

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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The Golden Mean in the Use of Autos

THE USE of autos instead of street cars by railway officials in inspecting their properties has been criticised once or twice in these columns by managers who believe that thereby many faults of the transportation force escape detection. Mr. Dana, in a communication in this issue, points out very properly that the automobile is a necessary tool under modern conditions to annihilate time and distance in the efficient conduct of a large urban property, and his remedy is for the manager to see that this tool is used only for the purpose for which it is intended.

This is undoubtedly the correct answer. In nearly all questions on which men differ there is a golden mean. The Western manager whose letter published in these columns began the discussion called attention to a real evil. The best place for an official to watch the performance of the trainmen and to determine the effect of track maintenance on car operation is on the car itself. Hence, if an electric railway official uses his own cars so far as he can to travel from one point to another on his system he not only uses his time spent in traveling in the performance of his duties, but he gets better acquainted with the operating force. But there are times when speed in getting from one point on the system to another is essential, and here the faster vehicle is desirable. The Western manager admits that there are instances of this kind. He protests only against the automobile "habit," through which he says the company is in danger of losing the services of a once efficient official.

Stability of Earning Power of Electric Railways Shown

ONE of the claims often made, and properly, in the past for electric railways as an investment was that their earnings are not as greatly affected as are many other industries by adverse industrial conditions. During the past few years electric railways have rather been ignored by the average investor, who has been attracted by the more alluring industrials, "war brides," oil companies and shipping companies. During the past twelve months, and especially the past six months, however, some of these latter companies have fallen into hard times. The export business has decreased due to high exchange and other reasons and domestic demand has become much less, so that dividends have been suspended and both gross and net have decreased.

A table published in the department "Financial and Corporate" in this issue shows how the electric railways have fared during this period. The list is not a selected one, being all of the railways in a list published weekly in the *Commercial and Financial Chronicle* of public utilities which report monthly earnings to that paper. Of this list of thirty companies, only three show decreases in gross earnings for this year to date as

compared with last year to date. The decreases for the companies mentioned are minor, while notable increases are recorded for the other properties reporting, especially the larger companies. All figures are quoted irrespective of mileage, but it is not believed that any of the companies outside of the two subway companies in New York have added materially to the miles of track operated by them during the year in which comparison is made. The showing is a notable one of the stability of earning power of electric railways.

What Happened in Illinois

THE Illinois Legislature has adjourned, leaving a record that, if not creditable for measures adopted, is at least complimentary for the bills killed. The principal measures fostered by the Governor and Chicago's Mayor, in line with election campaign pledges, were one that would create a transportation district as a means of bringing about people's ownership and a 5-cent fare and another designed to abolish the public utilities commission and create home rule. What happened was somewhat of a surprise, as there developed in the last few days of the legislative session a sentiment in the state which finally resulted in a clean-cut repudiation of the plans of the administration.

The transportation district bill, which had been so worded that the referendum vote on it would have come at the time of the next Chicago mayoralty election and thus again made the traction situation the election issue, was killed altogether. The public utilities regulation bill was finally passed, but not until more than sixty amendments had so disfigured it that the original measure could scarcely be recognized. The home rule feature is virtually eliminated. But the bill does abolish the present commission, and in that sense only does it carry out the Governor's promise. But even then the new law as amended makes a better statute than the old one from the standpoint of the utilities. The new statute practically continues the old one with these changes: The Illinois Public Utilities Commission, with five members at \$5,000 each, is abolished and the Illinois Commerce Commission (I. C. C.), with seven members at \$7,000 and eight assistant commissioners at \$5,000, is created. There is a provision that a petition originating with the voters (not the City Council) and signed by 25 per cent of the registered legal voters will bring about a popular vote on whether the local utilities shall be subject to local instead of commission regulation. If home rule is established in any city, the order of appeal from orders of the Council shall be first in the county in which the complaint originates. Some of the positions of the commission have been removed from under civil service requirements. By a separate bill the annual appropriation for the commission was increased by \$500,000. There may be other provisions contained in the mass of amendments jammed through at the last minute that are not yet assimilated.

Upon analysis, none of these provisions appears dangerous to the utilities. An increase in the size of the commission has often been thought desirable as a means of speeding up its work. The likelihood of securing a petition for home rule vote, signed by 25 per cent of the registered voters of a city, seems decidedly remote. In Chicago, for example, this would mean the names of more than 200,000 voters on the petition, and if that many people were sufficiently aroused against a utility to sign such a petition it would seemingly indicate that there was something radically wrong and a change ought to be made. Furthermore, since it is provided that appeal from a local order shall be made to the commission, this would seem to forestall any great value in having home rule and to strengthen the position of the commission.

So, while the new law does increase the patronage to be distributed by the Governor, no particular damage has been done the righteous cause of the utilities, and since the legislators have determined, in spite of the influence of a most pernicious and powerful political machine, not to take those steps that would keep the public service companies in politics and uncertainty, the fears for their future welfare in Illinois will be largely dispelled.

Central Electric Railway Association Provides for Better Engineering

HOLDING its summer meeting under ideal surroundings, the Central Electric Railway Association not only enjoyed to the fullest measure its delightful cruise on the Great Lakes but also set up a record of worth-while accomplishments. Of particular importance was the plan, approved subject to detailed development, providing for separate meetings of the engineering members. For several years there has been an agitation in the association for some scheme that would permit the engineers to gather by themselves, free from the restraint of the bosses' presence, for the purpose of exchanging ideas and experiences on common problems. The plan devised is quite different from any heretofore discussed and whether it will work out satisfactorily remains to be seen. At any rate the association is to be congratulated for taking steps to provide these much desired and potentially valuable meetings, and if the present plan does not work out it can be revised. Its success as always depends upon the willingness of individuals to work.

One weakness common to much association work has been recognized and guarded against by providing an engineering council whose duty it is to lay down a program each year for the work of the sectional meetings. The latter will therefore meet for a definite purpose and will know toward what end it is working. However, this definite assignment of duty should not preclude the possibility of having free round-table discussion on any point brought up by any member, for this was the primary reason for seeking these separate meetings. There is some doubt whether the grouping of equipment, electrical and track men together in the same meetings will be as fruitful of results as are the meetings held in Pennsylvania and Ohio for the equipment men exclusively. On the other hand, there will be opportunity to discuss and work out the various technical questions of mutual or inter-departmental interest. In any event the plan laid out by the association is a step in the right direction and will

serve to make the association of greater interest and usefulness to the engineers and the operating men and finally to the companies.

What It Means to Classify the Jitney as a Common Carrier

PUBLIC carriers have exercised their calling for the last 2,000 years or longer, and the rights of the public to establish routes and exercise some sort of supervision as to their maintenance and to prevent discrimination in charges has been recognized for a very long period. In fact, it is difficult to imagine a common carrier service without the acceptance by the carrier of certain definite responsibilities to the public, along the lines at least of the maintenance of a schedule so far as it can be done and a uniformity in charges for the transportation supplied. The recognition of the right of the authorities to exercise such regulation is second nature to the railway men, but hardly so to the average jitney operator, who wants to enjoy the privileges of the common carrier but to avoid all of its duties and responsibilities.

While the thinking men among the motor bus operators favored and even urged the passage of regulating legislation, yet it is easy to understand the attitude created in the minds of many jitney operators in Connecticut by the passage of a law at the last legislative session recognizing the public aspects of the service being given by the jitneys in that state and putting the jitneys under the control of the Public Utilities Commission. This law goes into effect July 15 and the commission has now issued certain regulations under it.

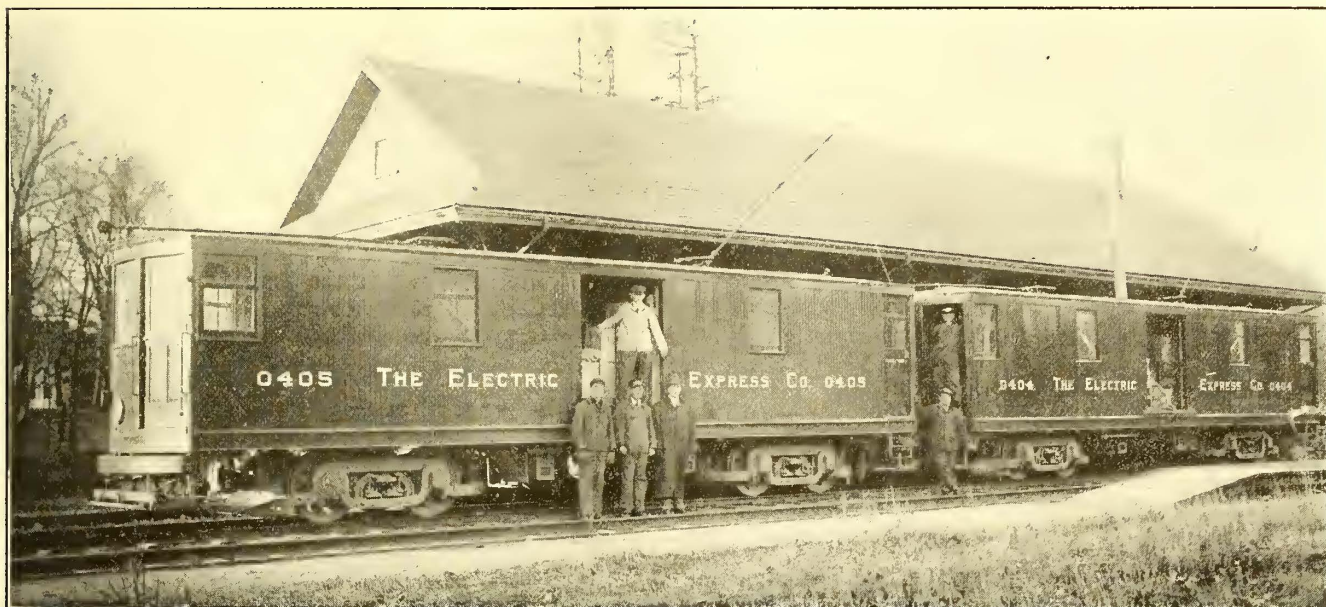
Under the new law proposed routes may be established only when proof is established of their convenience and necessity. The first decision on an application of this kind has just been rendered and in it the Public Utilities Commission of the state outlines its policy. Some of the controlling factors were held to be: (1) The general public good and the general public requirements rather than individual convenience; (2) essentiality of existing street railways; (3) stability, permanency and continuity of existing service; (4) protection of existing franchises from competition. When a commission stands for such a policy and is ready to protect existing franchises, not only for trolley lines but for steam roads, against competition that is piratical, there can be no reason for the transportation companies, the public or the municipalities served to feel that they are not going to get a square deal.

The railways, however, must not only be willing but must demonstrate that they can adequately serve the territory allotted. Of course the answer or governing index is the attitude of the public. To have the index favorable means that the trolley companies must do some real merchandising—they must put out the kind of service that will satisfy the people after it has been produced. In some cases running time can be cut, or better headways provided so as to lessen overcrowding. At least an attempt should be made to indicate to the public that its welfare is being considered. Then, too, the trolley company can add complementary bus service as feeders to existing rail lines serving territory now tapped by the jitneys, but nevertheless competing to a large extent with the trolley lines.

Undoubtedly transportation of the future will be a unified system that will utilize both trackways and highways according to their respective economic spheres.

Trolley Freight and Motor-Truck Customers

The Trolley Freight Systems of the Springfield-Worcester-Boston Area Hold Their Own Through Adverse Times Because of Reliability, Frequency of Service and Low Cost—
Healthy Growth Attained Despite Drawbacks



TWO MOTOR CARS IN ELECTRIC FREIGHT TRAIN

IT IS well known that the electric railways in the older, more settled parts of the United States, particularly New England, were not built with the idea of carrying anything but passengers. When they did undertake freight and express carriage they found it necessary to overcome both franchise and physical obstacles. The lack of properly equipped and located freight houses and of unimproved track facilities proved an especially severe handicap. Therefore, it is no wonder that more than one Eastern road made but a half-hearted attempt and then quit this field. More recently the advent of the motor truck has put a further damper on such efforts.

The very truth of these statements lends all the more interest to the work of a group of electric railways which has succeeded in attaining a healthy growth despite the drawbacks of partial operation over city streets and in a district where good roads and short runs give the motor truck many advantages. This service is given in western Massachusetts and adjacent districts of Connecticut and Rhode Island shown on the accompanying map, through the co-operation of the following electric railways, practically all of which are of the combined city and highway trolley type:

1. Springfield Street Railway
2. Worcester Consolidated Street Railway
3. Interstate Consolidated Street Railway
4. Milford, Attleboro & Woonsocket Street Railway
5. Attleboro Branch Railroad
6. Boston & Worcester Street Railway
7. Holyoke Street Railway
8. Connecticut Valley Street Railway
9. Northern Massachusetts Street Railway
10. Hartford & Springfield Street Railway
11. The Rhode Island Company
12. Boston Elevated Railway

Of the foregoing lines, 1, 2, 3, 4 and 5 are under one management, with R. E. Cosgrove as general traffic

agent; lines 7, 8, 9, 10 and 11 grant running rights to the service conducted by Mr. Cosgrove; lines 8 and 9 are under the direction of Leon Bolster, assistant to vice-president and general manager, while line 6, Boston & Worcester Street Railway, carries on a freight and express business under the direction of F. O. Lewis, general freight and passenger agent, including running rights into Boston Elevated Railway, line 12. The Boston & Worcester cars also may run over the other trackage of the system, but ordinarily the through service is Springfield-Worcester-Boston, as noted hereinafter, aside from the service between Worcester and Providence.

EXTENT AND CHARACTER OF SERVICE

The distance between Springfield and Worcester is 55 miles and between Worcester and Boston 44 miles, so that the direct east-west service may be described as usually 100 miles, and the transfer service, Springfield to Providence, via Worcester, as 121 miles. The Springfield-Boston through service was not inaugurated until Feb. 1, 1921. This extension of direct carriage has stimulated business because of the elimination of transfer and rebilling at Worcester. About two-thirds of this class of traffic is from Boston west-bound.

For this through business single cars or two-car trains are run every night. Cars leaving Boston at 5 p.m. reach Springfield in time for the 7 a.m. store delivery the following day, the cars actually reaching the freight house about 3 a.m. At the Springfield end it is now customary to close the receipt of freight at 5 p.m., leave at 8:30 p.m. and reach Boston between 11 a.m. and 12 noon the next day, but arrangements are under way to assure a 7 a.m. delivery in Boston.

As to the service between Springfield and Worcester, trolley freight in each direction leaves regularly at

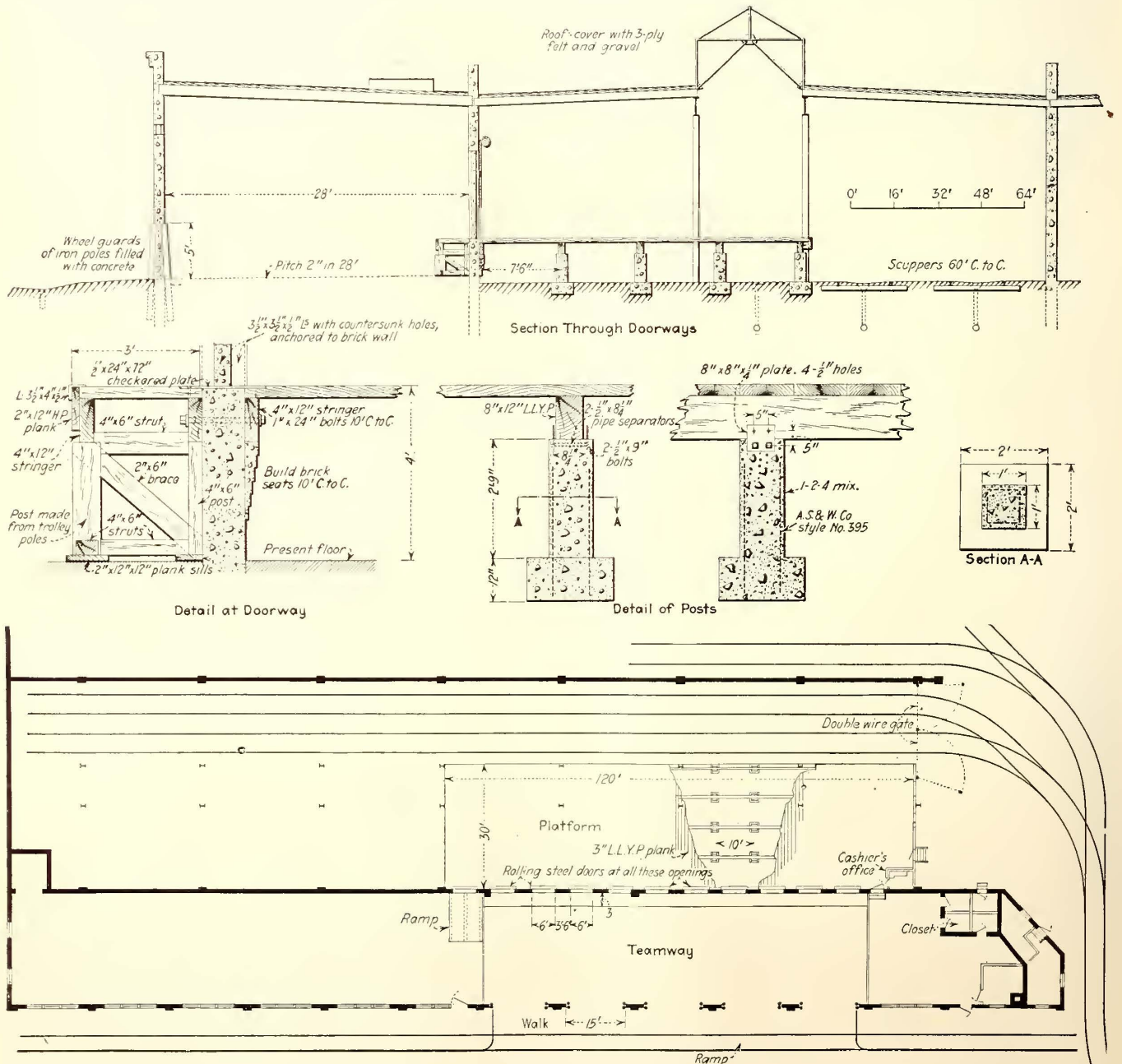
9:30 a.m. for afternoon distribution and at 8:30 p.m. for early morning distribution the following day. Since Feb. 1, 1921, a trailer has been added to the night car, because business has increased in spite of the fact that in this district the month of January, 1921, was the worst, industrially, in many years. This increase began before the industrial depression, owing to dissatisfaction with the rates and service of the steam railroads.

Two cars a day are run between Worcester and Providence to take freight transferred from Springfield. The connections are such as to permit delivery on this 121-mile run within twenty-four hours.

MOTOR TRUCK AND EXPRESS MEN ARE GOOD CUSTOMERS AND BUSINESS SOLICITORS AS WELL

Paradoxical as it may appear, the best business solicitors for the trolley freight service are the motor truckers in this district. These operators solicit motor-truck shipments for New York and other distant points, but request that the shipper use the trolley freight as

far going south and west as Springfield, 145 miles from New York! The explanation of this paradox of electric railway for short haul and motor truck for long haul is simple. Those motor truckers, who have survived through the lean months that have followed the war fever and steam railroad embargoes, realize that they cannot compete in rates with the frequent-service trolley for such runs as Boston-Worcester, 44 miles, and Worcester-Springfield, 55 miles. Nor is their advantage in speed of any importance against the over-night delivery mentioned. On the other hand, the steam railroads are still most uncertain in their handling of less-than-carload freight. Hence a shipper who is willing to pay extra for speed will engage a motor trucker. The latter makes a flat over-all rate, including that portion of the trip via trolley. The rate charged to the customer is approximately first class or express, but that which the truckman pays over the electric railway part of the run may be third or fourth class or some extremely low commodity rate. Thus the motor-truck operator is sure of a clear profit for



PLAN AND CROSS-SECTION OF BOND STREET FREIGHT STATION AT SPRINGFIELD, MASS.

possibly one-third of the run, which profit gives him a working margin to permit quoting an over-all rate of, say, 1 cent a mile per 100 lb.

With the great let-down in the demand for goods of any and every description, the motor trucker is no longer able to secure full loads and top prices. Aside from this, he has to meet the competition of furniture movers and others who take a good load one way and in their eagerness to return with a load underbid the concern which is trying to conduct a regular common carrier business. On the whole, therefore, the electric railways in this combination have no fear at all of the motor truck. Indeed, they are prepared to and do give space in their freight houses to motor truckers because of the business which they solicit for shipment by electric railway in its originating or final stage.

The old-time expressmen in Springfield and Worcester are also good solicitors for electric express. As in the case of the motor truckmen, their advertisements, which read "Direct Service to —," etc., are to be taken with several saline grains, as they are glad to make use of the electric railway freight facilities for remarkably short distances. In fact, the most experienced operator at Springfield does not hanker for motor trucking in retail delivery for distances beyond 8 miles if his light trucks can radiate from railway stations. These operators were among the first users of motor trucks, but unlike the irresponsible individuals who entered motor haulage during the war, they are used to keeping books and know just what they can afford to charge for their services. The use of the electric railway by such operators to the extent of free space in the freight house and special cars (as at Worcester) is evidence on the relative cost of haulage by truck and electric of more importance than a ton of statistics.

