opinion that deliveries were worse than ever, a year and a half being named, at normal cost, with no relief in sight. Further, when quick delivery is specified the cost is immediately advanced if not infrequently doubled.

Generally speaking the railways and power houses purchases are below the average, reports affirm. Still, considerable business is being transacted; but the sales usually represent only what is essential to keep the properties in workable condition. That the buying is not entirely negligible a manufacturer, speaking of the improvement in the shipping situation, and is largely due to the catching up with orders.

No change in price had been made recently, although the revisions on a higher level had been regular, from time to time, dependent chiefly on the metal market. Prices were now at the top, it is believed, with the government's fixed quotations on iron and steel, but finished products were so far exempt from the official schedule. If a further increase was made it would be owing to the scarcity and high wages of labor. Workmen, it is reported, are hard to retain on account of the methods followed where government contracts on the "cost-plus" basis are encountered. This is said to apply especially in the Philadelphia district, where mechanics command the market. It is held that these contractors can keep on raising wages on this plan, with the government as a quasi-partner, and the increased price granted carries with it no responsibility, but is simply passed along and goes in the bill ultimately rendered.

Besides having this to contend with the machine tool manufacturers are finding it more difficult to obtain the kind of machines in urgent demand. On this score considerable anxiety is expressed. In this connection it is explained that for big machines, such as lathes, planers, and similar tools, none are to be had at any price. Only two concerns have the equipment, facilities and organization for making tools of this caliber and they are swamped with orders.

At one time the exportation of machine tools was a heavy and important branch of the business. With the

entrance of the United States into the war this has fallen away. The exporting of machine tools of every description, excepting to Great Britain, France and other allied European powers, is prohibited unless under license, which amounts to its curtailment. After this country and its war allies are served—and they about absorb the entire output—the remaining neutral nations get little, if anything.

Government Buys 100,000 Freight Cars

Last week's ELECTRIC RAILWAY JOURNAL, in this department, furnished the particulars of the 30,000 freight car order placed by Director-General McAdoo. On May 2 an additional order for 70,000 cars, mentioned at the time, was allotted. Several manufacturers of electric railway rolling stock secured a portion of this large lot. The aggregate cost of the entire 100,000 cars is between \$250,000,000 to \$300,000,000. The apportionments among the builders follows:

| | |
|---|--------|
| Bettendorf Company..... | 3,000 |
| Cambria Steel Company..... | 3,000 |
| Haskell & Barker Works..... | 8,000 |
| Keith Car Manufacturing Company.. | 1,000 |
| Laconia Car Company..... | 1,000 |
| Lenoir Car Works..... | 2,000 |
| Liberty Car & Equipment Company.. | 1,000 |
| Magor Car Corporation..... | 1,000 |
| Mount Vernon Car Manufacturing Company | 4,000 |
| Pacific Car & Foundry Company..... | 2,000 |
| Pressed Steel Car Company..... | 14,000 |
| Pullman Company..... | 8,000 |
| Ralston Steel Car Company..... | 4,000 |
| St. Louis Car Company..... | 1,000 |
| Standard Steel Car Company..... | 15,000 |
| Also pending to the Barney & Smith Car, Dayton, Ohio..... | 2,000 |

Rolling Stock

United Traction Company, Albany, N. Y., is reported as rebuilding a number of cars, converting them into trailers. The work is being done in the company's own shops.

Worcester (Mass.) Consolidated Street Railway is reported as planning to construct six trail cars to be used on its Fitchburg & Leominster Street Railway line.

Tampa & Sulphur Springs Traction Company, Tampa, Fla., has just rebuilt four open-type cars into closed front-entrance cars, with a seating capacity of forty-eight.

Brooklyn (N. Y.) Rapid Transit Company has placed an order for fifty trail cars of the center-entrance type. The Jewett Car Company received the order for the car bodies. The order for the trucks went to the J. G. Brill Company.

Tacoma (Wash.) Municipal Railway, through C. D. Atkins, commissioner of public works, is reported as saying that the city is considering the purchase of ten cars now on sale at Minneapolis, Minn. Seattle is also negotiating for twenty of the same lot, and the agent in charge will report the condition of the second-hand rolling stock to the officials of both cities.

Trade Notes

Walter A. Zelnicker Supply Company, St. Louis, Mo., has just issued its Bulletin No. 241, listing second-hand rails, cars and other rolling stock.