A more difficult problem for the electric railway freight agent is that of securing the business of wholesale firms who look upon the operation of motor trucks carrying their names from an advertising standpoint as well as from a delivery standpoint. In many cases the advertising argument prevails even when it is admitted that the electric railway, or the electric railway plus local motor truck short haul, would be cheaper than the through service and would be fast enough for all regular operations. In several cases the shipper has given up motor trucking with his own fleet, either purchasing the services of motor truckers at a saving to



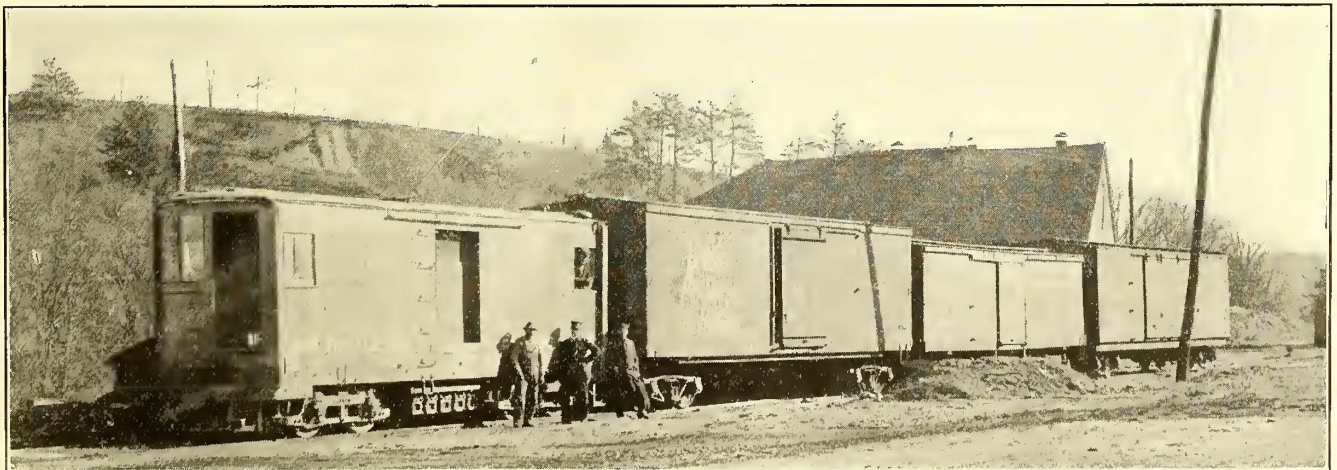
FRONT OF THE ORIGINAL SPRINGFIELD FREIGHT HOUSE

himself or making use of the electric railway where convenient. It goes without saying that much private-firm trucking is wasteful because of the comparatively small loading, so that it is only a question of time as to when the novelty feature will wear off and make way for clear economics.

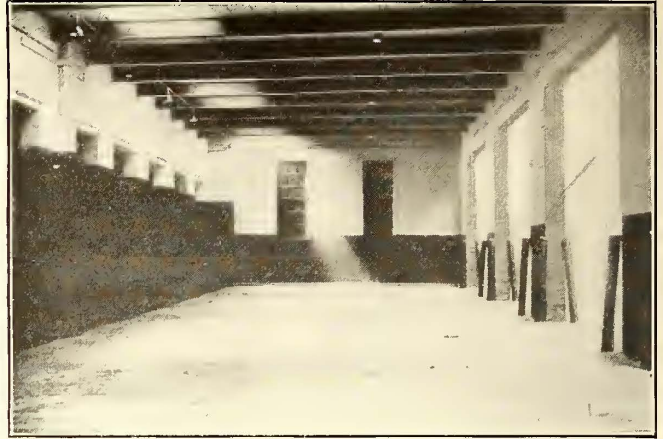
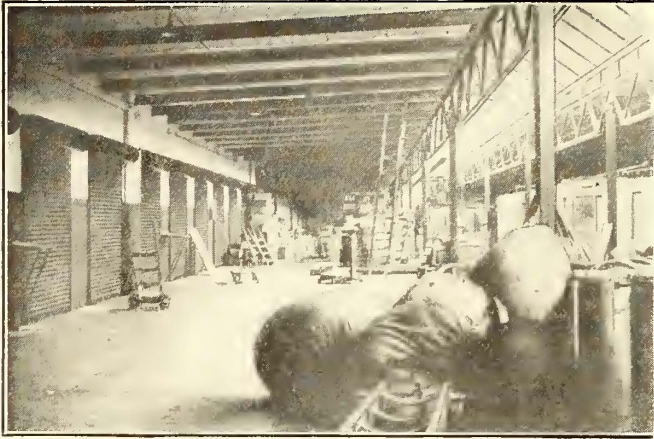
It would hardly be profitable to list the variety of business done by trolley freight in this district, but some of the more unusual operations may be mentioned. For example, the jewelry manufacturers of the "Attleboros" in Massachusetts use trolley freight for direct shipments from factory to pier at Providence, Rhode Island. Again, there is the carriage of blooded horses and prize cattle from fair grounds to fair grounds as a proof of prompt and careful transportation service.

As shown on the map, the electric lines reach a number of towns that have no direct steam railroad service. This condition has developed considerable business in the switching of steam freight cars. Boston & Albany cars are taken at Palmer for Brimfield and other points to Southbridge, while New Haven Railroad cars are taken at Southbridge for Charlton City and Charlton.

An example of the highly economical service possible through electric freight is afforded in the case of the Holyoke Street Railway. Early in 1921 the management of the Holyoke system outbid a con-



ELECTRIC LOCOMOTIVE AND CARS AT SOUTHBRIDGE, MASS.



TEAMWAY IN BOND STREET TERMINAL—INTERIOR OF THE BOND STREET TERMINAL. THE WIDTH OF THE PLATFORM BETWEEN ELECTRIC CARS AND MOTOR TRUCKS IS ONLY FIFTY FEET

tractor who uses motor trucks for the business of supplying trap rock and gravel for the bridge under construction over the Connecticut River at Springfield. The rock comes from the Holyoke company's quarries at the foot of Mount Tom, 11 miles from the point of use, whereas competitive quarries are at Westfield, only $7\frac{1}{2}$ miles distant via the Boston & Albany Railway and the public highway. The gravel from the Holyoke system is taken at South Hadley, 13 miles away, which is about the same distance as the competitor's pit at North Wilbraham.

The contractor was using 5-ton trucks carrying 6 to 10 tons of rock, whereas the cars illustrated carry 24 tons of rock or 18 cu.yd. of sand. It is estimated that 3,500 carloads of material will be required for this job. In spite of the surplus of idle motor trucks in this territory, the trucks could not possibly meet the cost of transport possible with the trolley. This is clear from the fact that the entire haul costs but \$1 per ton of rock or per cubic yard of sand.

RATES ARE ATTRACTIVE YET SENSIBLE

Generally speaking, the electric railway rates in this district were higher than steam railroad on the first, second and third-class categories. The electric railways took earlier increases parallel with steam railroad increases up to 20 per cent over pre-war rates. However, they have not followed the 40 per cent increase made by steam railroads in March, 1920, except in part for hauls in excess of 20 miles. The electric rates have always been lower than motor trucks could possibly meet, except in special services like carriage of household goods, for which the railway properly charges double rates and which are particularly suited

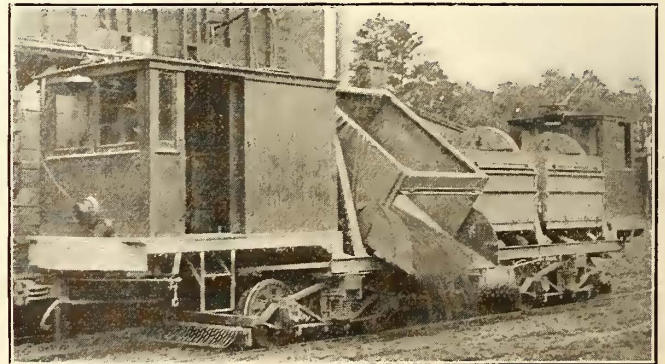
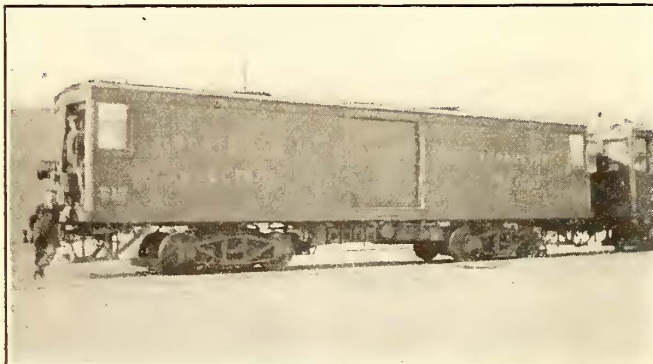
for the motor trucks because of the desirability of minimum rehandling. It has already been pointed out that experienced motor truckers doing a common carrier business are glad to make use of the trolley freight as a source of revenue to themselves.

Milk is one item that has always enjoyed an exceptionally low rate. The Springfield company charges only $\frac{1}{4}$ cent per quart on a 26-mile haul for delivery to a Springfield creamery. In warm weather one advantage of milk carriage by trolley is that it arrives as milk and not as butter. Byproducts of milk also enjoy exceptionally favorable rates. It may be mentioned here that several years ago Mr. Cosgrove made the fertile suggestion that through the aid of trolley freight it would be practicable to establish municipal milk and coal stations, which would help to reduce the cost of living through the reduction of haulage expense and the elimination of duplicate or overlapping competitive routes. In his opinion, the time is coming when the present waste in goods carriage—particularly as regards trucking in cities—will have to go.

The trolley companies are popular with the shippers, not only because of more frequent service but also because of greater liberality in credits, weekly credits being the rule in contrast with the two-day limit of the steam railroads. Naturally, the electric railway group is also more closely identified with the local interests of the territory.

FACILITIES

Outside of the cities, the Springfield and Worcester systems are of the usual country trolley type, namely, single track with sidings. As is the case in Worcester today, freight cars entering Springfield formerly had



TWO TYPES OF ROLLING STOCK USED



TWO VIEWS OF THE WORCESTER FREIGHT TERMINAL. THE FREIGHT HOUSES OF THE SPRINGFIELD AND B. & W. FACE EACH OTHER ON OPPOSITE SIDES OF A BROAD TEAMWAY

to come in and go out over the main travel-ways of the passenger cars. In 1920, however, the Springfield Street Railway built within that city 4 miles of single track with five turnouts. For the time being, this track is being used exclusively for uninterrupted entrance and exit of freight cars.

The Boston & Worcester Street Railway is somewhat better situated as regards the through run and the Worcester end. It is constructed as a high-speed, double-track line on reservation for 20 miles in the center of the public highway and on an absolutely private right-of-way for another 14 miles. Thus it has 34 miles of clear track out of 44. The 2 miles in Worcester do not constitute a handicap because they do not extend into the business center, but at the Boston end it is necessary to operate over 8 miles of city streets, although some of the track is on reservation. The running time for the 44 miles between Worcester and Boston is two and one-half hours, but the schedule allows for three hours.

The Holyoke and Providence connections of this group also lack the advantage of direct right-of-way entrance into the cities. Nevertheless, they hold their own with any kind of competition; all the more so since the establishment of through connections with the Holyoke and Boston & Worcester companies for shipments from Springfield and Worcester or vice versa.

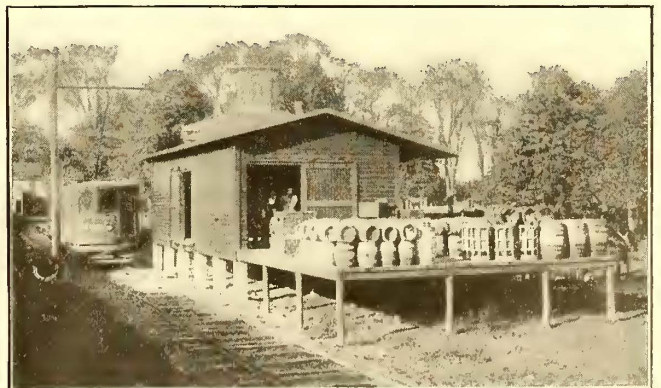
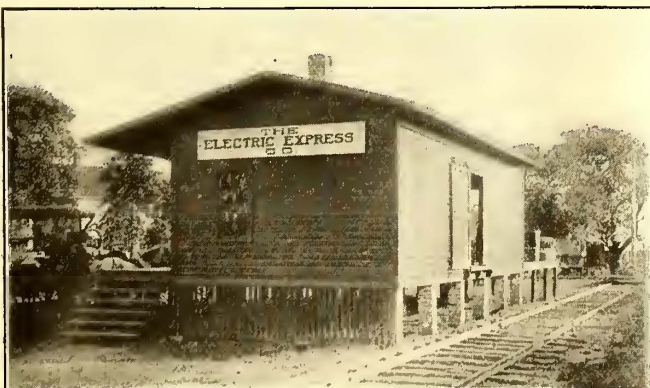
As shown in an accompanying halftone, the Worcester freight houses of the Springfield and Boston & Worcester companies face each other from opposite sides of a broad team and truck way. Vehicles bringing or carrying off goods simply back up against the platforms and are loaded or unloaded with an astonishingly small amount of trucking, since the longitudinal design of these buildings makes it possible to bring the teams and trucks very close to the

"center of gravity" of the load to be transferred. The general scheme of the larger houses is illustrated also by the accompanying plan of the Bond Street building at Springfield. This house was altered to its present purpose in June, 1919. It has a covered teamway into which a dozen motor trucks can back at one time against the freight platform. This platform is only 50 ft. wide, so that it is an easy matter to transfer freight to or from the cars, which are set out, according to their destination, on two tracks on the opposite side of the platform. Both tracks can be loaded or unloaded simultaneously by making use of the doorways of the cars on the inner track. Much of the freight is moved no further than the width of the platform and possibly the first track, the rest being stacked in sections reserved for different destinations on the system. This building succeeded a most inconvenient structure which could handle only three or four wagons at a time.

Another halftone shows a typical intermediate station where there is a regular agent. At points of lesser importance store agents are engaged for \$2.50 to \$10 a week fees to take care of any business. No agents are employed on a commission basis, nor is there any solicitation staff as yet outside of the volunteer work of the motor trucker and expressman.

ROLLING STOCK AND STAFF

The cars used in freight and express service by the Springfield-Worcester companies comprise thirty-two motor cars, three trail box cars, two dump cars and two trailers for trap rock, sand and gravel business, eight double-truck freight cars for lumber, etc., and three electric locomotives, used chiefly for hauling steam freight cars. The latest standard motor car weighs 55,000 lb., has four 65-hp. motors and can

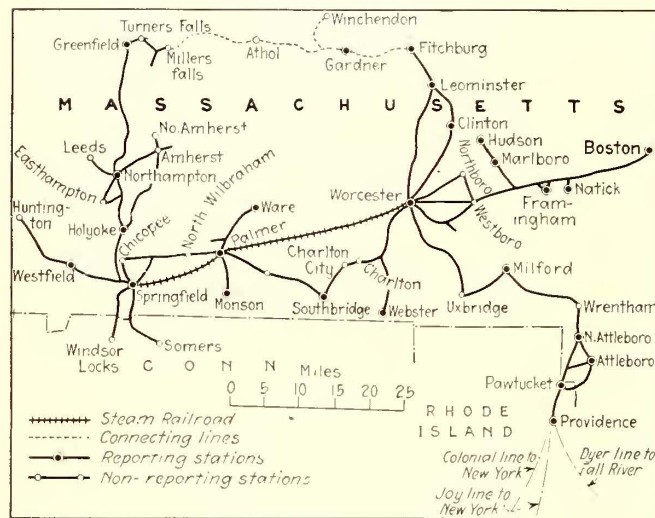


TWO TYPICAL INTERMEDIATE ELECTRIC FREIGHT STATIONS

carry 60,000 lb., the average less-than-carload loading being 40,000 lb. These cars are equipped throughout with M. C. B. couplers, improved air brakes, etc. Cars for carrying perishable goods are heated electrically—a strong argument for securing that kind of traffic in winter, aside from the greater winter reliability of the electric railway.

Economy in man-power with trolley freight service is attained not only through the greater capacity of the individual cars but also in train operation. A two-car and even a three-car train has but one motorman and one messenger. Usually, one car in a train is a sealed car for some one consignee or terminal. The messengers do a certain amount of delivery to store doors. As a rule, Springfield-Worcester crews cover all of the system served—approximately 290 miles single track in freight service—except that Boston & Worcester crews take charge during the run between those two cities.

For taking on steam cars at Palmer no extra crew



MAP SHOWING BOSTON-WORCESTER-SPRINGFIELD FREIGHT SYSTEM

is required. On the Attleboro Branch Railroad switching is done with crews borrowed from the passenger department.

Economy in the use of labor is essential as the men are paid on the minimum nine-hour day basis at 65 cents an hour with overtime, earning a bonus of one hour for lunch. On the Springfield-Worcester system the line-up of freight-express employees is as follows:

	Springfield	Worcester Consolidated	Milford, A. & W.
Freight handlers.....	3	5	0 (agent does work)
Messengers.....	11	10	4
Motormen.....	11	10	4
Foremen.....	1	2	0 (agent is foreman)

Messengers, like the motormen, get 65 cents an hour; freight handlers, 51 cents; foremen, \$38.57 for a six-day week. The first car goes out at 7:30 a.m. from Springfield, the last at 11:30 a.m. Crew labor does most of the loading. The gross revenue from freight and express so far as the Springfield-Worcester lines (exclusive of Boston & Worcester Street Railway) is concerned has been as follows:

1920.....	\$318,135
1919.....	264,681 or \$53,454 less than 1920
1918.....	246,150 or 18,531 less than 1919
1917.....	220,210 or 25,940 less than 1918
1920.....	97,925 ahead of 1917

Business in 1920 would have shown a larger increase over 1919 except for the extreme blizzard of February, when the freight equipment was impressed to fight snow. In the lesser snowstorms of Feb. 22, 1921, the motor trucks deserted, with the result that Feb. 23 was a banner day for the electric railway.

GENERAL COSTS OF SPRINGFIELD-WORCESTER LINES

During the year 1920 the Springfield-Worcester lines operated 398,700 freight car-miles for \$288,539, or 72.37 cents per car-mile. On the basis of \$318,135 gross earnings, the gross earnings per car-mile were 79.79 cents, leaving a net revenue of 7.42 cents per car-mile. The operating ratio was 90.7 per cent. The departmental charges are given below.

TABLE SHOWING ANALYSIS OF COST OF FREIGHT OPERATION

Item		Per Cent of Freight Rev.	Note
Maintenance of way.....	\$29,159	9.17	This charge is the proportion which freight earnings bear to passenger earnings, although only one-third of trackage is used for freight.
Maintenance of equipment...	16,058	5.05	Amount actually spent on upkeep of freight equipment.
Power.....	27,872	8.76	This works out at 7 cents per car-mile. Tests show less than 3 kw.-hr. per c.-m. Springfield power costs 1.1 cent per kw.-hr. at substation and Worcester 1.5 cents.
Conducting transportation....	183,756	57.76	Amount actually paid and includes \$60,992 for station employees and \$4,296 for station expenses.
Traffic (advertising, etc.).....	5,826	1.83	
General expenses.....	25,869	8.13	
Total expenses.....	\$288,539	90.70	
Net operating revenue.....	\$29,597	9.30	
Taxes \$4,295 and interest on investment \$22,587.....	\$27,512	Interest on investment includes estimated car-mile proportion, although freight equipment avoids operation over expensive special work in cities.
Surplus.....	\$2,285	

When 1920 results are considered, it is to be borne in mind that not only was the freight equipment used to fight snow to keep the lines open for passenger service, but that the cost of snow-fighting was assessed against the freight department on a pro rata basis.

With regard to the general degree of care shown in the transportation of goods by trolley freight, the following figures on losses due to damage to goods in transit in percentage of gross revenue is of interest:

Year	Per Cent	Year	Per Cent	Year	Per Cent
1920.....	0.59	1919.....	0.58	1918.....	1.38
1917.....	0.76	1916.....	0.37	1915.....	0.29
1914.....	0.24				

Exclusive of the Boston & Worcester Street Railway, there were carried in 1920 approximately 262,000 tons, with an average gross earning of \$1.20 per ton.

THE BOSTON & WORCESTER STREET RAILWAY

The present rolling stock of this high-speed line between Boston and Worcester consists of twelve 45-ft. motor cars and eight 40-ft. trailers, all equipped with M. C. B. radial draw-bars, automatic air brakes and GE-263-A motors (on Brill arch-bar trucks) geared for heavy loads rather than speed. As noted earlier, the run of 44 miles is made in two and one-half to three hours. There are few intermediate stops.

This standardized freight equipment succeeds miscellaneous stock that could not make good for the specialized needs of freight service. Trains of one motor car and two trailers have been run frequently and tests have been made with trains of two motors and two trailers.

The company's business has increased steadily, even through the flood period of unrestricted motor trucking, as indicated by the following comparison:

1916 gross earnings were 75 per cent above 1915
1917 gross earnings were 35 per cent above 1916
1918 gross earnings were 22 per cent above 1917
1919 gross earnings were 40 per cent above 1918
1920 gross earnings broke even with 1919 instead of going ahead because the freight and express equipment was used for snow-fighting during February and March, 1920. Motor trucks ran over the company's reservation as soon as it began clearing the snow away.

Because of the extraordinary conditions of 1920, Mr. Lewis suggests the following analysis of 1919 operations as giving a truer picture than 1920:

TABLE SHOWING FREIGHT EARNINGS AND EXPENSES FOR YEAR 1919 BOSTON & WORCESTER STREET RAILWAY

Gross income.....	\$233,810	
Less payment of \$25,190 to Boston Elevated Railway and of \$10,186 to Worcester Consolidated Street Railway and \$1,242 special expense for trucks used during Boston Elevated strike in July, 1919.....	36,618	\$197,192
Expenses		
Conductors and motormen.....	\$35,550	
Freight station and miscellaneous expenses.....	69,882	
Transportation expenses.....	67	
Station expenses.....	9,656	
General expenses.....	260	
Loss and damages (equal to 1.46% of gross revenue)....	3,426	
Superintendence and solicitation.....	1,542	
Printing and stationery.....	2,141	
Advertising.....	65	
Maintenance of equipment.....	6,643	
Maintenance of buildings.....	40	
Insurance.....	840	
Power and trackage.....	1,695	
Total.....		\$131,807
Net.....		\$65,385
Total freight handled, tons.....	68,142	
Total freight ton-miles.....	1,705,817	
Total freight car-miles (of which 53,371 were trailer).....	259,228	
Average gross revenue per ton.....	\$3.43	
Average net revenue, per ton.....	0.96	
Gross revenue per ton-mile.....	0.137	
Cost per ton per mile.....	0.098	
Gross revenue per car per mile.....	0.902	
Cost per car per mile.....	0.649	
New revenue per car per mile.....	0.253	
Net revenue per mile of road.....	1.580	
Miles of line operated.....	41.30	

When the foregoing surplus figure is contrasted with that of the Springfield-Worcester lines, it is well to bear in mind that the latter have been assessed for track and power expenses on a different basis. Thus, the combined way and power charge for 398,700 car-miles was \$57,031, whereas the Worcester Consolidated operation of 259,228 car-miles is assessed only \$1,695 for the same items. The item "General expenses" is another which shows a great difference in the freight accounting practices of these properties.

Baking Soda Quenches Fire

AN EXTRAORDINARY case of spontaneous combustion occurred in an embankment fill on the Cleveland & Eastern Traction Company's lines at Chardon, Ohio. The effective method employed to extinguish it was outlined in the *Black Diamond* recently by J. A. Thomas, the consulting fire engineer. The fill was formerly a pine trestle, about 300 ft. long and 30 ft. deep, which was later filled in with 200 cars of cinders, containing more or less combustible. A top dressing of about fifty cars of furnace slag practically sealed the embankment. The fill, fired from spontaneous combustion, became a mass of fire after it had been burning about six months. It was then arranged immediately to extinguish the fire with plain baking soda and water. After the soda solution had been pumped into the burning fill for about two days the fire was finally extinguished throughout the embankment. Had plain water been used enough would probably have been necessary to have washed the entire fill down into the valley.

Five and Ten-Cent Boston Fares

Account Given of How the Two Rates of Fare Are Collected in Everett and Malden Divisions of Boston Elevated Railway—Plan Has Met with General Approval

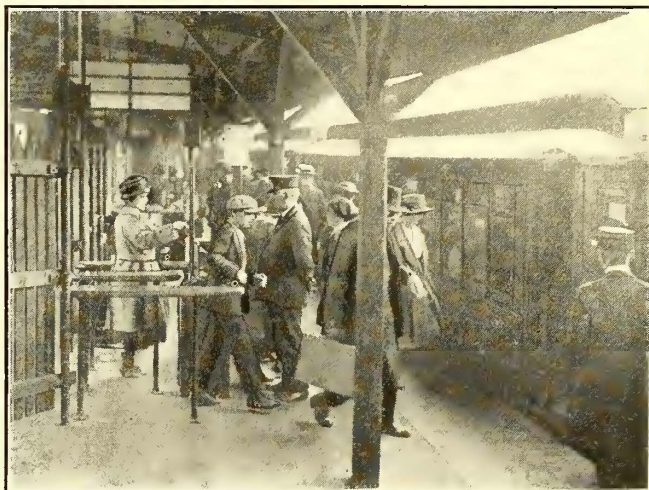
BY EDWARD DANA

General Manager Boston Elevated Railway

THE trustees of the Boston Elevated Railway have recently placed in operation a local fare of 5 cents for riders in the cities of Malden and Everett. This fare does not include the privilege of a free transfer and is entirely separate and distinct from the 10-cent fare for traffic from these two cities to the center of Boston or any other point upon the Elevated system, which comprises some 535 miles of surface railway and elevated railways.

The present article is written for the purpose of explaining the facts in order that a correct understanding may be had of what the plan involves.

In view of the fact that local conditions absolutely govern the application of a rate of fare on a street rail-



COMMUTERS GOING CITYWARD. VIEW AT 8 A.M. ON EVERETT STATION PLATFORM

way, the mere statement of the unit of fare in a city in terms of United States currency means nothing for purposes of comparison with another city unless all factors are considered in both localities. One cannot compare the tax rate of cities in New England, Florida or California and secure advantage from doing so without taking into consideration at the same time the different factors and conditions. This same thing is true on fares. When people compare on the basis of difference in cents, it is indicative of the superficial manner in which conclusions are arrived at. Even men in this industry have not been free from such comparisons.

The cities of Malden and Everett are typical of such Massachusetts communities. While certain areas are given over to industrial activity, they are essentially residential, with well-defined centers near which are located substantial local stores, theaters, etc. They occupy an area of approximately 8½ square miles lying in the area from 3 miles to 6 miles from the center of Boston.

The combined population is 89,000, and as the centers of the two cities are only 1½ miles apart from a transportation standpoint they occupy a single section of territory tributary to the end of the main line of the elevated at the Everett Terminal and are really one city.

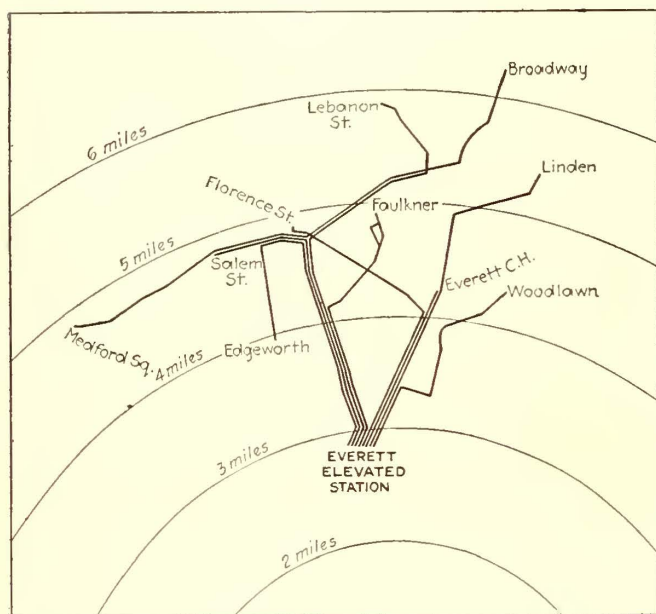
All of the surface lines operated in these cities run

to the Everett Terminal, there being no through routes to Boston. At this terminal passengers change to the elevated trains. There are 32 miles of track in the streets of these cities and eight regular routes are operated, the average length of route being 3 miles. In the course of a day 5,100 miles are operated by 795 trips on these eight routes.

The total volume of traffic handled per day amounted to 63,000 in both directions. Of this amount 55,000 was so-called tidal traffic, or in other words Boston bound traffic, and the balance local rides within the district. When the fare advanced to 10 cents, undoubtedly the greatest proportion of loss of riders occurred in this local travel where people had formerly ridden for relatively short distances to points of concentration within these cities.

HOW THE FARES ARE COLLECTED

The plan adopted contemplated an entire physical separation of the collection of the fares for through traffic from local traffic. On the trip inbound, or in



MAP SHOWING ROUTES IN MALDEN AND EVERETT—DISTANCES SHOWN ARE FROM SCOLLAY SQUARE, BOSTON

the direction of Boston, the pay-leave plan is used. Local passengers, or those leaving the car before it enters the inclosure at the Everett station, drop 5 cents in the conductor's fare box as they leave the car. Through passengers to Boston leave the surface car after it has stopped at the Everett station platform and drop 10 cents in the station collector's fare box. On the outbound trip the only fares which have to be collected on the surface cars are the local fares, because the outbound through passengers paid their fares at the intown stations of the Elevated and entered the car within the Everett prepayment inclosure.

With this physical separation of passengers paying different rates of fare it was a simple matter to place in effect any fare that might be decided upon for the local rides. It was decided to experiment with 5 cents because of the convenience and the incentive for local rides to be increased. Conductors on the cars today have the collection of only local fares.

The plan has been in operation some weeks and while in one section a jitney is operated which pro-

vides a frequent service, nevertheless the increase in local rides has been somewhat over 80 per cent. It is anticipated that the jitney situation will be worked out satisfactorily as there has come an appreciation by the public that the jitney and the street car cannot thrive in competition. The popularity of the 5-cent fare for local rides has resulted in a constant increase which undoubtedly has had a noticeable effect on the jitney patronage. A careful survey of the traffic secured locally disclosed the fact that the average length of haul for all of the present 5-cent riders is exactly 1 mile, and this, of course, makes it very apparent why a large percentage of this traffic was lost when the fare advanced to 10 cents.

The introduction of this plan has met with general approval on the part of the community as well as the officials of these cities. There seems to have come an appreciation that an honest effort has been made to make the service more useful at no increased expense, and it has brought out from many quarters the belief that an equitable situation now exists; in other words, that the 10-cent fare for the long-haul rapid transit ride under present conditions is necessary and just and that the relatively short haul, for which the 10 cents is manifestly so high that the people can walk instead of ride, is being taken care of in a fair way by the reduced fare for these rides.

The result of the experiment will determine as to the advisability of applying the same plan further upon the elevated system for similar rides. Already a further experiment has been authorized for the cities of Medford and a portion of Somerville and for the district across the harbor in East Boston. It has been estimated that if the local traffic can be increased 100 per cent no discrimination exists as no additional burden is thrown upon the 10-cent car riders of the system and that consequently the system could be made more useful for a great many millions of people in the course of a year. If this plan were in successful operation on the system as a whole and the amount of money secured was the same from twice as many people for the 5-cent fare as for the reduced number of people for the 10-cent fare, the amount of increased travel would restore practically all the passengers shown to have been lost when the flat fare advanced to 10 cents.

New Interlocking Installation on Boston Elevated

IN CONNECTION with a recently completed extension of its rapid transit lines from Sullivan Square, Charleston, to a temporary station in Everett, the Boston Elevated Railway has installed a new electro-pneumatic interlocking plant with alternating-current control. The machine, described in the *Railway Signal Engineer*, is so designed that a total of 159 functions is controlled from seventy-four working levers, requiring a space of 17 ft. 3 in. The principal features of the interlocking installation include semi-automatic control of all main track signals, automatic stops at all signals governing movements in normal direction of traffic on the main tracks, section locking, sectional route locking, approach locking for all main line signals governing entrance of trains into interlocking, illuminated track diagrams, light indicators on all switch levers to show whether the track section in which the switch is located is occupied or unoccupied, and an intercommunicating system between the various signal towers.

San Francisco Rerouting Effective

Rush-Hour Conditions on Market Street Lines of Municipal Railway and Market Street Railway Became Such that Relief Was Necessary—This Ferry Terminal Holds the World's Record in Its Class for Traffic Density

MARKET STREET is the main thoroughfare of San Francisco and car lines extend on this street from the Ferry Terminal to Twin Peaks Tunnel, running through the principal retail shopping district. The population of the municipalities on the other side of the Bay of San Francisco is about equal to that of San Francisco, and it is said that more people pass through the Ferry Terminal than through any similar terminal in the world. The car lines of heaviest travel to and from the Ferry Terminal operate on Market Street for a greater or less distance. The shortest distance before turning out is one-half mile from the Ferry Terminal, and from there the lines diverge at intervals until the last line leaves Market Street at a point more than 3 miles from the terminal.

Most of the patrons of the ferries use the street railways in order to reach the commercial center contiguous to Market Street or the outlying districts served by the lines terminating on Market Street, and the residents of San Francisco use the lines from the outlying districts to reach the commercial center on or near Market Street or to reach the Ferry Terminal. Both the Market Street Railway and the Municipal Railway operate cars on this street and four tracks are laid the entire distance of more than 3 miles, terminating in three concentric loops at the Ferry Terminal.

The greatest demands on the street railway facilities are made between 5 and 6 p.m., at which time the patrons and clerks of the mercantile establishments and the occupants of the office buildings are leaving the business center for their homes in various parts of San Francisco or for the Ferry Terminal. The major movement at this time is outbound to the residential sections of San Francisco and in the opposite direction from the travel toward the ferries. Most of this outbound traffic originates on Market Street in the mile commencing about one-half mile from the Ferry Terminal.

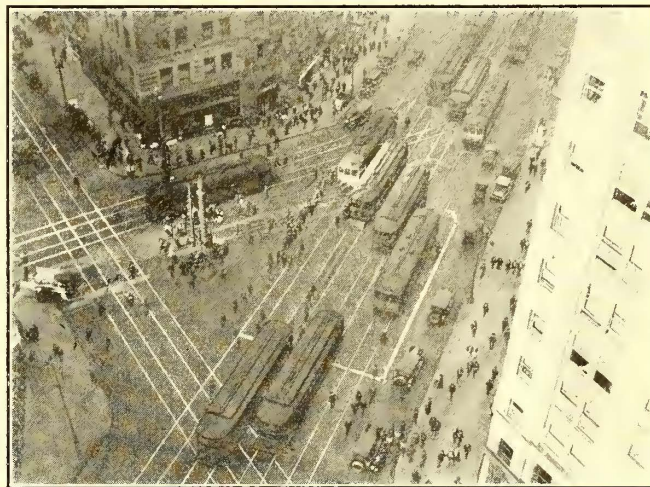
JOINT USE OF STREET CAUSES COMPLICATIONS

Since the construction of the two outside tracks by the Municipal Railway and the operation of the municipal cars on the street various attempts have been made to relieve the traffic congestion and to reduce the danger of accidents. The most recent change has been to turn back some of the Market Street Railway cars during the rush hours, by diverting them to Mission Street on the upper half mile of greatest traffic, thus keeping them off of lower Market Street. This results in an increase of headway between cars and gives more time for loading the rush-hour crowd.

Traffic counts made on lower Market Street since this rerouting show that the Market Street cars of the Market Street Railway are now carrying about 26,000 passengers from the business section to the outlying districts in the hour between 5 and 6 p.m. During this time 188 cars operate on a nineteen-second headway on lower Market Street, branching out at six points on to eleven lines to serve as many sections of the city; twenty-two inbound cars are diverted to Mission Street at Sixth Street, returning to Market Street as outbound cars at Fourth Street, and eighteen cars on Eddy Street

are turned back at the Market Street intersection, transferring passengers to and from other cars on Market Street instead of continuing through Market Street to the ferry as at other hours of the day.

In this same hour the Municipal Railway operates an average of 101 cars around the ferry loops. These cars operate on headways ranging from two and one-half to four minutes on each of the six lines (which branch out from Market Street at three points to serve different districts), or, taken collectively, on a thirty-six-second headway. If all cars operated on two tracks the headway would be only twelve and one-half seconds on the lower half mile. Passenger counts made at the peak of the rush indicate that the average loads carried by municipal cars range from 115 passengers per car



TRAFFIC CONDITIONS AT THIRD AND MARKET STREETS, SAN FRANCISCO

on the "D" line to 145 per car on the "J" and "K" lines. Taken together, the six municipal lines carry a total of 10,000 to 12,000 passengers from lower Market Street during the hour from 5 to 6 in the evening.

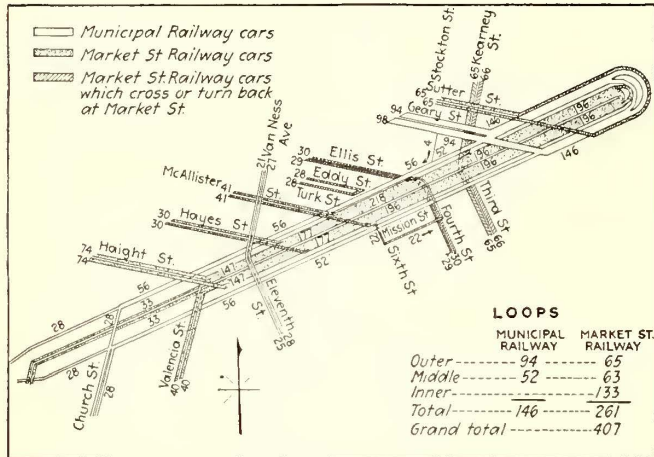
The accompanying sketch, prepared by the Municipal Railway, shows diagrammatically the operation of the cars on lower Market Street. The relative number of cars on the different sections is shown by the width of the band. The actual number for the ninety minutes of heavy traffic is shown in figures.

INSPECTORS EXPEDITE TRAFFIC

It would be impossible to handle so many cars with any regularity without the aid of inspectors. Commencing at 4 p.m. five inspectors for the Market Street Railway, located at four points of dense traffic, devote their attention to spacing the inbound cars, so that they may arrive at the Ferry Terminal and leave outbound at proper intervals. This force is increased at 5 p.m. to seven inspectors and two inspectors acting as flagmen, at eight locations, who work the outbound cars. The work of these inspectors, together with the increased headway made by looping twenty-two cars at some distance from the Ferry Terminal, has reduced the maximum delay from ten to three minutes.

All cars are of the P. A. Y. E. type. Normally the front end is used for exit only, but during this rush hour street collectors are used at the front ends of both Municipal Railway and Market Street Railway cars in order to speed up loading. Thirteen collectors are on duty for the Market Street Railway and probably increase the average load by forty passengers.

The clearance between the cars on the inner and outer tracks is a factor in the situation. The tracks are 11 ft. $\frac{1}{2}$ in. between centers, which gives a clearance of only 1 ft. 4 in. between grab handles, window sills, etc.,



SCHEDULE OF CAR OPERATIONS ON MARKET STREET, SAN FRANCISCO, DURING RUSH HOURS: 4.30 TO 6 P.M.

when the largest cars are passing. Passengers waiting to board the cars of the Market Street Railway on the inner track stand in this narrow space, while the municipal cars are passing on the outer track. There is also the serious predicament of a person caught standing on this "devil strip" when cars are moving in the same direction on the inner and outer track and the platform of the car on the inner track is so crowded that passengers are standing on the steps and thus occupy a considerable portion of the 1-ft. 4-in. space.

The difficulty and danger incurred by passengers in crossing the line of team and automobile traffic and then crossing the track of the Municipal Railway hinders and slows down the loading of the cars of the Market Street Railway, especially since so little space is available for standing between the car lines, and many people hesitate to take this risk. If a patron, desiring to board a car of the Market Street Railway, does not do so very promptly, the municipal cars moving on the outside track cut off access to the cars on the inner track until the latter have proceeded, and it is necessary to wait for the next car. In order to maintain headway, it is imperative that the Market Street Railway cars limit their stops for loading passengers to the shortest possible time, due to the large number of cars operating at such short intervals on Market Street and the vehicular traffic to be taken care of at the numerous cross streets.

The Market Street Railway cars with longitudinal seats are found to be particularly well adapted to the traffic of the rush hours on Market Street. These cars handle a volume of business that would never be possible without the 6-ft. aisle down the center of the car, which a seat arrangement of this kind affords. Moreover, the ready access which this arrangement provides to the ample standing room inside the car is a factor of special importance on lower Market Street because

it aids rapid loading. Anything which decreases the length of stops is regarded as of primary importance in improving the service, because officials of the Market Street Railway point out that the complaints are much less likely to come from failure to obtain a seat than from delays in the schedule. The twenty new cars recently added to the Market Street Railway equipment have the seats in the inside section built longitudinally.

Regulations for Jitneys

Text Given of Connecticut Rules, Which Go Into Effect July 15—Jitneys Made Common Carriers, Under Jurisdiction of Public Utilities Commission

UNDER Chapter 77 of the Public Acts of 1921, which takes effect July 15, 1921, all jitneys operating in the State of Connecticut are made common carriers and subject to the jurisdiction of the Public Utilities Commission. The term "jitney" as defined by the act includes any public service motor vehicle operated upon any street or highway in such manner as to afford a means of transportation similar to that afforded by a street railway company, by indiscriminately receiving or discharging passengers or by running on a regular route or any portion thereof or between fixed termini.

In order that there may be some consistency as to the operation of these vehicles where allowed by a certificate of convenience and necessity, rules have been established, subject to changes as the commission may subsequently find necessary.

These rules provide that certificates to operate can be revoked for violation of traffic ordinances or state laws regarding the operation of motor vehicles and that ownership certificates of operation are not transferable without the approval of the commission. Operators are required to display destination and route signs on the fronts of cars. These signs must have letters not less than 2 in. nor more than 3 in. in height and must be illuminated at night. Vehicles having a seating capacity of ten or more must permanently display on each outer side a notice stating the seating capacity. The letters used are required to be 2 $\frac{1}{2}$ in. high.

Jitneys certified to operate must reasonably maintain the prescribed schedule and must post in a conspicuous place inside of each car a time table of the entire service prescribed, together with the rates of fare. This service cannot be reduced without the approval of the commission nor is any deviation from the route specified allowed except in case of emergency. All cases of interruption of the service, as required by certificate, for a period of twenty-four hours must be reported to the commission, together with the cause. In case of suspension of service for a period of five days the certificate of operation is automatically revoked unless the operator is excused for cause by the commission.

Jitneys can be operated only at a speed consistent with safety, depending on congestion of street traffic, danger of intersecting streets, curves, street railway crossings or other conditions requiring extra caution. In suburban service the speed may be greater than that maintained in urban territory, but must not exceed 20 m.p.h. for vehicles having a seating capacity of ten or more passengers, nor more than 30 m.p.h. for all other vehicles. Before crossing tracks of steam railroads at grade jitney operators must carefully observe warning signs and proceed over the tracks with due caution.

All cars must be equipped with a speed indicator.

Owners or operators are not allowed to solicit passengers by outcry or other noise, nor can an operator collect fares, make change, take on or discharge passengers while his vehicle is in motion. Passengers are to be received or discharged at the curb, when it is accessible, and at no other place.

Operators are not allowed to smoke while on duty, nor to transport any dangerous, explosive or inflammable substance except fuel for the locomotion of the car, and this fuel must be carried in the tank provided. Articles left in the cars by passengers must be reported to the commission, if they remain unclaimed for a period of more than twenty-four hours, with information as to where such articles may be recovered.

All cars must be maintained in a neat and sanitary condition and be lighted on the inside at night. The commission's memorandum certificate or at least a certified copy thereof must be posted in a conspicuous place in every vehicle.

Living Costs Drop in Akron

Brief Compiled for Use in Arbitration of Wages by the Northern Ohio Traction & Light Company Shows Comparison Between 1920 and 1921

BETWEEN April, 1920, and April, 1921, the buying power of the dollar so increased in Akron, Ohio, that a salary of \$1,420 in 1921 was equivalent to a salary of \$2,000 in 1920. These figures are shown in a compilation made of living costs in Akron, Canton, Massillon and Dover by the Northern Ohio Traction & Light Company and submitted in arbitration proceedings on the wage question.

The company first shows the principal commodities in the family budget, with the United States Labor

to those who own their homes or are buying homes on the monthly installment plan. For these families shelter costs have, in fact, slightly increased, as taxes are somewhat higher than a year ago, due to an increase in the assessed valuation. The percentage, however, when applied to the total shelter cost is not material in fixing final living costs. Room rentals have declined in about the same proportion as house rentals.

Electric and gas rates have neither declined nor advanced during the year, but coal prices have dropped from an average of \$9 per ton to an average of \$7.91 per ton, making a decrease of 12.11 per cent.