Springfield (Mo.) Traction Company has purchased twelve double equipments of Westinghouse 506-AN-2 motors, and K-63-B control. This type of motor was incorrectly given in a recent issue of this paper. These equipments were purchased through the St. Louis Rail & Equipment Company.

Guaranty Trust Company, New York, N. Y., has issued a fifty-two page pamphlet entitled "War Finance Corporation Act." This gives not only the official text of this new act but also an excellent synopsis of it and an index to this synopsis. The pamphlet also contains a foreword describing the general objects of the enactment.

D. R. Morris, assistant engineer, valuation department, New York Central Railroad (Buffalo and East), and previously in the signal department of several railway companies, has joined the forces of the Federal Signal Company as sales engineer. He will be located at the New York Office, 52 Vanderbilt Avenue.

J. M. Riordan, until recently sales engineer of the Grant Lees Gear Company of Cleveland, Ohio, and formerly representing the Fellows Gear Shaper Company of Springfield, Vt., in the Central States, is now connected with

the sales organization of the Cleveland Milling Machine Company at Cleveland.

The International Western Electric Company has filed articles of incorporation under the laws of the State of Delaware with a capital stock of \$20,000,000. The company proposes to manufacture all kinds of electrical instruments and machinery and to engage entirely in foreign trade. The incorporators are: William O'Keefe, E. E. Aberle and J. H. Dowdell of Wilmington, Del.

New Advertising Literature

General Electric Company, Schenectady, N. Y.: Bulletin describing its pressure governor for alternating-current or direct-current circuits, No. CR 2922, and its bulletin No. 57,419, illustrating parts of type FP-10 oil circuit breakers.

General Electric Company, Schenectady, N. Y.: Bulletin No. 44,678, superseding bulletin No. 4894, illustrates and describes the G. E. drum-type controllers for railway service. The company has recently developed a new type of line breaker equipment for use with drum controllers which is a decided improvement over the olden type, and in the bulletins this line breaker is set forth in detail.

Electric Service Supplies Company, Philadelphia, Pa.—Catalog entitled "International Fare Registers," illustrating and describing the company's fare

registering devices in detail. Every part of the mechanism is given careful treatment and the particular work of each part minutely explained, giving the electric railway superintendent or manager a clear and succinct idea what they accomplish. A copy of this catalog will be mailed on application to the company.

Arthur Power-Saving Recorder Company, New Haven, Conn.: "Decreased Power Consumption and Increased Safety" is the title of a booklet just issued. This describes the company's recorder and the connections necessary in its installation. Details are given of the results attained and the advantages to be expected from the use of these instruments. A discussion of records, how they are worked out and the best methods for following these up in order to obtain the desired results is also included.

National Board of Fire Underwriters, Chicago, Ill.: Code for construction and tests of electrical appliances has been issued by the National Board. The book gives general information concerning the Underwriters' Laboratory and its organization, including the electrical council, the industry council and methods of procedure in examining, testing and reporting upon electrical appliances. Codes are given for wires, conduits, armature cables, cartridge fuses, map switches, cable and cut-out boxes, signs, panelboards, knife switches, cut-out bases and lugs. The book is bound in a loose-leaf leather binding and is designated as volume one.

NEW YORK METAL MARKET PRICES

| | May 1 | May 8 |
|---|------------|------------|
| Copper, ingots, cents per lb..... | 23½ | 23½ |
| Copper wire base, cents per lb..... | 26½ to 26½ | 26½ to 26½ |
| Lead, cents per lb..... | 7½ | 6.62½ |
| Nickel, cents per lb..... | 50 | 50 |
| Spelter, cents per lb..... | 7½ | 7.32½ |
| Tin, Chinese,* cents per lb..... | 96 | \$1 |
| Aluminum, 98 to 99 per cent., cents per lb..... | †32.10 | †32.10 |

*No Straits offering. † Government price in 50-ton lots, f.o.b. plant.