Under sundries, furniture, drugs, kitchen utensils, face powders, soaps, etc., were considered among other articles of family use. On these the report says: "Drugs and furniture were on the increase prior to April, 1920. Following that came a decrease of 20 per cent in drugs and a 10 per cent decrease in furniture. A 20 per cent additional decrease was noted after January, 1921. Kitchen utensils showed a decrease of 10 per cent to 25 per cent, and soap 20 per cent. The general average decline in sundries from April 30, 1920, to April 30, 1921, is 25.74 per cent."

In its conclusions the report states that from present forecast wholesale prices will tend downward for most of the remaining months of 1921, although unquestionably at a slower rate than heretofore, and "normalcy" should be reached by Jan. 1, 1922. Continued price declines are being reflected daily in food, clothing and sundries. House rents at present do not give any evidence of further reduction, and it is quite probable that the present level will continue until housing facilities are increased. Coal prices are not expected to show any material decline for some time.

The report is accompanied by a series of charts and tables relating to local prices.

TABLE SHOWING LABOR BUREAU BUDGET FOR \$2,000 INCOME AND REDUCTION IN COSTS IN AKRON BETWEEN APRIL, 1920, AND APRIL, 1921

Food	U. S. Labor Bureau Distribution		Under Akron Conditions, April, 1921	
	Apportionment, Per Cent	Amount	Reduction, Per Cent	Amount
Food.....	43	\$860 00	31.275	\$591.25
Shelter.....	18	360 00	27.03	236.77
Clothing and dry goods.....	13	260 00	37.012	189.73
Light and heat.....	6	120 00	12.11	105.46
Sundries.....	20	400 00	25.74	297.04
Total.....	100	\$2,000 00	*28.99	\$1,420.25

* Average.

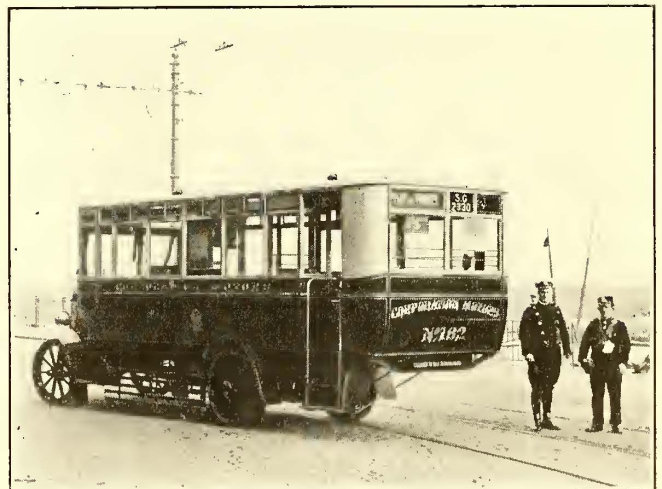
Bureau apportionment, and the percentage of decrease with the corresponding increase in the buying power of the dollar. It then shows how the reductions are applied to a \$2,000 family budget. (See table.)

Figures on food were obtained from local dealers whose names are given in a list. To obtain figures on clothing was somewhat more difficult, due to changes in grades, but percentage figures were obtained in a number of cases. They show that in women's clothing hosiery prices declined 31.43 per cent, underwear 36.55 per cent, silks 35.75 per cent, woollens 42.55 per cent. The decline in women's suits, dresses and skirts averaged 33.09 per cent. The average decline in dry goods was 43.68 per cent. Shoes declined from 26.88 per cent to 66.88 per cent during the year and the reductions were greater in men's than in women's shoes.

The figures on shelter or rentals relate particularly to the territory and districts in which trainmen in the employ of the company reside and in general apply to houses ranging from \$20 to \$35 a month. The report points out, however, that this reduction does not apply

Bus Substitute for Early Cars

TO SAVE coal the Edinburgh Tramways, which is a municipal enterprise, has discontinued the operation of cars on certain routes in the very early morning hours and has substituted therefor motor buses.



BUS USED BY EDINBURGH TRAMWAYS IN EARLY MORNING HOURS TO SAVE COAL

The accompanying engraving shows one of the tramway department buses at the Newhaven fish market near Edinburgh. As shown, the bus is a single decker with inclosed rear platform. It carries seats for thirty-one passengers.

Letters to the Editors

Traffic Regulation Has Its Difficulties

PUBLIC UTILITIES COMMISSION
STATE OF CONNECTICUT

HARTFORD, June 23, 1921.

To the Editors:

On page 1149 of the issue of June 18 is shown a photograph of a safety zone in Los Angeles. The text says that the entrance to this safety zone is up at the corner, but, contrary to the practice of safety, I notice that one man is stepping over the chain and a lady is walking between automobiles and around the end of the zone instead of entering the zone at the point of entry. The disregard of the safety zone limits by pedestrians makes it very hard for the police authorities to make proper rules regulating movement of motor vehicles.

E. IRVINE RUDD,
Chief Engineer.

Self-Corrosion, Not Stray Current Electrolysis, at Selkirk, Manitoba

WINNIPEG, MANITOBA, June 24, 1921.

To the Editors:

In the ELECTRIC RAILWAY JOURNAL for March 26, 1921, the writer's article "Electrolysis Mitigation in Winnipeg" contained a reference to the self-corrosive action of the so-called alkaline soils of western Canada on cast-iron pipe. Recently some conspicuous examples of such self-corrosion were found on the water supply system of the hospital at Selkirk, Manitoba, at points and under conditions quite outside any possible path of stray current from railway or other power circuits. The pipe affected was a 6-in. water main and the active cause was undoubtedly the alkaline salts in the soil.

The self-corrosion discovered corroborates the result of laboratory experiments conducted by the writer.

Similar laboratory experiments were reported in 1914 by E. H. Scofield, power engineer of the Twin City Rapid Transit Company of Minneapolis, in the ELECTRIC RAILWAY JOURNAL, including an account of the perforation of a 4-in. cast-iron pipe by soil corrosion in a Dakota town where there had never been a trolley system, and showing a photograph of the pipe. At that time it seemed that most of the experts on electrolysis investigation were so bent on tracing the cause of pipe corrosion to stray current wherever there was an electric railway which could possibly be blamed for it, that Mr. Scofield's presentation did not appear to make much of an impression. However, the subject of the corrosion of iron has in the meantime been continuously studied by competent electro-chemists both in and out of the metallurgical industries, and the results of their work have become better known to public utility engineers. The evidence now gathered from Selkirk, Manitoba, is further proof, if any more proof be needed by engineers having even a little electro-chemical knowledge, that self-corrosion must hereafter be taken into account independently of stray-current electrolysis.

The time has now arrived when managers of electric railway properties about to employ experts for investigating electrolysis situations should insist upon the collaboration of competent electro-chemists with the elec-

trical engineers and physicists, who have hitherto chiefly composed the body of experts from which such talent is usually drawn. Electrolysis experts will do well to recognize two things—first, that the electrolysis problem is fundamentally one involving electro-chemistry as well as physics, in order to evaluate the possibility of self-corrosion, instead of neglecting it, and secondly, that henceforth it will be possible, by means of testing equipment recently developed, to ascertain whether a pipe is really positive to the surrounding earth at the point of corrosion, before following the time-honored outdoor sport of chasing the deadly stray current to its lair.

Apart from all electrolysis controversies, the evidence mentioned will be of widespread value to the engineering profession in tending to dispel the traditional conviction that cast-iron pipe underground can be regarded as practically indestructible. W. NELSON SMITH,
Consulting Electrical Engineer.

Auto Use Need Not Be Abused

BOSTON ELEVATED RAILWAY

BOSTON, July 5, 1921.

To the Editors:

I note in your issue of June 25, page 1172, an article contributed by a manager of a Western property on the "Street Railway 'Auto Superintendent,'" and I cannot refrain from passing a few remarks on the subject.

If I remember rightly, when urban transportation was provided by horse cars, trackmasters, division superintendents, general superintendents and the like were provided with horses and buggies. If that was so, then the reference to having "the street railway superintendent frisk past the street car" as not being an example of good business applied in a relative way in those days when the superintendent drove past a horse car in a light buggy. While in this era of flying machines and motor vehicles there is danger of automobiles belonging to officials being misused, even in the days of horse cars a similar situation existed as complained of.

But the fact remains that the abuse of materials or facilities provided for officials or employees to perform their work more efficiently of necessity requires a checking up system and a knowledge of whether they are misused or not. In addition, there is another factor just as important, and that is the spirit of co-operation throughout the organization—of pulling together to make the property successful and efficient. In other words, the mental attitude of subordinates of the type mentioned, and if this *esprit de corps* is right the danger feared by the manager in the article is rather remote, or at least confined to isolated cases.

An automobile is a necessary tool under modern conditions to annihilate time and distance in the efficient conduct of a large urban property, and it is the duty of the management to see that it is used for the purpose for which it is intended.

EDWARD DANA,
General Manager.

The trustees of Princeton University have planned to enlarge its School of Engineering, giving courses in civil engineering, electrical engineering, mechanical engineering, chemical engineering and mining engineering. These courses will extend over four years, at the end of which time the bachelor's degree will be given. A fifth year will be required for an engineering degree.

C. E. R. A. Meets Aboard Ship

Real Accomplishment Marks Meeting, Intermingled with a Delightful Cruise on the Great Lakes—Automatic Substations, Merchandising Transportation, Freight Claim Reductions and Separate Engineering Organization Discussed

UNDER ideal weather conditions, the Central Electric Railway Association held its summer meeting aboard the S.S. *South American*, on a six-day cruise in Lakes Michigan, Huron and Erie. And despite the complete freedom from care and the abandon to pleasure and scenery and good fellowship, the three business sessions held were outstanding for the interest shown, the free discussion and the accomplishment. These meetings were devoted to papers and discussions on automatic substations, merchandising transportation, reduction of freight claims, organization of an engineering section of the association, and other committee reports. The total attendance on the cruise numbered 314, of whom 164 made the entire trip starting from Chicago, and 150 others boarded the ship at Toledo and Detroit. There seemed to be unanimous agreement that it was the best gathering the association had ever had and many began before it ended to plan for a similar outing next year.

In the absence of President A. C. Blinn, who at the last minute was forced to stay home by unexpected developments in Akron, Samuel W. Greenland, first vice-president, presided at the various sessions. The first business session was held on June 29 and was devoted to the consideration of automatic substations. A paper by C. A. Butcher, followed by written discussion by Lawrence D. Bale and Charles H. Jones, appears in abstract elsewhere in this issue. In his absence Mr. Jones' paper was read by C. M. Davis, General Electric Company. Concluding Mr. Jones' written discussion, Mr. Davis went on to say that there was a fundamental difference in the method of control as followed by the two principal manufacturing companies. The one described by Mr. Butcher imitates hand operation while the other forces the machine to come up to speed with correct polarity through the use of a separate exciter. He said he agreed with Mr. Butcher that the single unit station is more desirable, though he could appreciate that there might be some instances in which a two-unit station would be advisable, though the use of any larger number than two was extremely questionable. He referred briefly to the possibility that it may be desirable to superimpose a remote control on the present complete automatic control for use in city service as a means of giving a centrally located load dispatcher control of individual feeders as well as whole stations. The pos-



THE "SOUTH AMERICAN," WITH THE C. E. R. A. ABOARD, IN THE "SOO" LOCKS

sibility of a fire or serious accident giving rise to the necessity quickly to cut out a section of the trolley explains the need for such a scheme. He predicted that this remote control would become a feature of automatic substation power supply in city service.

Victor E. Thelin, Chicago Surface Lines, gave it as his personal opinion that the present automatic substation equipment is too elaborate, requiring so large an investment that it takes too long a time to realize a saving. He contended that further development must simplify the equipment and pare down the cost so that there will be greater appeal to the purchasers. He spoke briefly of an experimental installation of automatic reclosing circuit breakers in a substation otherwise manually operated and said that so far very good results had been obtained in cutting off the feeder altogether under overload conditions, rather than to have resistance inserted in the circuits at such a time. He believed that it was better to place dependence on the capacity of adjacent stations to carry the overload in case one feeder should trip out.

Mr. Davis explained that the use of limiting resistance in each feeder circuit in Des Moines virtually acted in this manner, for as the voltage is lowered at one station, the load is automatically shifted to other adjacent stations without killing altogether the feeder involved in an overload condition. This leaves adequate power on the line to keep the cars going while the trouble is being cleared.

Mr. Thelin then suggested that whenever resistance is put into circuits it means that power is lost. Mr. Butcher asked what difference it made whether

the power were lost in resistance inserted in the circuits or in the resistance of the copper circuits where the load is shifted to another station. He urged the railway men to cooperate with the manufacturers in working out the problems involved in the application of automatic control, as this would hasten the simplification and lower the cost of the control system.

A special session of the association was called on the morning of June 29 for the purpose of disposing of various committee reports. The first to be heard was that of the committee on standards, of which H. H. Buckman, Scottsburg, Ind., is chairman.

REPORT OF STANDARDIZATION AND BUREAU OF STANDARDS COMMITTEE

1. RAIL BONDS.—On account of the many types produced by the manufacturers which are protected by patents and on account of the differences of opinion of the consumers as to the efficiency of the various types and methods of application and the difference in capacity required even on any one property, your committee finds that it would be impracticable to recommend or use a standard rail bond.

2. TELEPHONES.—Owing to lack of information on this subject and absence of members of this committee conversant with the subject, your committee begs for further time to investigate and report.

3. ROLLING STOCK.—Your committee after considerable discussion agreed that standard city and interurban cars are desirable, but on account of varying local conditions on different properties, it finds that it would be impracticable to recommend any particular standards.

Referring to equipment for both city and interurban cars, your committee begs to call to your attention that equipment parts have already been standardized to a great extent.

4. CAR-STOP SIGNS.—Your committee begs to call to your attention that a report with samples of standard car-stop signs was presented at the meeting held in Toledo on May 26, 1910, at which time it was decided not to adopt a standard car-stop sign. However, your committee will be glad to again submit samples or designs of a standard car-stop sign if the committee is again instructed to do so and is informed how and where such a sign is to be installed.

NEW SUBJECTS.—Your committee recommends that the following subjects

should be taken up and worked out and that they be given instructions to do so.

1. Revision of standard signal lines and trailer light connector is necessary. June 25-26, 1914.

2. Additions and changes to train signal system adopted June 26, 1914.

3. Controlling dimensions of passenger and freight cars used in interchange.

4. Standard length of air hose.

5. Assembly and details of air piping on draw bars.

6. Standard location of classification and tail light brackets.

7. Standard lamps and sockets for railway use.

8. Standard design of trolley retriever and catcher.

9. Controlling dimensions of rolled steel wheels, not including standard contour of flange and tread.

The report was signed by H. H. Buckman, P. V. C. See, J. W. Osborn, John Zoll and M. F. Skouden, committee.

SEPARATE ENGINEERING ORGANIZATION PLANNED

The committee which has been studying the best plan of developing some form of organization by which the engineering personnel of the association would have an adequate medium for the interchange of common ideas and experience made its report. The report was read by Secretary Earlywine, the members of the committee being Myles B. Lambert, Westinghouse Electric & Manufacturing Company, chairman; P. V. C. See, Akron, Ohio; Harry Reid, Indianapolis, Ind.; Guy H. Kelsay, Elyria, Ohio, and J. W. Osborne, Lebanon, Ind., all of whom were present. As developed in the committee report and in the discussion which followed, the plan of organization is in substance as follows:

There is to be organized as a subsidiary of the Central Electric Railway Association an engineering council with four local engineering sections known as the Akron, Toledo, Dayton and Indianapolis Sections. Each section is to be headed by a director with six additional members to comprise the local executive board. The engineering council will consist of the director of each local section, two members of the executive committee, and a chairman who is to be the second vice-president of the association.

The local sections are intended to embrace all engineering branches of the industry. Each local section will arrange matters of discussion that will be of joint interest to the other sections or simply of local interest. Each section is to hold three meetings a year and at the annual meeting of the main association a half day is to be allotted to a general meeting of the engineering council, as a part of the regular program. At this time general engineering matters will be discussed, papers read, and any reports of the engineering council submitted for the approval of the association.

The plan of operation contemplates

that at the beginning of the fiscal year the engineering council will prepare and submit to the local sections a program of subjects on which information, studies or reports are desired. It is to be the duty of the chairman of the engineering council to follow up the work assigned to these local sections, to insure execution of the assignment. All reports of an engineering nature are to be referred to the engineering council for approval before they are submitted to the main association. The same subject may be assigned to all four sections for study and individual report, the engineering council then acting to derive from these a final report for submission to the association. In addition to the assignment made, each local section is to be free to discuss other matters of interest or to initiate studies leading to recommendations to the engineering council and thence to the association. The standards committee of the association is continued for the present, but it is anticipated that the engineering council will function along this line and ultimately take the place of the standards committee. The president of the association, however, will be authorized to appoint an independent committee to study and report on any subject of a general engineering character, where this seems desirable.

The purpose expressed, of dividing the territory into four sections, was to keep to a minimum the amount of traveling and hence the amount of time off the property involved, and also to keep the size of the gathering small so that it could take on the nature of an informal round-table discussion. The reason for making these sections embrace all branches of engineering was that many of their problems are inter-related and furthermore, that the small informal groups would give an opportunity for frank discussion of inter-departmental differences and tend to eliminate the common jealousies which exist. It was also thought that the existence of four parallel sections might result in some healthy competition which would be fruitful of accomplishment.

As to the place of the manufacturers' representatives at these sectional meetings, Mr. Lambert explained that, all things considered, it had been deemed advisable that they should attend these sectional meetings only upon invitation. Whenever any particular subject is up for discussion, those manufacturers who are directly interested will be forewarned and invited to attend the meeting, prepared with data and information to take active part in the meeting.

The committee report was discussed favorably by the members of the committee and by R. J. Custer, Columbus, Ind.; F. H. Miller, Louisville, Ky.; H. A. Nicholl, Anderson, Ind.; S. D. Hutchins, Columbus, Ohio; C. L. Henry, Indianapolis, Ind., and F. D. Carpenter, Lima, Ohio. Mr. Henry expressed his belief that such an organization could be arranged without material change in the present constitution. He expressed the

thought that the engineering council would probably either function as the standards committee or embrace the purview of the standards committee. He thought the plan was a good one except that it still embodied the old difficulty of getting men to do the work, and he emphasized the necessity to put behind the report the determination to put it through to success.

Mr. Carpenter said he thought the reason for much of the non-attendance at committee meetings was because the men were not properly backed up by their managements and urged to attend and give attention to their duty. He explained that no employee of the Western Ohio Railway is permitted to accept a committee assignment until this is approved by himself, but with this approval the man knows that he has the support of his superiors and therefore does his part. He recommended the same procedure to other companies.

Walter H. Evans, Tool Steel Gear Company, Chicago, urged the company to take good care of the subordinate equipment men and also emphasized the importance of not only getting the young college-trained men while the getting is good, but also to get good men without any particular technical training and bring them up in the shop. He lamented the passing of some of the outstanding equipment men, because there is no one coming along competent to fill their places.

After full discussion, the report of the committee was adopted and the president requested to appoint the engineering council as outlined in the report and direct it to work out the details for carrying out the organization planned by the committee and to report at the annual meeting in January. This resolution included the provision that the present standards committee should be continued and should work with the engineering council to be appointed, until the final details of the plan are worked out and such report accepted.

REPORT OF FREIGHT CLAIM PREVENTION COMMITTEE

The freight claim prevention committee of the subsidiary traffic association, headed by S. A. Greenland, Fort Wayne, Ind., was then called upon for a report. The other members of the committee are C. O. Sullivan, W. S. Whitney, N. Rumney, F. D. Norviel and J. H. Pound. This committee was appointed to look into the possibility of reducing freight claims, having in mind the very good results obtained along this line by the American Railway Association and the American Railway Express Company. The committee reached the conclusion that this was more than a traffic proposition and required the co-operation of all departments, and for that reason submitted the proposition to the main association for approval. The committee recommended that each general manager hold a meeting of company officials to formulate plans for working out the following suggestions:

It is proposed that on each property

a committee be appointed consisting of the best informed men in the service, whose duty it will be to make careful study of things that can be done to improve the service, to advise and instruct fellow workmen, particularly new men; to distribute literature issued by the company or the association, and to see that employees are notified of meetings of committees and secure their attendance. For the first meeting of these committees on the various roads, each committeeman is to be requested to give in writing his opinion of the proper way to handle the particular line of work in which he is engaged and to offer suggestions that will improve the method now in effect. The best of these letters is to be selected by the chairman and sent to the secretary of the association, where, from all such letters received, the best will be selected and published for the benefit of all association lines.

It is also proposed that pamphlets be got out by the freight claim pre-

mittees already organized on his property.

C. S. Keever, Anderson, Ind., added that the seventy agents of the Union Traction Company had been called together in several meetings this year and instructed on the proper marking and handling of shipments, and the method of keeping record on the waybill of any irregularities. As a result of this campaign, he said that the company has had only ten claims this year of over \$10. James P. Barnes, Louisville, also expressed the danger of any outside force endeavoring to secure a good *esprit de corps* in any organization which was unable to do this for itself. This opposition resulted in the report being referred back to the executive committee, where it was later adopted, however.

In discussing the report, S. W. Greenland emphasized the desirability of taking steps to reduce claim expenditures, by giving some figures developed by the secretary as the result of a ques-

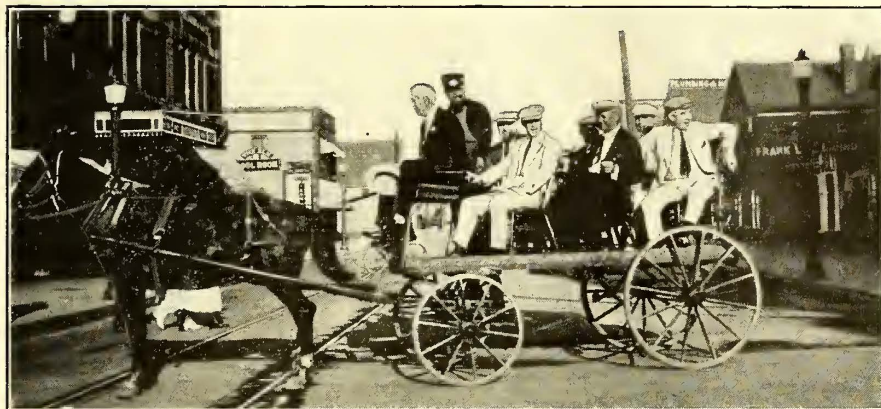
was led off by J. F. Ohmer of the Ohmer Fare Register Company, who said that all the points raised were mighty good, but who admonished the members of the association to "go home and do it." Myles Lambert of the Westinghouse company also raised the question, "Will you go back home and do it?" Mr. Lambert said that the best thing he had heard was a master mechanic (E. B. Gunn) tell how to sell rides.

C. L. Henry said that the fundamental fact is that if railways can't sell rides they can't stay in business. With reference to "going home and doing it," the thing that bothered him was how to do it. He recounted his experience in bringing his power plant up to date, and said that similar steps must be taken in an engineering way throughout each entire property, but he pointed out that it was easier to do it with physical things than with men. His advice was for everybody to work day in and day out, everywhere and all the time. Speaking particularly to interurban men, he expressed his belief to be as strong as ever in the full success of the interurban. As to the bus, it is here to stay, he said, and it must be used intelligently in this problem of merchandising transportation.

A. Swartz of Toledo said he thought the railway industry should let the public know its business. He advised against even thinking about lower fares at the present time, but it was brought out in later discussion that lower fare suggestions which have been made applied only to restricted areas, as a means of inducing short-haul traffic or of lowering city wide fares. Mr. Schwartz emphasized that the advertising work of the railways should be positive in its nature.

Mr. Lambert, speaking a second time, said that it is merely an economic law which determines the rate of fare and that it is the railways' duty to interpret this economic law and the resulting rate of fare, and this was what required sales ability. There are two conditions of fares which result in failure of railway companies: One of these is an unprofitable rate of fare, too low to pay expenses; the other is a rate which is beyond the reach of the average consumer, and this reduces the gross revenue. Some place between is an economic balance which, coupled with rigid economy of operation, means success.

The question of local securities sales was brought up and Harry Reid of the Interstate Public Service Company said that he started a year ago to sell preferred stock to friends and customers of the company and over \$600,000 worth had been sold to more than 1,700 separate individuals. Mr. Henry pointed out the enviable position of the Lancaster (Pa.) Railway, where all stocks and bonds were owned in Lancaster County. In further discussion of the question of low fares and jitney competition, H. V. Bozell, editor *ELECTRIC RAILWAY JOURNAL*, quoted a leading public utilities commissioner who



BACK TO THE GOOD OLD HORSE DAYS

Proving that railway men are not particular about the form of motive power so long as it affords transportation. The driver, George Radcliffe, Cleveland, and these six other "Indians" would not permit a shortage of autos to interfere with a tour of Sault Sainte Marie, when the ship stopped there for two hours.

vention committee with suggestions covering subjects and topics for the use of the local committees at their meetings in order to furnish topics of interest and secure similar work by all committees. It is also suggested that the question of loss and damage be not made the only feature of these meetings, but rather that the object of the movement be to improve service as well, which will automatically reduce the loss and damage.

The committee also requested the association to set aside an allowance of \$250 to cover necessary expense of issuing circulars and pamphlets for use in conjunction with the work in hand.

While other members favored the adoption of the report and urged operation in carrying it out, H. A. Nicholl, general manager Union Traction Company of Indiana, Anderson, failed to see the need for it so far as his company was concerned and took exception to the idea of having instructions come into his organization from outside sources. He explained briefly the excellent results which had been obtained along the line of reducing freight claims through the work of com-

missionnaire sent to all of the member companies. Of thirty-four companies who responded, it was found that in 1920 the total amount paid out in freight claims was \$142,744. He said that by virtue of its "Right-Way Campaign" the American Express Company had decreased the claims in January this year as compared to the same month last year by 12 per cent, in February by 31 per cent, March, 38 per cent, and April, 69 per cent. For the first four months of this year a reduction in claims of 58 per cent as compared to the same period last year has been realized. Mr. Greenland gave these figures to indicate the possibilities in reducing this form of drain upon the companies' earnings.

The Thursday afternoon session was devoted to the subject of merchandising transportation. The meeting was started by the report of the committee on this subject, which is given elsewhere and was followed by some prepared discussions, abstracts of some of which are given following the committee report. This was followed by open discussion from the floor.

The general discussion which followed

pointed out his very difficult problem in telling inhabitants of certain cities that they would have to pay 8 cents or 10 cents to ride from their homes to town, even though there were motor buses ready to carry them the same distance for 5 cents. While this commissioner said it would be necessary to do this in many cases, still it was a difficult problem for one in public life. Mr. Bozell called attention to a talk to trainmen given by P. S. Arkwright, president of the Georgia Railway & Power Company, Atlanta, Ga., (see *ELECTRIC RAILWAY JOURNAL*, April 23, 1921, page 771) as being one example of "how to do it" in training employees.

Mr. Barnes, in closing the discussion,

commended the spirit of the association's discussion of the merchandising transportation question. He gave a brief reference to an experiment which he has just started in Louisville in the nature of a combined contest, safety campaign and closer co-operation between the trainmen and executives, the result of which is apparently most satisfactory. The experiment has been going on for such a short time, however, that he did not wish to draw any definite conclusions therefrom at this time. On motion the association continued the committee, requesting it to report again in January.

Abstracts of papers and discussions presented follow herewith.

Automatic Substation Progress

By C. A. BUTCHER

Westinghouse Electric & Manufacturing Company

REFERENCE to an automatic railway substation brings to the minds of some the small type used on inter-urban systems, and to others it means the large type of single or multiple-unit stations of larger capacity used for city service. Naturally the experiments in automatic substation operation were first carried out on a smaller and more isolated equipment. These experiments proved successful and applications were soon made to much larger machines. The largest at the present time are in the four stations on the property of the Cleveland (Ohio) Railway. Here three stations are now in operation, each consisting of two 1,500-kw., 60-cycle units in parallel operation. In all kinds of railway service there are at present approximately 100 automatically equipped substations in service. Approximately 200 equipments have been sold for the automatic operation of various types of substation equipment.

[EDITOR'S NOTE.—Mr. Butcher next explained the application of the automatic control principle, as developed by his company, with reference to the synchronous converter. This has been

covered in some detail in articles in the issues of this paper for April 13, 1918, pages 705 and 707; May 17, 1919, page 948; the combined issue for Nov. 8 to Dec. 13, 1919, page 886; Jan. 31, 1920, page 259; March 27, 1920, page 654; Sept. 18, 1920, page 533. An extended further article will be published in an early issue. The balance of Mr. Butcher's paper was taken up with discussion of special applications of automatic control and concluded with the general summary of the present interesting problems in this field, substantially as below.]

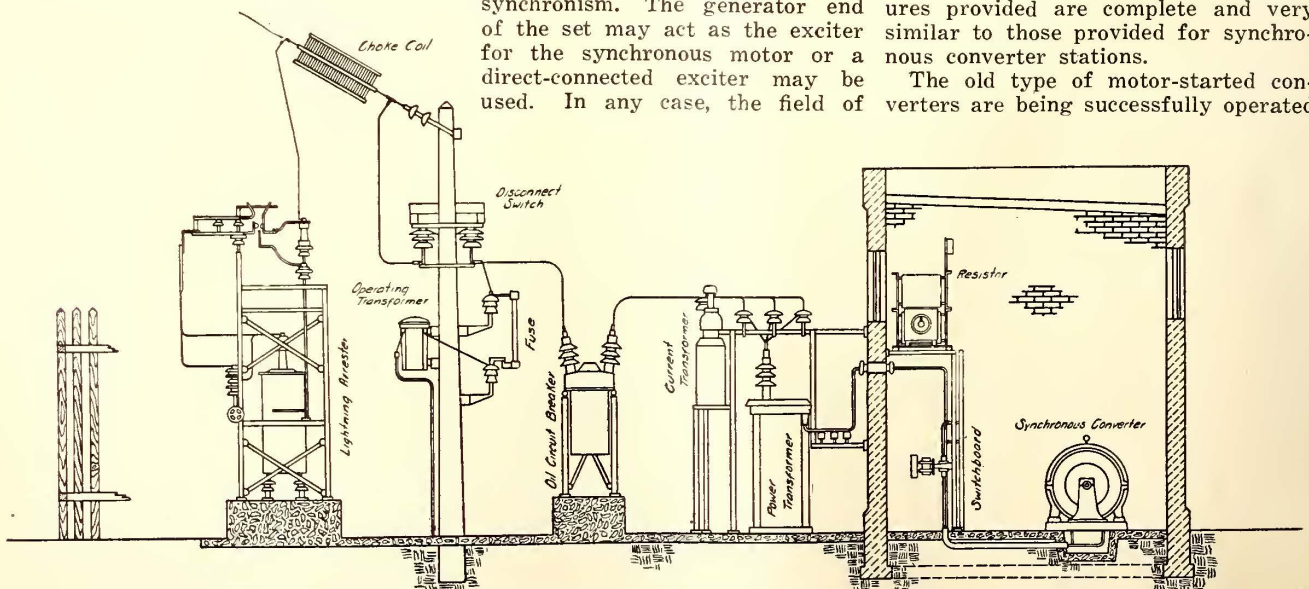
CONTROL OF MOTOR GENERATOR SETS

Motor-generator sets are controlled in a fashion very similar to the plan used with rotary converters with the exception, of course, that it is not necessary to correct polarity. The stations equipped with motor-generator sets start up upon the indication from a contact-making voltmeter connected between trolley and rail. Transition from a.c. starting to running voltage is effected by the operation of relays responsive to various indications of synchronism. The generator end of the set may act as the exciter for the synchronous motor or a direct-connected exciter may be used. In any case, the field of

the exciter is usually directly connected to the generator end or the exciter end of the set. In applying reduced voltage to the winding of the synchronous motor for starting, alternating current of the frequency of slip is induced in the field winding. Since this field winding is directly connected to the exciter, the alternating current induced in this winding will flow through its armature. This alternating current opposes any tendency of the direct-current armature to build up its voltage. As stated, since this induced current is of the frequency of slip, it obviously falls to zero when the motor reaches synchronous speed. There then being no opposition to prevent the exciter from building up its voltage, it builds up in a perfectly normal way, and in doing so builds up a normal field current in the rotating field of the synchronous motor.

There are three distinct indications of synchronism: The first is the falling of the starting current to a minimum value. When starting voltage is applied there is at first a rush of current from the alternating-current line. This decreases in value as the motor increases in speed and reaches a minimum when the rotor has reached synchronous speed. An accelerating relay actuated from a current transformer may be used to indicate the attainment of synchronous speed. A second indication of synchronism is the attainment of normal machine voltage. A voltage relay can be so calibrated as to close its contacts at normal machine voltage. A third is the attainment of normal field current. A series relay in the shunt-field circuit of the motor can be adjusted to close its contacts under normal field current. Any one or a number of these relays in combination may be used to operate such relays as will effect the transition from the alternating current starting to the running position. The generator is connected to the bus in a manner very similar to that described for synchronous converters. The protective features provided are complete and very similar to those provided for synchronous converter stations.

The old type of motor-started converters are being successfully operated



ELEVATION OF SEMI-OUTDOOR AUTOMATIC SUBSTATION

automatically. There are now in operation a half-dozen of these old-type machines and they are giving service equivalent to that of the modern type converter. The method of operation is:

The motor is first started. An accelerating relay in the motor circuit indicates approximate synchronous speed when the converter is connected directly to the full voltage taps of the power transformers through limiting reactors which pull the converter into step. The polarized motor relay is used to effect the transition as described for alternating current self-starting converters.

SUBSTATIONS WITH TWO OR MORE UNITS

The control for stations equipped with two or more units is so designed that after load exceeding a given value has been maintained for a predetermined period of time on one machine another is started and automatically connected to the load. This feature is provided by means of a temperature relay which operates to close its contacts after the first machine has reached a given operating temperature. Under conditions of light load, the machines are cut out in the reverse order of starting. Switches are provided for making any machine the first to start. In case of failure of one machine to go into service, an auxiliary contact on the motor-operated timing relay closes to start the second machine after the lapse of 1½ minutes. The first is definitely locked out of service. A signal connected with the lockout relay may be used to indicate the failure. Until the lockout relay has been reset by hand, the second unit continues to function in the place of the first, the station starting up and shutting down on demand.

A 1,200-VOLT STATION

One very interesting application of automatic switching has been made to a 1,200-volt direct-current substation on the line of the Fort Wayne & Decatur Traction Company at Fort Wayne, Indiana. This line has but one substation and the cars are run into the Fort Wayne Terminal on the city line

at 600 volts direct current. The station is started by means of a series relay in the trolley circuit at the junction point of the two trolley systems. When the substation is idle, these trolleys are tied together through an electrically operated contactor.

For example, a car leaving the 600-volt section and crossing to the 1,200-volt section draws current through a series relay, the contacts of which are closed and the relays of the substation are thus energized over pilot wires to effect the starting of the substation. The 600-volt and 1,200-volt sections are tied together until the machine has come up to full voltage. At this point, the running contactors, in closing, effect the opening of the contactor which bridges the two trolley sections. This contactor is interlocked so that in its open position it effects the closing of the contactors of the substation, thus applying full 1,200 volts to the trolley section. The machine shuts down by the action of the timing relay in the manner described. It is thus seen that in case of failure of the substation to start, the cars can still operate from the 600-volt supply, though obviously at reduced speed. In case the substation shuts down, a car laying over at the end of the line can restart it by drawing current through the series relay from the 600-volt section.

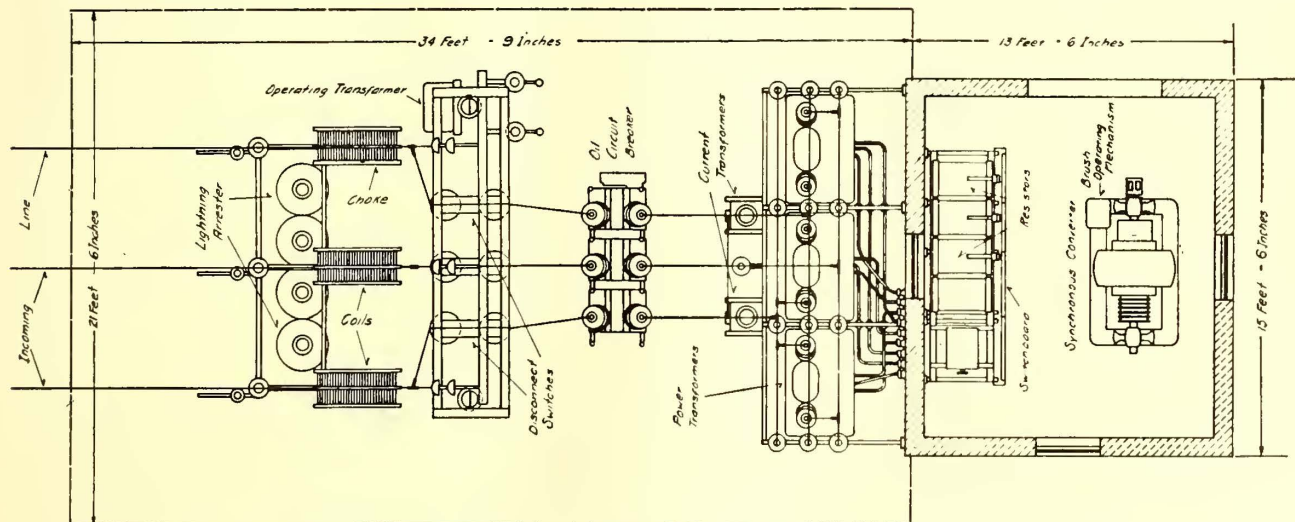
A novel feature of the 1,200-volt switching equipment controlling two machines in series is that but one control equipment is required for the station. The only duplication in equipment is the starting panel for the second machine. The starting contactor for the "high" machine is the first to close. Through the medium of an accelerating relay, after the first machine has reached synchronous speed, the starting contactor for the "low" machine is closed. The "low" machine acts permanently as an exciter for the "high" machine. Therefore, the scheme described for correcting the polarity of one machine automatically serves to establish correct polarity on the "high" machine, after the "low" machine has been corrected.

The transition from starting to running takes place simultaneously on both machines. The current limiting feature on the direct-current side is between the two machines rather than on the negative or positive side of the system. This is so that under no condition will greater than a 600-volt strain be imposed on the insulation of the devices used. A 1,200-volt contactor mounted on marble panel serves to disconnect the 1,200-volt side of the machine from the trolley circuit. These machines happen to have a rather poor starting characteristic and it is therefore necessary to use a relatively high starting voltage. For this reason the synchronizing torque on the starting voltage is very high, making it difficult to effect correction of polarity by field reversal. As in other cases where this trouble was encountered, the difficulty was overcome by paralleling the fields in the reverse position. Under parallel conditions never more than one field reversal is required to establish correct polarity.

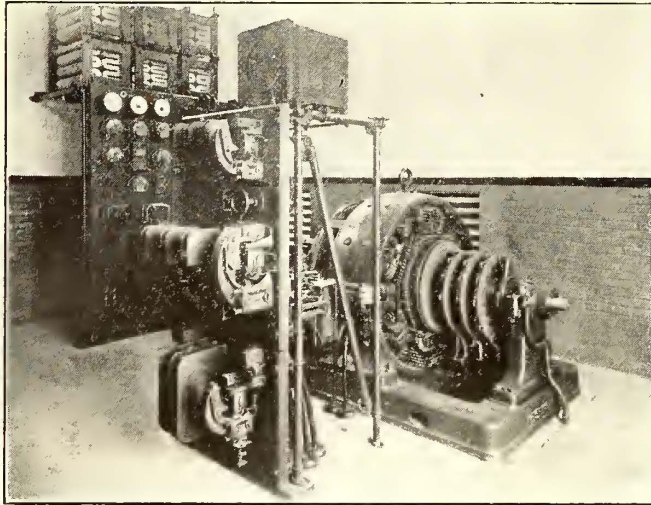
DIRECT-CURRENT FEEDERS FOR CITY SERVICE

We have felt since the beginning, and have more or less definitely established the fact, that the current-limiting resistance type of feeder in city service is not very desirable because only in the event of short-circuit is it desired to open a feeder circuit. If, due to congestion of cars, the feeder section is overloaded, it is obviously desirable to hold that section at as near full voltage as possible to clear the congestion quickly. To insert resistance and further lower the voltage under these conditions only aggravates the congestion.

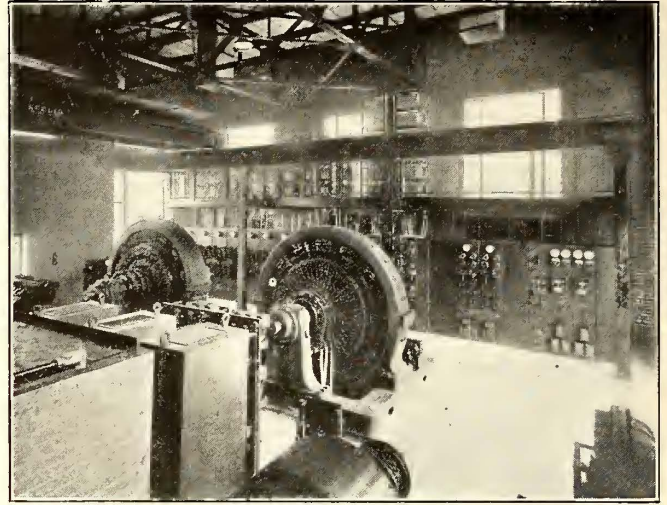
With this idea in mind there has been brought out a type of feeder equipment which eliminates this current limiting resistance. The feeder is so designed that it will not trip on a legitimate overload, but only in case of a short circuit. This is accomplished by means of a device which differentiates between a normal and an abrupt rise in load. The breaker, once opened



PLAN VIEW OF SEMI-OUTDOOR AUTOMATIC SUBSTATION



ROTARY CONVERTER AND AUTOMATIC CONTROL APPARATUS IN SUBSTATION OF YORK (PA.) RAILWAYS



VIEW IN TWO-UNIT AUTOMATIC SUBSTATION OF CLEVELAND (OHIO) RAILWAY

by this device, recloses only when the external resistance in the feeder circuit has risen to or above a normal predetermined value. In effect the device comprises a Wheatstone bridge arrangement which measures the external resistance of the circuit and operates a relay to effect the reclosing when the short circuit has cleared.

Inasmuch as the current-limiting resistance is retained in the machine circuit, the machine is protected from simultaneous overload on enough feeders from the station to cause overload on the machine. Retaining the current-limiting resistance in the machine circuit also makes possible rapid restoration of service on the system after a total "outage." In such a case, one machine starts up probably before a number of others and as it is the first machine in service on the system attempts to pull the total load. But for the limiting resistance, service would again be interrupted due to overload. By hanging onto the load through the current-limiting resistance for a short time, this machine permits others to come into operation very rapidly to bring about complete restoration of service.

The type of feeder described has proved very satisfactory. It will be applied to the three 1,500-kw. automatic substations now being built for the Cincinnati Traction Company. A device very similar to this is now being installed and will soon be in service on an automatic equipment designed to control a 1,000-kw. synchronous converter operating an Edison three-wire system in Milwaukee.

SUBSTATIONS IN CITY SERVICE

The application of automatic substations to city properties presents a very interesting problem. City traction lines are usually made up of a series of extensions and additions. As the lines were extended, it was necessary to install feeders in order to maintain the required voltage. Then as the system grew and more cars were added it was necessary gradually to add to the power-plant capacity. As a result, a great number of street railway power

and distribution systems are today frequently pointed out to the public as striking examples of inefficiency. In addition to heavy losses in positive and negative feeders, much trouble and litigation has resulted from electrolysis. In fact many cities have passed ordinances which limit the voltage drop in the rail. To overcome this condition it is necessary to install large amounts of additional negative feeders as well as extensive bonding between rails and subterranean structures.

Conditions in many cities have been bettered by converting power plants from direct current to alternating current generation with direct current supplied to the system from substations. In order to cut down operating expenses, the tendency has been to build substations of large capacity near the load center. This is, of course, a decided advantage over distribution from a power plant which, of necessity, is located near adequate water and coal supply and perhaps a mile or more from the true load center. However, the conditions of electrolysis are only slightly improved and great quantities of feeder copper are still required.