OLD METAL PRICES—NEW YORK

| | May 1 | May 8 |
|---|----------|----------|
| Heavy copper, cents per lb..... | 22 | 22 |
| Light copper, cents per lb..... | 19½ | 19½ |
| Red brass, cents per lb..... | 18 | 18 |
| Yellow brass, cents per lb..... | 13 | 13 |
| Lead, heavy, cents per lb..... | 6 | 6½ |
| Zinc, cents per lb..... | 5½ | 5½ |
| Steel car axles, Chicago, per net ton.... | \$41.52 | \$41.52 |
| Old carwheels, Chicago, per gross ton.... | \$29.00 | \$29.00 |
| Steel rails (scrap), Chicago, per gross ton.. | *\$34.00 | *\$34.00 |
| Steel rails (relaying), Chicago, gross ton.. | \$60.00 | \$60.00 |
| Machine shop turnings, Chicago, net ton. | \$16.00 | \$16.00 |

ELECTRIC RAILWAY MATERIAL PRICES

| | May 1 | May 8 | May 1 | May 8 |
|--|--------------------|--------------------|--------------|--------------|
| Rubber-covered wire base, New York, cents per lb..... | 27 to 30 | 27 to 30 | | |
| Weatherproof wire (100 lb. lots), cents per lb., New York..... | 28½ to 34½ | 30.40 to 34½ | | |
| Weatherproof wire (100 lb. lots), cents per lb., Chicago..... | 33.42 to 38.35 | 33.42 to 38.35 | | |
| T-rails (A. S. C. E. standard), per gross ton..... | \$70.00 to \$80.00 | \$70.00 to \$80.00 | | |
| T-rails (A. S. C. E. standard), 500-ton lots, per gross ton..... | | \$65.00 | | |
| Russian rails, per gross ton..... | | \$60.00 | | |
| T-rails, high (Shanghai), cents per lb..... | 4½ | 4½ | | |
| Rails, girder (grooved), cents per lb..... | 4½ | 4½ | | |
| Wire nails, Pittsburgh, cents per lb..... | 3½ | 3½ | | |
| Railroad spikes, drive, Pittsburgh base, cents per lb..... | 4½ | 4½ | | |
| Railroad spikes, screw, Pittsburgh base, cents per lb..... | 8 | 8 | | |
| Tie plates (flat type), cents per lb..... | *3½ | *3½ | | |
| Tie plates (brace type), cents per lb..... | *3½ | *3½ | | |
| Tie rods, Pittsburgh base, cents per lb.... | 7 | 7 | | |
| Fish plates, cents per lb..... | *3½ | *3½ | | |
| Angle plates, cents per lb..... | *3½ | *3½ | | |
| Angle bars, cents per lb..... | *3½ | *3½ | | |
| Rail bolts and nuts, Pittsburgh base, cents per lb..... | 4.90 | 4.90 | | |
| Steel bars, Pittsburgh, cents per lb..... | 5 | 5 | | |
| Sheet iron, black (24 gage), Pittsburgh, cents per lb..... | 4.90 | 4.90 | | |
| Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb..... | 5.80 | 5.80 | | |
| 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, F. O. B. factory..... | | | 80% to 82-3% | 80% to 82-3% |
| Car window glass (single strength, first three brackets, B quality), New York, discount, F. O. B. factory..... | | | 79% | 79% |
| Car window glass (double strength, all sizes AA quality), New York, discount, F. O. B. factory..... | | | 80% | 80% |
| Waste, wool (according to grade), cents per lb..... | 11½ to 22 | 11½ to 22 | | |
| Waste, cotton (100 lb. bale), cents per lb..... | 12 to 13½ | 13 to 13½ | | |
| Asphalt, hot (150 tons minimum), per ton delivered..... | \$38.00 | \$38.00 | | |
| Asphalt, cold (150 tons minimum, pkgs. weighed in, F. O. B. plant, Maurer, N. J.), per ton..... | \$42.00 | \$42.00 | | |
| Asphalt filler, per ton..... | \$45.00 | \$45.00 | | |
| Cement (carload lots), New York, per bbl..... | \$2.65 | \$2.65 | | |
| Cement (carload lots), Chicago, per bbl.... | \$2.71 | \$2.71 | | |
| Cement (carload lots), Seattle, per bbl.... | \$3.05 | \$3.05 | | |
| Linseed oil (raw, 5 bbl. lots), New York, per gal..... | \$1.59 | \$1.59 | | |
| Linseed oil (boiled, 5 bbl. lots), New York, per gal..... | \$1.60 | \$1.62 | | |
| White lead (100 lb. keg), New York, cents per lb..... | 10 | 10 | | |
| Turpentine (bbl. lots), New York, cents per gal..... | 43½ | 44½ | | |

* Government price.