The progress of generation is certainly in the direction of large centralized power plants. This is in line with the conservation of our natural resources and a plan to link these large plants to trans-continental transmission lines. Such development naturally means greater efficiency of power generation and distribution with a natural result of cheaper power.

It should not be the business of a railway company to manufacture power. Its real business is to sell transportation. Each man in that organization should be in a position to concentrate his efforts on the real object at hand. Why should he be worried or burdened with the trials of a relatively small and inefficient power plant? Would it not be better to buy power from the central station, direct current to be supplied from substations so located over the system as to give the greatest advantage? If the railway operates the central station or vice versa, the conditions really remain the same.

Automatic substations eliminate the item of attendance and therefore make it possible to operate a great many stations with but little thought of that item. By dividing the system into small blocks, each to be supplied from a substation located at the load center of the block, we do away with the necessity of a great amount of feeder copper. In addition we mitigate electrolysis by reducing the voltage drop in the rail to a very small and harmless value. The scrap value of the reclaimed copper, in a great many cases, goes far toward financing the improvements.

The annual return is represented by the saving of copper and generation losses and power saving realized by virtue of the improved average trolley voltage. Improved trolley voltage makes possible a greater leeway in the schedule or permits a speeding up of the schedule, which in turn means greater returns from more frequent service. It may be possible to save platform labor by taking a car out of the number which are now required to maintain a given headway.

The labor situation on a great many properties has reached the point where the men have gone on strikes and tied the property up for weeks and months at a time. Automatic substations, by the elimination of the human element, and by virtue of a complete complement of protective devices, not only give a high order of service but give it with economy and satisfaction.

Discussion on Automatic Substations

BY LAWRENCE D. BALE
Engineer Substations Cleveland (Ohio)
Railway

The first of the problems involved in the use of automatic substations in metropolitan service relates to the decision of the capacity and number of units to install per station. The solution of this question involves several problems in itself. The area or zone to be supplied by a station, which also fixes the capacity, is generally determined primarily by the investment necessary in feeder, and the annual charges, together with the losses occur-

ring in the feeder layout. There are also several other considerations to be taken into account which often influence the problem radically. The most important among these are land values, building cost and restrictions, reserve equipment, alternating-current and direct-current feeders, and, above all, a system that will be conducive to a high degree of reliability of service.

With low land values, building cost and load densities which are encountered generally in small cities, sparsely settled areas or suburban districts of large cities there is no doubt a number of single-unit automatic substations will answer the requirements admirably. On the other hand, with relatively high current densities to contend with, and where the cost of land and building is high, the multiple-unit stations give the most economical layout, taking every item into consideration. This has proved to be the case in Cleveland.

On metropolitan systems, where continuity of service is one of the ruling factors, it is necessary to provide a large reserve capacity with the initial investments in equipment and distribution system. Where the multiple-unit station proves the most efficient and economical type to install, the factor of service insurance is further increased by reason of the scheme of automatic sequence operation which is included. The question of duplication of a.c. lines to a substation is also an important one from the standpoint of service insurance, for upon a system where disruption of service from "station outs" due to a.c. power line failures is at all prevalent high-class service cannot be maintained. Therefore, where the capacity of the station, in other words, its importance, will justify the expenditure for duplicate a.c. lines, which is the case with a two-unit installation of relatively large capacity, further insurance against service interruption is gained.

CITY SYSTEMS ARE DIFFERENT

The operation of automatically controlled equipment upon city systems is, of necessity, quite different from that found upon the average interurban system. In city service the frequent starting and stopping common to the interurban substation is impossible, for with all stations upon the systems arranged to feed into the general network of feeders and with a very low resistance between stations each and every machine in service will tend to assume its proportion of the system's load. This tends to keep equipment in service when there is really no necessity for it, resulting in a lowering of the all-day station conversion efficiency. The two-unit station has an advantage in this connection in that the two units will operate to capacity during the morning and evening peak, while during the remainder of the day one unit will be shut down.

To overcome this feature of machines tending to remain in operation when not required, F. C. Chambers arranged the automatic substation of the Des

Moines City Railway to operate at different voltage, ranging from 600 to 650 volts. The voltage adjustment which is based upon peak-load conditions enables the station with the lower voltages to shut down as the curve of the peak load descends, this arrangement, in conjunction with the manipulation of high-tension lines to the lower voltage station, apparently working satisfactorily.

To operate successfully a large city system consisting of a number of automatic substations, together with numerous heavy feeders, the general feeling is that some form of remote control superimposed upon that of the substation automatic control should be utilized. Through this system machines may be controlled, load transferred, and, in fact, all of the operations necessary in a substation on an important property performed. It is not intended to have the remote control take precedence over the automatic control in any case during normal operation, but during emergencies full control of the system may be attained by this means.

REGARDING RESISTANCE IN FEEDER CIRCUITS

Referring to the section of Mr. Butcher's paper in which he discusses d.c. feeders for city service, this particular phase of the subject of automatizing the power supply of a large city system presents, as he intimates, one of the most troublesome problems of the whole question. Since an outgoing d.c. feeder may be subjected to a variety of troubles or conditions, it seems almost beyond reason to expect automatic equipment to function and be depended upon to handle properly each of the conditions that may arise. When a feeder is subjected to overload either from the extraordinary movement of cars or load from an adjacent plant that may be in trouble the feeder most certainly must not be disconnected from the station bus nor have the impressed potential lowered by the cutting in of resistance. When this feeder becomes grounded, generally by the breaking of a trolley wire, the proper handling of it will depend upon the policy of the operating company. On some systems it is customary to discontinue service on a grounded feeder until such time as the ground is removed, the time involved depending generally upon the efficiency of the line department trouble system, which may mean in some cases a considerable delay in the movement of cars. Upon other of the larger properties the policy is to burn off grounds, so that the movement of the cars may be subjected to the least delay. This measure is adopted on properties where a premium is placed upon continuity of service, as in Cleveland.

It is therefore seen that where a property wishes to maintain station bus potential on an overloaded feeder and also to burn off grounds neither of the two present methods of handling overloaded and faulty feeders automatically meets with both requirements, for the scheme of cutting resistance in on an overloaded feeder is not desired. On the other hand, this method may be utilized

successfully in burning off grounds, while with the new method of feeder control mentioned by Mr. Butcher an overloaded feeder will not be opened nor its potential disturbed as far as the control is concerned, but a grounded feeder will open and remain so until such time as the ground is removed.

The presence of a number of outgoing tie feeders in an automatic substation under the present method of control constitutes a possible danger of disruption of service by causing the station bus potential to be lowered at a most inopportune time, or, worse still, by causing the rotaries to be disconnected from the bus entirely, by reason of the possible overload that may be transferred from one station to another through a number of feeders of low ohmic resistance, in the event of the failure of an adjacent plant under peak-load conditions.

Mr. Butcher states that in the event of the failure of a machine to connect with the load in one and a half minutes the machine is definitely locked out and remains so until the lockout relay has been reset by hand. In the Cleveland installation the sequence has been so arranged that, in the event of the failure of the machine to connect with the station load within the prescribed time, the first unit is locked out or shut down and the second machine is started in its place. However, when the second unit is connected to the station bus the first unit automatically unlocks and is then again made available for service upon demand. This feature is of particular value, for while it is true that if there is something radically wrong with the machine that failed, the unit will be locked out against further service. On the other hand, if the difficulty is of a minor nature, as, for example, a poor interlock contact, the possibility of the unit performing satisfactorily upon the occasion of the second starting is good.

Another very important feature is the starting of the second unit from the first upon the occasion of one machine being suddenly subjected to extremely heavy overload, causing the current-limiting resistance to be inserted in the machine circuit by the opening of the resistance shunting contactors. The second unit is normally started from the first by means of a thermal relay. This relay closes its contacts after the first machine has reached capacity load for a period of about fifteen minutes. To overcome the necessity of waiting for this relay to function under emergency or heavy overload conditions as mentioned above, the sequence scheme has been so arranged that when the resistance shunting contactor in the first rotary circuit opens, due to overload, the control circuit is established, starting the second unit after the lapse of one and a half minutes, thus promptly securing the assistance of the second unit in carrying the overload.

CLEVELAND EXPERIENCE SATISFACTORY

While it is true that my observations cover but a relatively short period of time, the first station in Cleveland having been placed in full automatic

operation upon Dec. 15, 1920, judging from observations up to the present, there is no reason why the power requirements of any system cannot be met satisfactorily and economically by utilization of automatically controlled equipment. It must be understood that there will necessarily be variations of control features upon every new system by reason of different operating conditions to be met, but with the engineering talent of those men now heading the automatic control divisions of the principal companies interested in this field, with the inclination of the engineer in charge of the property to co-operate, the limitations of automatic control in railway traction power supply are not in sight.

The stations of the Cleveland Railway are, I believe, the first case on record of the adaptation of the automatically controlled substations to a large city system. These installations also enjoy the distinction of being the first two-unit automatic stations of large capacities to be constructed. Therefore, the majority of the work in connection with the planning of the layout and the scheme of control has been of a pioneer nature. The results have been exceedingly gratifying, for aside from the d.c. feeder control scheme comparatively few changes have been found necessary. Some of these changes necessitated the redesign, addition or rearrangement of relays, but the majority were accomplished by changing circuit connections.

In the first installation it was found that by reason of a combination of conditions that could be set up by unusual occurrences in operation (either conditions not contemplated, or experienced but not corrected) it was possible to lock out a rotary, or, in extreme instances, both rotaries. As fast as these conditions were recognized provisions have been made or are under way to prevent their recurrence. When these changes are complete protection of these equipments will be had against every possible contingency and will give to the automatic stations, as planned in Cleveland, the maximum degree of continuity of service.

There have been several demonstrations on the Cleveland property illustrating the reliability of the automatic equipment as to its emergency stand-by features which I know will interest the operating engineer. In Cleveland, after 1:30 a.m., with but the early morning service in operation, together with shifting of cars in yards, etc., the load upon the system averages about 7,000 amp. It is customary to handle this load from 1:30 a.m. to 4 a.m. from a centrally located, manually operated substation, this plant being the only source of power for the entire system during that period. Upon three occasions the source of energy to the system has been interrupted by the opening of the a.c. power supply to this station, leaving the entire system without power. This occurrence immediately caused the voltage relay in the one substation (existing at that time) to

operate, starting the first rotary and connecting it to the station bus, picking up the entire system load, this being accomplished in approximately thirty-eight seconds. This station, of course, inserted resistance in the machine circuits and held on to the load until the manually operated station was again in service, after which the automatic station ran for a period of fifteen minutes and then shut down. It is thus seen that the presence of automatic equipment upon the system will restore service almost immediately in the event of an outage.

Discussion on Automatic Substations

BY CHARLES H. JONES

Electrical Engineer Chicago, North Shore & Milwaukee Railroad

The steps through which it is necessary to go in starting up a rotary converter and putting it on the direct-current bus are few and easily performed and the ways used to do this mechanically may vary in detail, but the methods used by the two manufacturers have proved to be satisfactory in service. In fact, better results are obtained by the mechanical method than by the manual method, due to the elimination of the uncertain human element over which we have very little control, especially in case of emergency operation, and substitution of a mechanical device which will function in a certain predetermined sequence of steps regardless of whether they are performed under normal or adverse conditions.

After the machine is put on the line and is handling the load we are face to face with a condition of machine protection which is a great deal different with automatic than with manual operation. In the manually operated station the procedure was to take the machine off the line in case of any trouble or severe overload and leave it to the judgment of the operator whether or not the machine should be put back on the line. This cannot be done in the automatic station, so that a new line of trouble-differentiating equipment had to be developed which would replace the judgment of man. From my experience it appears to me that in solving this problem there are possibilities of overdoing the protection and loading up of the automatic substation with a lot of devices which may in theory be a good thing but in actual practice will be detrimental. Looking back over many years of experience with hand-operated stations, I believe I am safe in saying that the failures of line and equipment have been comparatively few, and I think we can safely use this as a basis for anticipating trouble. My suggestion is that we should not try to protect against every conceivable failure, but that we should take care of the common ones and supplement this with some sort of remote indicator to inform a centrally located attendant, after locking out the station, of any unusual trouble. A remote indication is desir-

able where a few stations are automatic and essential on a large interconnected system. The cost would be comparatively small and the benefits large. The advantage would be great to have a recording ammeter for each station at a central location which could be watched by a load dispatcher. Such a system would offer a possibility of general car service supervision as well as power supervision.

The above suggestion is right in line with station inspection, which is of great importance and will require careful study. There is considerable difference of opinion among operators of automatic stations today about the proper frequency of inspection. Practice varies from daily to every two weeks. Personally, I think that frequent inspection will be the most economical in the long run. Where an inspector has good facilities for getting from one station to another he could easily care for from four to six stations on a daily inspection basis.

SINGLE VS. MULTIPLE UNIT STATIONS

The question of multiple-unit stations has been raised in Mr. Butcher's paper. Experience has shown it to be practicable, but its desirability is another question. Among the savings to be made with automatic stations are reduction of operating labor and the elimination of d.c. line losses. Where a station has several machines and a large output per day, the cost of operation per kilowatt-hour becomes very small and may be less than the carrying charges on automatic equipment. The greater the number of machines in a station the larger the feeding area, with a corresponding increase in line loss over the loss which would accrue in the same area with more than one station. To be sure, increasing the number of stations by using a number of one-machine stations instead of a fewer number of multiple-machine stations will increase the initial cost due to land, building and transmission line cost, but there will also be a reduction in the distribution copper required. However, ample leeway will have to be provided in the distribution system to handle an adjacent station load in case of emergency.

Mention is made in the paper about the benefits to be derived in electrolysis mitigation by use of automatic stations. It seems to me that this is another very good argument for single-unit stations as the feeding area is considerably smaller. Since the advent of the automatic substation has completely revolutionized power distribution engineering, the question of single and multiple-unit stations cannot be answered in a general way, but the problem must be carefully studied at each location under consideration and a balance between all advantages and disadvantages arrived at.

RESISTANCE IN THE FEEDER CIRCUITS

In the average railway substation the ratio between peak and average load during the heaviest hour is about 2 to 1, so that under normal conditions we

have very heavy swings. The combined feeder capacity is generally considerably greater than the machine capacity. There is of course considerable diversity of load between the various feeders, though at times the swing on any one of the feeders may tax the machine. If there is no limiting resistance on the feeders, the swings in load may act to keep part of the machine resistance in circuit a considerable portion of the time, which will penalize all sections from the station. If some limiting resistance is used on the feeders, the penalizing takes place only on the section producing the overload condition. In the past, feeders have been provided with limit-

ing resistance, equipped with a thermostat to open the feeder circuit on excessive heating. The capacity of the resistance was set at a rather low figure, so that an undesirable interruption to service might take place. With the application of an automatic reclosing breaker which would absolutely keep the feeder open on a short, I believe the capacity of the load-limiting resistance could be increased and the thermostatic control of the feeder opening set either very high or eliminated altogether. This would be a compromise between the two extremes of resistance and no resistance on feeders and I believe this would be a desirable condition.

held. This particular means may well be extended to occasional meetings of the trainmen and in all such meetings the utmost freedom of discussion should prevail. In all such meetings, as well as in interdepartmental relations, a spirit of complete frankness must prevail if the best results are to be obtained. The day of secret meetings and confidential memoranda is past. No corporation, particularly no public service corporation, whose affairs are a matter of public interest and whose dealings should be an open book can successfully operate on any basis other than all cards on the table, face up, with employees and public. Where this policy is carried out in a public service organization the policies and ideals of the management will be reflected throughout the organization and the prime requisite of the successful manufacturer of transportation is summarized in two conclusions; first, a policy looking toward the rendering of the best possible service in all respects, and, second, complete frankness regarding all matters of policy and operation with employees and the public.

The report was signed by James P. Barnes, chairman; E. M. Walker and H. C. DeCamp.

Report of Committee on Merchandising Transportation

FOR the successful merchandising of any product three major divisions may be recognized:

First—Raw material: The raw materials of transportation are, of course, the general layout of the system, the provision of suitable rolling stock, track and power facilities, carhouse and shop equipment, etc., all of which is assumed to be complete and adequate.

Second—Manufacture: Given the proper raw materials, the working up of a satisfactory commodity for sale must be carried out by an efficient, well organized and properly trained manufacturing force, which in the case of a railroad company rendering transportation service is composed of the operating and maintenance departments, whose production schedule is fundamentally the properly planned schedules for operating trains suitable for transportation conditions and maintaining equipments, roadway and other facilities, together with the necessary supervisory force to assure that these schedules are maintained and corrected from time to time to serve the changing needs of the community.

Third—Sales: The sales organization of a transportation company should follow the same general lines as the sales organization of other successful corporations. General policies and methods of salesmanship must be determined and laid down by the head of the concern, general manager, or other appropriate officer. Department or division managers, or superintendents, will follow the general policies laid down by the head of the organization, applying them to the local conditions of their respective divisions or departments. The traffic supervisors would direct the transportation on the streets, and from the carhouses, and from the dispatcher's office. The motormen and conductors on the cars constitute the sales force in direct contact with our customers, the public, corresponding in the department store to the clerk at the counter, who actually handles the detailed transaction of sales.

The degree of public satisfaction and service rendered will depend almost entirely upon the manner in which the transaction of final sale is handled by the motorman and conductor on each car in the system. To a large extent, if not entirely, the attitude of the employee toward the public will reflect the attitude of the corporation officials toward the employee. Employees who are courteously and considerately treated will in general reflect this treatment in their attitude to the public. Courteous and considerate treatment on the part of a salesman in his dealing with a customer will produce that without which no railway or any other business organization can exist, namely, "good will."

No sales force can function properly without adequate instruction and training in detailed technic of its work.

Motormen should be properly and rigorously instructed in the handling of equipment and made to realize that the most economical method of operation, including maximum coasting and smooth stopping by proper application of air, is also the most comfortable operation for passengers.

The training of conductors should be along the lines of courteous but firm application of the rules of the company, care with regard to the collection of fares, issuing of transfers, calling of streets and the value of the voice with a smile. The training of platform men, particularly those already in the service, should be in full recognition of the fact that men engaged in the transportation business, as in any other business, honestly and sincerely desire to know the best means by which to perform their work in the most satisfactory manner.

Your committee believes that it is good policy for the platform men of the railway companies to be sufficiently informed as to the affairs of their company to be able to discuss intelligently with their acquaintances and with strangers the position of the company, not only with regard to its finances but as to the necessity for its rules and regulations. Rules and regulations founded on good principles of operation are not weakened by explanation or discussion but are on the contrary made better and more lasting in their effect.

All cases of complaint and suggestion regarding rules and regulations or other matters of operation are worthy of careful consideration and whenever possible direct reply should be made to the person making the complaint or suggestion, indicating either its adoption or the reasons for not complying with the suggestion.

Men selected for traffic supervisors should receive special attention and instruction in matters of general operation and should be encouraged to correct mistakes detected in the operation by individuals, rather than by complaint to the superintendent's office.

To the end of improving the technic of the entire organization frequent meetings of supervisors or inspectors for instruction and discussion should be

The Sales Work of Electric Railways

By HARRY L. BROWN

Western Editor ELECTRIC RAILWAY JOURNAL

At the last meeting of this association, held at Indianapolis, W. L. Goodwin gave an interesting talk about merchandising transportation and made the assertion that the street railway company is the only concern engaged in a large way in selling something to the public that does not have a sales manager. This is true, but the business is unique in another way. It is the only large enterprise in which the personnel employed in producing the commodity is also the sales force. This dual nature of the duties of trainmen is one of the circumstances that makes it difficult for a street railway company to meet its patrons with the proper sales spirit. The men have for years had impressed on them the necessity to get the cars over the road on time, to get the money and register it, etc., not to mention the sundry other duties. Undoubtedly those duties involved in the production side of the business are of first importance, for without a good product the best salesman on earth will have a hard row to hoe. Nevertheless, it may safely be said that much more attention may profitably be directed toward preparing the trainmen to carry out their duties as salesmen and constant representatives of the company.

What, then, are the strictly merchandising methods and sales activities that a street railway or interurban can employ to improve its business, assuming the service to have all the elements that go to make it good? The following list is suggestive and I shall discuss some of the points briefly; other points need no elaboration.

A. ACTIVITIES TO CREATE TRAFFIC

1. Sell the ride for the lowest possible sum commensurate with proper earnings.
2. Advertise attractions and points of interest on or near the system.
3. Advertise the weaknesses of the competitor by pointing to the corresponding merits of electric railway service.

B. ACTIVITIES TO ENGENDER GENERAL GOOD WILL

4. Keep telling the people of service improvements, in public addresses and through the newspapers.
5. Maintain an open-door policy and a friendly, willing, sincere attitude toward the public.
6. Go the limit in the endeavor to comply with the wishes of the public authorities; in fact, anticipate their wishes if possible.
7. Adopt the man-to-man plan of talking things over with those who represent the public in dealing with the company, and avoid a belligerent attitude and maintain a conciliatory one.

C. ACTIVITIES TO PLEASE CUSTOMERS ALREADY SECURED

8. Make good salesmen of the trainmen.
9. Keep the cars clean and bright.

1. The local transportation business is obviously destined to be one of the nature of the 5 and 10 cent stores—a tremendous volume of business at an exceedingly low unit profit. Selling the ride for a low fare is now assuming unusual and increasing importance because several things resulting from changing business conditions are conspiring to increase rapidly and to intensify the competition to be met by the electric railways. The first cost of automobile vehicles and the cost of gasoline, oil and tires have undergone substantial reductions, and the bottom has probably not yet been reached. Couple with this the fact that many men are out of work and that the

second hand car market is flooded with good cars at an unusually low price, and it is not hard to understand the important increase in the number of these automotive competitors all over the country.

The problem must be attacked not only by encouraging just legal restrictions but mainly on the basis of attempting to meet that competition with competitive sales methods. A high rate of fare is an invitation to jitneys to start or remain in business. A low rate of fare acts as a deterrent to them to start and it also provides about the most effective means of offsetting their competition.

Aside from the competitive aspect, there is no need to dwell on the advantages of a low fare as a means of inducing greater riding, though it is to be expected that the resulting increase in number of riders will not always be sufficiently large to produce an increase in the gross revenue. There is another aspect of this short-ride consideration, however, which is worthy of attention. The jitney is usually a short-haul carrier, particularly if left to its own devices. Consequently, anything the street railway company can do to attract the short-haul riders to the street car strikes a telling blow. So it may be that where a system-wide reduction in fare cannot be justified, the establishment of a low rate for the central district will suffice to meet the competitive aspects of the business. Such experiments are now being made in Boston, Cleveland, etc.

But while the merchandising aspect of the low rate of fare is important, it is perhaps transcended in importance just now by the prospect of increasing competition. For this reason, if no other, it is my personal view that the electric railway companies will do well to take such steps as will make it possible to produce a ride for a smaller fare than the average now in force. In other words, the cost of operation should be brought down so that the fares may logically be reduced. Some of this reduced cost can be secured through a reasonable reduction in the rate of wages, keeping in mind that electric railway trainmen should be considered, in the future if not in the past, as skilled labor. More reduction can be secured by checking up on the practices of every department with a view to eliminating any waste and producing better efficiency all along the line. If the desired results are not obtainable through this process and by virtue of lowering costs of materials and supplies, then (and perhaps anyway) the industry must face the necessity to make some radical departures from present operating practices—perhaps a great expansion of one-man operation both on safety cars and on present double-track cars, or something else having an equally important effect on the operating ratio, and making possible lower fares.

The company that has no jitneys now can thank its lucky stars, but it will make the most of that advantage if it

recognizes the potential danger and meets that competition before it begins—meets it with low fares and in other ways.

2. This means of creating traffic by advertising attractions and points of interest is well illustrated by the accompanying samples of the work that is being done along this line this season by the Chicago Surface Lines. This form of merchandising rides is quite generally used and its value is seemingly well recognized, but more can be done.

3. As to how to advertise, the street car or interurban has many advantages not possessed by the automotive vehicle—at least to date—upon which the railways could base good advertising copy designed to set people thinking. For example, let the street railway advertise its organized responsibility, the financial protection it affords in case of accident, the reliability of the service, the comfort of the ride, absence of the indecency of crowded jitneys, the courtesy and trustworthiness of employees and the protection they afford passengers, absence of wild and reckless drivers, frequent inspection of the equipment to insure safe operation, etc. This kind of advertising can very well be carried on in the newspapers as well as in the cars. It should not point out directly the weaknesses of the competitor, but by pointing out significantly the advantages of the electric railway,

ARTISTIC COLORED POSTERS ARE NOW USED IN CHICAGO

THE ZOO AND THE FIELD MUSEUM MAKE GOOD ADVERTISING COPY

the inference will be obvious and the point will strike home without offense. Then, too, it should be remembered that in this business, as in any other, it is the persistent advertiser, the one who keeps plugging away and telling his story over and over in as many ways as he can, who derives the real value of his advertising expense.

8. Making good salesmen of the trainmen is the particular phase of the problem of merchandising transportation that is dealt with in the very able report of the committee headed by Mr. Barnes, and which forms a sequence of his particularly valuable paper presented before this association at its last meeting. I will take time for just a suggestion or two along this line, to supplement what is contained in this committee report.

Would it not be well to do more along the line of injecting the spirit of contest into the training? Give a worthwhile prize to the trainmen who gives the best account of himself along these lines. Something along the line of the politeness campaign conducted on a daily prize basis by the *Chicago Tribune* for the general public over a period of several weeks and attracting a great deal of attention and newspaper comments from remote cities is what I have in mind. This would put the trainmen "on their toes" on this phase of their work, and it would also create a good deal of public interest and favorable newspaper comment.

This would also put new interest in the work for a time, and, as a means of overcoming the humdrum and affording a variation from the "continual lecturing" which the trainmen on many properties undergo, is a good thing. Too often, the line of talk given to trainmen holds up some inducement for better work, some half-promise, the fulfillment of which is so remote as to offer no inspiration for renewed vigor, if indeed it does not actually react to discount the sincerity of the speaker. An example of this is the suggestion often made that if the expenditures involved in accidents were reduced through more careful operation, this money would be available for increased wages. This may be said in sincerity, but with the average company there are so many places, ahead of increasing the payroll, for any possible spare money, that the likelihood of any increase in wages because of a lowering of the accident account is very remote.

IS THERE NEED FOR A SALES MANAGER?

From the above incomplete outline of the strictly sales work that may be profitably undertaken by the average electric railway company, does it not seem that there might really be a place in the organization for a sales manager, as suggested by Mr. Goodwin? Here are presented quite an array of activities that are only incidentally part of the duties of any of the present department heads, and which at best are handled as more or less of a side issue by the general manager, whose time is so thoroughly occupied with matters

more pressing than these merchandising considerations. The average street railway company does not have any one whose primary duty it is to concentrate a good deal of effort on the upbuilding of the company's good will and the expansion of its business. I am inclined to believe that a sales manager with the proper personality and viewpoint, and having specifically in charge the sales work of the company along the lines indicated herein, would make a very valuable addition to most street railway organizations, his duties even including the conduct of a sales school through which the student trainmen would pass after completing their training under the operating department.

Competition and Co-operation

By W. S. RODGERS

General Traffic Manager Detroit
United Railway

Merchandising of traffic by electric lines is a feature of our business which calls for stronger efforts at present than we have put forth during the past few years, as the picking is thinner and the competition more keen. We are confronted with changing methods of transportation which must be reckoned with, such as jitneys in the cities, buses in the country and trucks handling the short-haul freight. Added to these new forms of competition, we find the steam roads now fighting for the short-haul traffic which they scorned during wartimes.

In order to curb the wildcat motor truck and bus competition, we must continue to exert our efforts toward securing the enactment of regulatory laws to stabilize the various forms of automobile lines of transportation. This can be accomplished by proper publicity methods showing the injustice of cities permitting jitneys to run on the streets over which car lines are operated and competing with established lines of transportation by operating at their pleasure, charging what they will and not contributing in the same proportion as the car lines to the upkeep of the streets and in taxes.

The same method should be followed in dealing with the auto bus and truck competition on the country highways. We must show the state and county officials as well as those who are paying the expense of building and maintaining the highways the damage that is being done to them by the constant use of the roads by heavy vehicles which are deriving a valuable revenue from the handling of freight and passengers without paying their just proportion of the cost of furnishing the right of way needed for their operation. We must, however, recognize this class of competition and it must be met by supplying the class of service that will defeat it or keep it at a minimum.

Our equipment is more comfortable than the average jitney or bus and, if we can furnish frequent service and seats to passengers, I believe the loss of traffic to that class of competition will be greatly lessened. I am of the opinion that the ultimate end of the truck

competition for distances over twenty or thirty miles will be by co-operation between the trucks and the electric lines to the extent of the former performing the pick-up and delivery service in the terminals and the latter handling the freight over the road, as it is obvious that the railway can perform the service of hauling much cheaper than the trucks and the most economical method of transportation is bound to prevail in the end.

Our lines started negotiations a year ago with representatives of the truck companies formerly operating between Toledo and Detroit with the idea of working out such an arrangement, but the proposition was dropped when the industrial depression began because the trucks were forced to cease all operations on account of the absence of business.

The question arises as to whether or not we are using all the means at our command for the purpose of advertising our wares. We sell the advertising space inside our cars and use very little of it ourselves. The front end space which is open to the whole community through which the cars travel goes unused to a very large extent. These are valuable mediums for setting forth our advantages and should be kept busy at all times in telling the public the attractive features of the service we are furnishing in a plain and interesting manner.

Through car service over connecting lines giving long distance service without the transfer of cars for both passengers and freight is one of the surest and easiest ways of attracting business, especially the long-haul traffic, to electric lines and this is the class of traffic we must especially cater to, if the automobiles are to continue making inroads into the short-haul business.

Another class of traffic to cultivate is that which can be handled in conjunction with the steam roads. The old time hostile attitude displayed by these lines toward the electric line industry shows signs of disappearing and we should do everything in our power to cultivate through arrangements with the steam roads and the joint handling of both classes of traffic.

To succeed in selling our wares we must give the best service that is possible to furnish, as service is the foundation on which all of our efforts to sell are based and is what counts for the most in the long run. Service in its full sense includes suitable accommodations in the form of stations, equipment, proper schedules and courteous employees. Too much emphasis cannot be placed on the necessity of educating the platform men, who are our final salesmen, as well as every one else from the president to the office boy and laborer, of the reward of the virtue of a pleasant smile and civil treatment to all with whom they come in contact.

We must instill in the minds of all that every one connected in any capacity with the operation of the railroad is selling transportation directly or indirectly.

We should be keen to study the requirements of our patrons and endeavor to the best of our ability to supply the kind of service they require even though it means the rearrangement of schedules and working conditions. We should also study the business policies of our competitors with a view of meeting them and not allowing them to eclipse us by more advanced methods or by supplying the public in a manner that we ourselves should do. It is very helpful in ascertaining what our competition is, to create a habit among all of our force of reporting to the proper officer any new service of our competitors which they find commencing operations and any suggestions of a general character for the improvement of the service which may occur to them. Too often such communications are received and filed away without even being acknowledged. This is the wrong course if we are to encourage co-operation from the force. Every idea presented should be considered and adopted or declined on its merits and an explanation given to the one offering the idea if it is deemed inadvisable to adopt it.

The Satisfied Employee

By GUY H. KELSAY

Superintendent of Power and Shops, Cleveland, Southwestern & Columbus Railway, Elyria, Ohio

Would you select the agency for an article if you knew that the organization of selling and manufacturing forces was poorly managed and backed by a loose, irresponsible corporation; if the departments in the company were selfish and jealous; where the spirit of the individual worker has been crushed to such an extent that he has no interest or pride in the finished article? Of course you would not, because it is not possible for a firm to put out a good article under such circumstances.

The key to a fulfillment of the ideas of Mr. Barnes and the committee is certainly supplied by an interested and satisfied employee. A man cannot work as a machine and have the spirit that is necessary to be a part of a successful organization. Your committee has very plainly stated that the time of "secret dealings" is over, and we must take each other into our confidence, and the employees to the last man should know and be interested in the multitude of affairs of the company other than the exact line along which he is spending most of his time so he may consistently be an enthusiastic supporter and advocate of the spirit of good will between his company and the public.

We should not fail to realize that an opinion freely expressed by an employee among his neighbors will carry more weight than weeks of pleading from the officers of the company through the channels that they must use to reach the patron. A very definite illustration recently came to my attention. A workman complained and criticised the company because he was not furnished material and help to renew and repair the particular part of

equipment in which he was interested. In response to an explanation to this employee that the company earnings were not sufficient to meet all its needs, a very prompt reply was received, "Why I saw in the paper where the company's earnings last year were ——— hundred thousand dollars over the previous year." It was true that the report of the board of directors did appear in the daily paper giving the increase of gross earnings but failed to convey with equal force the much greater increase of operating expenses.

It is certainly our duty to censor the articles that go to the public and equally important that the employee gets a true impression of the facts. All our troubles are caused by a lack of knowing the facts, and if we "think out loud" or "lay the cards face up" every one will know that we do business that way and the matter of confidence and straight dealing in our own organization and with the public will be an established fact and patrons will soon be receiving bits of plain facts from our interested and satisfied employees. It takes a very big individual not to be selfish, egotistical or jealous to some little degree. The committee calls to our attention the importance of frankness in meetings and inter-departmental conferences. All parties to such gatherings must certainly be free to listen and exchange ideas without a trace of selfish or jealous rivalry.

Meetings with employees have often been conducted by individuals who were not qualified to obtain and maintain a free and interested discussion from workmen of all ranks, and these result in a frozen spirit. Suggestions from an employee may be ridiculed or ignored and this develops in him a dislike for such meetings.

We will sell our transportation just in proportion as we sell the idea to our employees who are our salesmen. We have all some time in our experience had to deal with a co-worker who liked, or thought it his duty, to call to the attention of the superintendent or manager the other fellow's shortcomings or small department matters rather than to be big enough to take the matter up direct in the right manner with the department. As long as individuals with this sort of spirit are in an organization the highest success is not realized. It is natural for one to like to do what is right but not so natural to want to do it because he is "jacked up by the boss."

Much has been said and written during the past five or six years to justify the terrific costs of transportation, and much has been talked and written during the past year to soothe our own feelings and the financial interests back of our properties, that we are nearing the "promised land" of lower operating costs and that we are to receive just recognition of the importance and necessity of adequate fares from the public and sanction from commissions. One of the "lower operating costs" is labor, but the reduction of wages to the average employee can-

not be other than disappointing, even though the increased wage that has been paid was justified in the main by the increased cost of necessities which are now coming down in price. But many employees in all classes of service have meanwhile unconsciously changed their standard of living, which makes it only the harder to see the justice of wage reduction, so it will be incumbent upon the managements to be most untiring in their efforts to handle this delicate subject in order to maintain the maximum of loyalty and whole-hearted support from the employees.

There must be a freer exchange of ideas between men who know and there must be a freer acceptance of ideas by men who do not know. The managements of properties must delegate their engineering matters to men who know engineering, their traffic matters to men who are students of traffic, and their equipment maintenance to men professional in their line, and all must work together with a corps of boosting and loyal workers, loyal because they believe in the policies of the company they are working for. Then we will sell our transportation.

Merchandising Transportation

By BERT WEEDON

Traffic Manager Indianapolis & Louisville Traction Railway Company, Indianapolis, Ind.

The great transportation systems in our large cities, serving millions of people daily, are indeed important factors in the growth and welfare of the cities served. Cities may be likened to human beings, in that the transportation system of a city is as important to the life of that city as the arteries are to life in a human body.

Cities, as a whole, apparently do not realize or consider the importance of their transportation systems. Unfair treatment by city government of the city's transportation facilities not only affect adversely the transportation facilities, but also affect adversely the citizens of that city. The report of the committee deals with this subject on the basis of "merchandising any other commodity."

In a general way this is true, but let us look into the subject from this viewpoint. Is there a manufacturing concern in Chicago, St. Louis, Cincinnati, Cleveland, Louisville or Indianapolis that carries the heavy investment for producing its product as do the transportation companies of these cities? How often does the manufacturer turn his capital? How often does the transportation company turn its capital? In the average manufacturer's business, and the average transportation company's business, what is the difference in the relative ratio of net profit? But let us not enlarge on existing conditions more than to bring ourselves to realize the importance of the work in hand.

Selling our product, whether it be city street car transportation or inter-urban transportation, is perhaps one of

the most, if not the most, important part of our work.

The training of employees in this work is surely very essential to the success of any property. From the pick and shovel to the president's office requires more gray matter than we realize. The committee reports that co-operation and co-ordination of all departments is important. This is absolutely necessary. General policies and sales methods should be determined by the executive in charge of this work. Extreme care and rare judgment should be exercised in determining these policies. To educate men to carry out these general policies costs vast sums of money each year.

It has been very truly said that the transportation company is largely judged by its platform men. The conductor and motorman are the salesmen who meet the public face to face. Do we realize the importance of personal contact with these men? Do we know their trials and difficulties? Are we giving these men the support they should have in order that they may deliver to us the success we demand?

Every man connected with a transportation company is a public servant; and when new men are placed on our pay rolls, they should be educated carefully in their duties, to the end that they may deliver to the public the service they demand.

The question is asked, How shall this be done? There are many theories offered, and many are worthy of consideration. The report of the committee covers this subject conclusively.

The matter of publicity is also an

important factor. The transportation systems of the entire country are suffering from a lack of honest, straightforward publicity. Tell the public the truth. Does the public know the efforts that are being made to create and maintain the service they demand? Does the public know the cost of such service? Does the public realize that, because of adverse legislation, both by states and cities, the average investor refuses to buy public utility securities? Does the public know that petty politicians use the transportation facilities of their cities and states as food to stir up hatred and animosity? Do we realize that we have all of these problems to meet, and if so, how are we meeting them? Publicity and lots of it is necessary. Let the people know our troubles. Impress upon them the importance of their transportation system and of their duty to this system. How long can any great city exist without transportation?

Let us look well into our organization. Is it a real organization? Does the head of every department have his duties clearly outlined? Are the departments co-operating properly? Are the employees in each department being properly trained and educated to carry out their portion of the programs? Are we making future heads of departments in our own organizations? Are we endeavoring to fit our whole organization to meet the public squarely and fairly in the discussion of policies and rules which affect the public?

Further discussion on the Merchandising Transportation report will appear in an early issue.

ten each to compete in the sale of the stock to the public, and the cities were divided into districts to be assigned to the teams. After the team organizations had been maintained for about three months a separate securities department of the company was organized. The manager of each operating company was made responsible to the manager of the securities department for the sale of securities by his company. The department selected from the employees who had made the best record a corps of salesmen who were put permanently on the department payroll. The team organization was abandoned, but the company continued to pay a bonus of \$2 per share sold.

Our experience shows that the average original sale is three shares. A map on which a tack indicates each sale demonstrates that where one sale is made others follow in the same vicinity.

The better knowledge of the affairs of the company secured by the employee who becomes a stockholder and salesman and the customer who becomes a stockholder is a great asset to the company. It is necessary, however, that a company protect the investment of investors in its securities, otherwise ill will is bound to result.

Another Utility Information Bureau Formed

ON JUNE 15 the Georgia State Utility Information Bureau was formed in the interests of the companies in that State. L. K. Starr, formerly assistant city editor of the Atlanta (Ga.) *Journal*, was elected as the director. George T. Smith, Augusta-Aiken Railway & Electric Company, is chairman of the bureau.

On June 17 Labert St. Clair, director of the American Association's advertising section, met informally with the bureau and others interested in the railways in the southeast for a conference. The purpose of this conference was to show how the advertising section could materially aid these companies in their campaigns. It also gave Mr. St. Clair first-hand information as to some of the problems confronting the traction industry in this part of the country. W. P. Strandborg, publicity department, Portland (Ore.) Railway, Light & Power Company, and an officer of the Associated Advertising Clubs of the World, also attended the meeting. He spoke of the desirability of having a utility section in the Associated Advertising Clubs.

Among those who attended the conference, which was held at the offices of the Georgia Railway, Light & Power Company, were L. LeMay, Memphis (Tenn.) Street Railway; P. S. Arkwright, Georgia Railway & Power Company; W. J. Baldwin, New Orleans (La.) Railway & Light Company; C. R. Winston, Virginia Railway & Power Company; George T. Smith, Augusta (Ga.) Aiken Railway & Electric Company, and E. C. Stothart, Charleston (S. C.) Consolidated Railway, Gas & Electric Company.

Sale of Securities by Utilities*

By H. E. WEEKS

General Manager Securities Department, United Light & Railways Company, Davenport, Iowa

IN THE beginning the financing of public utilities was cared for by public-spirited citizens. Gradually control passed into the hands of bankers, located in the financial centers, or clients whom the bankers were able to interest. As long as the utilities were controlled locally the personal contact of the owners with the customers did much to prevent misunderstanding.

When customer ownership of securities marketed by the utilities was first advocated it met with considerable opposition from the investment bankers, who rightly felt that the utilities owed them something for carrying them through the development period. The opposite is now true.

The high cost of money has done much to promote customer ownership of securities. High rates for money are more important to utilities than to enterprises where money is turned over frequently. Their financing is made difficult also by the tax exemption feature of government and municipal

securities. The *Wall Street Journal* recently estimated that there are \$14,000,000,000 of tax-exempt securities in the country, exempting \$700,000,000 of income from our greatest direct tax.

The United Light & Railways Company operates seventeen companies serving 600,000 people in over fifty cities and towns. Some time ago the company decided to offer its securities to employees and the public and the board of directors offered for sale \$2,000,000 of 7 per cent preferred stock at par. The stock was offered to the employees either for cash or on the installment plan. An employee was allowed 25 cents per share for each year he had been in the company's employ. If he was ill from six days to six months during the nineteen-months period of making payments his payments were made by the company and if he died a fully paid certificate was issued to a designated person.

The stock was offered to the public through employees only at par for cash or on the installment plan.

The employees of each of the large companies were organized into teams of

*Abstract of a paper read before joint meeting of the Iowa Electric Railway Association and Iowa Section, N.E.L.A., Spirit Lake, Iowa, June 23, 1921.

First Convention of the New International Association

THE first convention of the new Internationale Strassenbahn und Kleinbahn Verein took place in Vienna May 29 to June 3. It will be remembered that this association, comprising the companies and individuals of several Central European countries, was formed six months ago for the purpose of an exchange of experiences. The new association in no way intends to be in opposition to the Union Internationale, and a connection between the two is maintained by a number of members, like those in Holland, Norway, Sweden and Denmark, which are also members of the Union Internationale. The meeting in Vienna was attended by delegates from the countries as well as from Rumania and Jugoslavia. At the conclusion of the meeting these officers were elected:

President, Ludwig Spängler, manager of the Vienna Municipal Tramways; vice-president, Dr. Frederick Wussow, president of the Association of German Tramways and Interurban and Privately Owned Railways; secretary, Dr. Arthur Ertel, Vienna; executive committee: For Germany, Max Dräger, Berlin; Mr. Löwit, Manheim; Otto Hubrich, Essen; for Denmark, Kai Norregaard, Copenhagen; for Holland, Mr. Van Putten, Amsterdam; for Norway, Jörgen F. S. Barth, Christiania; for Sweden, Einar Hultman, Malmö; for Switzerland, Hermann Geiser, Schaffhausen; for Hungary, Wilhelm van Ghatel and Mr. Von Sztrokay, Budapest; for Czecho-Slovakia, Oscar Hausmann, Gablonz.

Standards Secretaries Meet

A CONFERENCE was recently held in London of secretaries of the national standardizing bodies. The conference had for its object the interchange of experience and the furtherance of co-operation among the several national bodies in their work of industrial and engineering standardization. Arrangements were perfected for closer co-operation between the national standardizing bodies and the International Chamber of Commerce, which was to give special consideration to standardization at its convention scheduled to be held in London during the week of June 27. Belgium, Canada, Great Britain, Norway, Switzerland and the United States were represented at the conference.

Association Meeting

Pacific Claim Agents' Association

At the last annual meeting of the Pacific Claim Agents' Association it was decided that the twelfth annual convention of the association be held at Butte, Mont., on Aug. 18, 19 and 20, 1921, provided these dates were satisfactory to the membership. At the executive committee meeting the following subjects were assigned:

"New and Recent Improvements in Car Construction Designed with the Object of

Eliminating Accidents," H. C. Winsor, superintendent of investigations and adjustments, Tacoma Railway and Power Company, Tacoma, Wash.

"The Importance of Claims Department Statistics and What Statistics Are of Most Value," J. H. Handion, claim agent, U. R. R. of San Francisco, San Francisco, Cal.

"The Value of Moving Pictures as a Means of Exposing Malingerers and Fraudulent Claimants," C. M. McRoberts, general claim agent, Los Angeles Railway Corporation, Los Angeles, Cal.

"The Modern Trend of Workmen's Compensation Laws and the Effect that Such Laws Have upon Employees Who Have Minor Accidents," P. O. Solon, claims attorney, San Francisco-Oakland Terminal Railways, Oakland, Cal.

"Publicity in Connection with Accidents, Claims and Litigated Cases," W. H. Moore, claim agent, San Diego Electric Railway, San Diego, Cal.

"The One-Man Car and its Effects on the Traffic Hazard," Thomas G. Ashton, claim agent, Washington Water Power Company, Spokane, Wash.

"Co-operation with the Public in Accident Prevention Work," B. F. Boynton, claim agent, Portland Railway, Light & Power Company, Portland, Ore.

"The Doctrines in Law of Contributory Negligence and Last Chance Doctrine as now Applied to Accident Cases," Fred F. Furman, attorney, Butte Electric Railway, Butte, Mont.

"The Genteel Fakir," F. J. Lonergan, attorney, Portland Railway, Light & Power Company, Portland, Ore.

"Methods of Collecting from Owners of Foreign Vehicles Who Have Injured Company Employees While They Were at Work Policies Pursued by Member Companies in Handling Claims of Employees Injured While Not at Work," S. A. Bishop, general claim agent, Pacific Electric Railway, Los Angeles, Cal.

"Methods of Following up Claimants and Witnesses to Accidents," J. W. Grace, claim agent, Sacramento Northern Railway, Sacramento, Cal.

"How Can the Personnel Department of a Company When Hiring and Training Employees Assist in the Prevention of Accidents," J. S. Mills, superintendent of personnel, San Francisco-Oakland Terminal Railways, Oakland, Cal.

"Suggested Legislation Governing Grade Crossing Accidents and Other Methods of Preventing Such Accidents," A. M. Lee, claim agent, Northern Pacific Railway, Seattle, Wash.

American Association News

Safety Campaign Suggestions

THE American Association's advertising section of information and service has just issued an illustrated twenty-page pamphlet on safety campaign suggestions. The booklet shows how electric railways working through employees, the general public, school children, motor car drivers and others, can prevent accidents and save money not only to the railways but especially to themselves. More than 200 slogans and catch lines for car cards, blotters, posters and advertisements are given for the benefit of the electric railway official who has to write advertising copy. As one official puts it: "It is one thing to plan a safety campaign and start the ball rolling, but to make it successful—to make the dreams come true—calls for 95 per cent perspiration."

Final Touches Put on Buildings and Structures Committee Report

THE buildings and structures committee of the Engineering Association held a meeting at the Emerson Hotel, Baltimore, Md., June 13 and 14. Those present were D. E. Crouse, Rochester & Syracuse Railroad, chairman; N. E. Drexler, Newport News & Hampton Railway, Gas & Electric Company, and J. R. McKay, Indiana Service Corporation. The chairman of the sub-committee on design of a typical shop presented his report and explained the details of the several conferences which have been held with the equipment committee. This report was reviewed and prepared for final submission to the other members of the buildings and structures committee. The sub-committee on equipment for prepayment and postpayment of fares submitted a report which represented the views of Mr. Hughes of the Transportation and Traffic Association and of the

buildings and structures committee. This report was also put into final form for submission to the general committee.

A draft of the probable nature of the joint report on the subject of wood preservation was presented by the chairman of that sub-committee and was thoroughly discussed. All reports will be put into final form as soon as possible for submitting to the various members of the committee.

Chicago Elevated Section Holds Final Session

H. M. CRUNDEN, special agent Illinois Bell Telephone Company, was the principal speaker at the last meeting of company section No. 6, held by the Chicago Elevated Railroads on June 21. The warm weather kept down the attendance to eighty. Mr. Crunden, in an illustrated talk on "The Progress of the Bell Telephone Company," outlined the steps in the training of its switchboard operators. He also elaborated on the complexities of the modern switchboard and described the methods of combating sleet storms. High tribute was given to employees of utility companies because of the efforts they always put forth to serve and please the public.

New Monthly Bulletins Available

THE following reports and compilations are available to member companies upon request:

- Summarized Income Statement and Operating Statistics of 60 Companies.
- Motor Bus Operating Costs.
- Some Franchise Requirements.
- Fare Reductions and Causes.
- Cost of Living Studies.
- Wage Reductions and Causes.
- Supplement to Fare Bulletin.
- Supplement to Compilation on Jitney Regulation.
- Supplement to Compilation on One-Man-Car Legislation.

News of the Electric Railways

FINANCIAL AND CORPORATE :: TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

Unified and Concentrated Control Essential to Success

The members of the committee of Aldermen from Chicago who recently made a tour of large cities in the West presented their report to the local transportation committee of the City Council on June 30. They gave a brief résumé of conditions in Kansas City, Denver, Los Angeles, San Francisco, Portland, Ore.; Seattle, Vancouver, Minneapolis and St. Paul.

Their conclusions were as follows:

1. The present method of private ownership and operation qualified by public regulation has resulted in a division of control among numerous governmental and private agencies, and has led to confusion, wasteful litigation and ultimate disaster, as evidenced by the experience of Kansas City and Denver.
2. The operation of the street railway lines by the municipality in San Francisco has proved satisfactory to the people of that city.
3. The acquisition and operation of the street railways in Seattle has not proved satisfactory.
4. Rates of fare are necessarily determined by the character of service rendered, quality of management and the cost of financing, and the lowest rate of fare compatible with the best service can be secured only by the most efficient management and the most economical financing.
5. The most efficient management can be had only by unifying and concentrating control and management of the street railways, and the most economical financing by the issuance of securities that will absolutely assure payment of principal and interest.

\$200,000 ALLOWED FOR INQUIRY

On recommendation of the committee, Chairman Schwartz decided to appoint a sub-committee to make a study of the traction bills which failed of passage in the last Legislature and to engage legal counsel to decide on a course of action for the coming special session of the Legislature.

The City Council failed to allow Mayor Thompson's requested appropriation of \$315,000 to prosecute cases against the transportation and telephone companies, but did allow \$200,000 for this purpose.

Publicity Department Continued Unchanged

Electric Railway Service, issued by the Detroit (Mich.) United Railway, suspended publication with the issue of June 17, and while no definite announcements have been made, the company will continue its publicity department. A. D. B. Van Zandt, the company's publicity agent, and C. A. Drummond, associate editor of the paper, will devote their time to important matters which have developed in their department.

As noted previously in the *ELECTRIC RAILWAY JOURNAL*, changed business conditions resulting in reduced revenues with the necessary corresponding reductions in expenditures and the practice of every economy possible are

among the reasons given for suspending the publication. Among these economies is the saving in printing costs.

Franchise Modifications Suggested

Former Cincinnati Director Points Out Weaknesses Discovered by Him in Local Grant

Drastic changes in the service-at-cost franchise governing the operation of the railway system were urged by William C. Culkins, former Director of Street Railways at Cincinnati, Ohio, in his annual report for 1920.

While Mr. Culkins gave his support to the service-at-cost plan as being sound of principle, he urged modifications in the ordinance which would give the city more power and a better method of enforcing its orders.

FORFEITURE CLAUSE ASSAILED

The forfeiture clause in all railway franchises was assailed by the former street railway director. He asserted that a very weak point of this clause was that in order to gain a forfeiture of franchise the operation of cars would have to stop.

Mr. Culkins also urged that the Rapid Transit Commissioners work out a system linking up the surface lines with the proposed transit loop. Mr. Culkins said that a new grant could be made for the full period that the present franchise has to run.

Mr. Culkins advocated a larger reserve fund for the Cincinnati Traction Company. In the fixing of fares, Mr. Culkins said the city should have the right to make the rate sufficient to cover the cost of service, instead of being restricted by fixed grades. Conversely Mr. Culkins said there also should be a provision whereby the city and company might at any time agree to withhold an increase in fares if economic conditions warranted, despite the technical requirements of the ordinance.

Furthermore Mr. Culkins said the expense of the street railway commissioner's office should be paid out of the operating expense, with ample allowances for the employment of all the experts and other assistance.

Either in connection with the ordinance revision or otherwise steps should be taken at once for the proper unification of the rapid transit system with the surface lines. Mr. Culkins also recommends in his report that the Rapid Transit Commission make a study of the development of a system of motor trucks or trackless trolley feeders to connect with the stations of the proposed system and such laterals as might in that event be found desirable.

Nothing Tangible Accomplished in New Orleans

It was generally believed that the railway settlement plan of Commissioner of Finance Murphy of New Orleans, submitted some days ago and indorsed by the Association of Commerce and the representative business men of New Orleans, would receive favorable consideration at the meeting of the Commission Council on June 28 or that the discussion might be followed by the adoption of some such plan of action in a modified form. To the surprise of not a few, however, nothing tangible was accomplished. Mayor McShane lectured the members of the Commission Council who differed with him in the stand which he anticipated they were about to take on the Murphy plan.

It was finally decided to reopen the question, *de novo*. This will delay action on the matter.

The citizens' advisory committee of forty, which was appointed by Judge Foster, whose report was turned down when submitted to the Commission Council, has been invited to confer with the Council again and help the Mayor and the Council arrive at some practical, satisfactory and enduring plan of action. The anti-8-cent fare committee and other bodies were included in the invitation.

HEARINGS LESS STORMY

Commissioner of Public Utilities Maloney, at the conclusion of the session, said that "the public utility mess appears to be in a worse state than ever." He failed to see where the Council could get anywhere so long as such tactics were pursued.

Federal Judge Henry D. Clayton has agreed to set July 8 as the date for hearing the petition of the railway to make permanent the injunction granted several months ago by Judge Clayton, restraining the city from interfering with the collection of 8-cent fares by the city.

The conference held on July 1 between the City Commissioners and the representatives of the committee of forty and the civic and commercial organizations of the city resulted in the adoption of a resolution providing that a committee of one from each of the organizations present meet the Commission Council on July 7, for the purpose of helping shape some definite plan of action.

Expressions of opinion from these various bodies disclosed no pronounced feeling unfavorable to the valuation placed upon the public utilities property by the committee of forty appointed by Judge Foster. The proceedings were unlike the stormy scenes that enlivened last Tuesday's meeting.

Arbitration Board Award Less Than Company's Proposal

Wages have been fixed by the arbitration board for the trainmen in the employ of the Northern Ohio Traction & Light Company, Akron, Ohio. The decision was rendered on June 30. The new rates are to continue from May 1, 1921, for one year. Rates of pay for the various classes of service are as shown in table below.

All regularly scheduled runs are to be as near ten hours as possible and not more than 10 per cent of regular schedule runs are to exceed ten hours and thirty minutes, and no run is to be scheduled in excess of 12½ hours. Nothing contained in the award is to affect the present working conditions as to layover time. The maximum number of hours which any motorman or conductor may be called upon to work in any calendar day of twenty-four hours, are to be as fixed by statute of the State of Ohio. Any motorman or con-

INTERURBAN

Consisting of motormen, conductors and trainmen of the A. B. C. Division, Canton-Akron Division, Canton, New Philadelphia and Uhrichsville Division, and Akron, Kent & Ravenna Division.

First year's service.....	48 cents an hour
Second year's service.....	50 cents an hour
Third year's service and thereafter	53 cents an hour

SUBURBAN

Consisting of motormen, conductors and trainmen of the Akron, Barberton & Wadsworth Division.

First year's service.....	44 cents an hour
Second year's service.....	46 cents an hour
Third year's service and thereafter	49 cents an hour

CITY LINES

Consisting of motormen, conductors and trainmen of the Akron City, Canton City and Massillon City.

First year's service.....	43 cents an hour
Second year's service.....	45 cents an hour
Third year's service and thereafter	48 cents an hour

ductor working a regularly scheduled run of less than eight hours is to be paid for nine hours.

Other points made in the ruling are as follows:

Whenever any schedule may be improved by shortening the hours and bettering the runs, without curtailment of the service demanded by the public, the association shall have the right to have such changes made in such schedule.

The merit and demerit plan of discipline now in force on the A. B. C. and A. K. R. Division shall be continued to Jan. 1, 1922, with the understanding that all lines under the Northern Ohio Traction & Light adopt the merit and demerit system on or before Jan. 1, 1922. Should they fail to adopt same, then the merit and demerit system shall be inoperative on all lines.

The matter of the renewal of the wage contract between the men and the company came up for settlement about April 1. No agreement was reached relative to the wages and on May 1 the company put into effect a reduction of 15 cents an hour. This was followed by a seven-day strike after the men had refused to submit to arbitration.

An offer from the International Amalgamated Association was followed by the men agreeing to return to work at a 15-cent reduction with the understanding that the question of wages and the number of working hours, together with the merit and demerit

system, be submitted to arbitration. The company appointed Charles Currie as its arbitrator, the men selected E. L. Crawford, East Liverpool, to represent them and the Governor of the State selected F. S. Harmon as the third man or referee.

Under the reduction of 15 cents an hour from the scale then in effect which was suggested by the company, the wages in cents per hour would have been as follows:

	City Lines	Suburban Lines	Interurban Lines
First year.....	44	45	50
Second year.....	47	48	52
Thereafter.....	50	51	55

This offer of the company proposed that 3 cents an hour additional over the city scale be paid for the operation of one-man city cars.

Muddling Through in Washington

Municipal ownership of the electric railways in the District of Columbia is advocated in a bill which has been reported favorably to the District of Columbia committee of the House of Representatives. The favorable report comes from a subcommittee of the District committee. The municipal ownership bill had a margin of only one vote in the subcommittee.

The subcommittee has initial jurisdiction over bills affecting electric railway traffic. Various other bills pending before the subcommittee were reported to the full committee without recommendation. Among these bills was the Woods measure which proposes to levy an excess profits tax on the earnings of the Washington Railway & Electric Company and the Capital Traction Company after a fair return on their valuation has been allowed.

The subcommittee took no action on the bill now before the Senate which proposes to give the Potomac Electric Power Company the right to merge with the electric railway companies.

Col. Charles W. Kutz, chairman of the public utilities commission of the District of Columbia, has announced a public hearing for July 14 to consider rates of fare. In that connection William F. Ham, president of the Washington Railway & Electric Company, declared that he would ask for a zone system of fares if the commission should reduce the present rates.

Eight-Cent Wage Reduction.—Representatives of the Monongahela Power & Railway Company, Clarksburg, W. Va., and representatives of the Amalgamated Association have reached an agreement on the wage scale for the coming year. The men have accepted an 8-cent reduction on the hour. The scale that formerly existed was from 51 to 62 cents an hour for work in the city, while that signed ranges from 43 to 54 cents. The old scale for interurban work ranged from 51 to 63 cents an hour, while that signed fixes rates at 43 to 55 cents.

Railroad Commission Recommends Improvements

For relief to Pacific Electric Railway's traffic problems in handling its Hollywood local service to and from Los Angeles, a tunnel outlet westerly from the Pacific Electric Hill Street Terminal to Figueroa Street, was recommended on June 15 to the State Railroad Commission by its chief engineer, Richard Sachse. His recommendation was the result of an investigation conducted by him in conjunction with the Chief Engineer H. S. Osborne, Jr., of the Los Angeles Board of Public Utilities. The report of the engineers was submitted at a hearing in Los Angeles before the Commission, consisting of Commissioners Brundige, Loveland and Benedict.

The investigation of passenger service to Hollywood was ordered by the commission last April following conferences of civic bodies with the railroads.

Two plans for the tunnel outlet from the Pacific Electric Hill Street Terminal were suggested by Engineer Sachse. One is for a tunnel from the station coming to grade at Figueroa Street, estimated to cost \$725,000, including necessary changes in the Hill Street station. The other plan is to continue the tunnel under Figueroa Street, to come to grade near First Street and Lake Shore Avenue, but do not include the cost of the right of way for the tunnel. The engineers report embodied further additional recommendations to solve the Hollywood traffic problem.

O. A. Smith, general passenger agent of the Pacific Electric Lines, submitted to the commission a plan for a zone system for Hollywood, with a scale of fares that would bring an adequate return to the company.

E. O. Edgerton, former president of the Railroad Commission, represented the Los Angeles Railway Corporation's interests at the hearing, and expressed the opinion that the transportation problem in Los Angeles had resolved itself into a question of what sort of service the public is willing to pay for, as at present the 6-cent fare prevails on the Pacific Electric Lines, while the Los Angeles Railway lines have recently been allowed a 5-cent token fare or a 6-cent fare on straight rides.

The Los Angeles Railway Corporation went on record as being radically opposed to the extension of its lines into Hollywood, branding them as "duplication of service."

The hearing closed with the chief engineer of the utilities board recommending that the commission bring about an arrangement whereby city buses be placed in operation to and from Griffith Park to meet the Los Angeles Railway cars at First Street and Vermont Avenue, carrying passengers in proposed municipally operated buses to and from the park, fares to be paid either on the buses or on the cars, and transfer from one to the other to be recognized.

Difference Over Methods

Detroit United's Proposal to City for Taking Over Lines Now and Paying Later Is Rejected

City officials of Detroit, Mich., have rejected the last proposal for taking over the lines of the Detroit United Railway, whose purchase was approved by the voters last April. The suggestion of the Detroit United Railway was that the city take over the lines immediately and then arbitrate the price to be paid.

In a letter to the secretary of the Street Railway Commission, A. F. Edwards, vice-president of the Detroit United Railway, suggested that the city pay \$1,600,000 to the Guaranty Trust Company, New York, trustee, upon taking over the day-to-day lines, or as an alternative take possession on paying to the trustee the value placed upon the property by the city appraisers, which is approximately \$1,400,000, with the agreement that the whole price be arbitrated promptly under the terms of the agreement, and that the city make upon completion of the arbitration such additional payment, if any, as may be required.

Mayor Couzens stated that if the proposal went to the arbitrators a lower price might be asked by the city than that which had been offered the company. The city's offer was withdrawn.

The price first fixed by the city appraisers on the day-to-day lines under consideration was \$1,339,998. Approximately 30 miles of lines are included in the thirteen pieces of construction. The company figures the original cost of these lines as \$1,965,942.

No prolonged delay is expected in the matter of arbitration. The company has named Prof. Henry E. Riggs as its arbitrator and the city has named William H. Maybury as its representative. Professor Riggs and Mr. Maybury represented the company and the city respectively in arbitrating the price paid by the city in taking over the Harper Avenue line.

Joseph S. Goodwin, general manager of the Detroit Municipal Railway, has been asked by the commission to outline the best way of tying in the lines already constructed by the city with the Detroit United Railway day-to-day lines, and the Fort Street and Woodward Avenue lines on which franchises have expired and which the city plans to take over if the action meets with the approval of the voters at the next election.

Wages Reduced in Joliet

The Chicago & Joliet Electric Railway, Joliet, Ill., has induced its employees to accept a reduction in wages of 5 cents an hour for all who work on an hourly basis, and \$12 a month for all who are employed on a monthly basis. The new scale for trainmen on the Joliet city lines is 51 cents for the first three months, 53 cents for the next nine months, and 55 cents an hour thereafter. On the suburban line from Joliet

to Lockport, the wage is 57 cents an hour and on the main interurban line, 60 cents an hour. The contract signed with the men is on the open-shop basis, and time and one-half for overtime is allowed.

The traffic of the company for the first six months of the year was approximately 11 per cent less than for the corresponding period last year. A motor bus line in competition with the Chicago end of the interurban railway has been ordered by the Illinois Public Utilities Commission to cease operation. The bus company having failed to comply with this order, the interurban made a further complaint to the utilities commission, which referred the matter to the attorney-general's office, which is expected to take some action. The bus company has no certificate of convenience and necessity.

North Shore Reduces Wages

The trainmen of the Chicago, North Shore & Milwaukee Railroad have agreed to a reduction in wages effective from June 16, which brings the new wage scale down 10 cents an hour on each of the steps, except that the maximum rate is reduced only 9 cents an hour. The new scale is 67 cents an hour for the first three months, 68 cents for the next three months and 73 cents thereafter. The wages of all other employees have been reduced in proportion to the cut in the pay of the trainmen.

Incline Reported to Be Safe

Following an examination, with tests of the mechanism of the Mt. Adams Inclined Plane, Bert L. Baldwin, City Engineer, reported to William Jerome Kuertz, Director of Street Railways, that the structure was in safe operation for cars of the Cincinnati (Ohio) Traction Company. Operation of the plane was suspended some time ago by order of the street railway director when an accident took place at the Lock Street end. In his report Mr. Baldwin said the use of the incline for double-truck cars was safe in his estimation.

Wages Reduced in Pittsburgh

Effective on Friday, July 1, wages of platform men on the Pittsburgh (Pa.) Railways were reduced from 64, 68 and 70 cents an hour to 54, 58 and 60 cents an hour. This cut amounts to about \$1 a day, or 15 per cent, and makes the wages the same as of May 1, 1920.

Negotiations between the receivers of the Pittsburgh Railways and the wage scale committee of the trainmen are being continued. A conference of the receivers and the committee was set for July 5, but on that day the wage scale committee of the employees failed to meet with the receivers.

The receivers in a statement issued during the week ended July 2 declared that should arbitration be resorted to and a smaller wage cut be fixed or the arbitrators rule against a reduction of wages, the railway will pay back to the men any amount due them.

Public Service May Run Jitneys as Feeders

If the demand for the service is found to be inviting the Public Service Railway, Newark, N. J., may establish jitney routes as feeders to its trolley lines. This statement is attributed to Thomas N. McCarter, president of the company. Nothing definite, however, has as yet been decided. Mr. McCarter is quoted to the effect that the plan has not advanced far enough to discuss the financial arrangements, but that if the company does take on bus operation the new branch of its transportation business will be financed in such a manner that there will be no failure.

News Notes

Wage Cut in Nashville.—A wage reduction of 3 cents to 7 cents an hour for all trainmen of the Nashville Railway Light Company, Nashville, Tenn., has been announced by E. C. Edgar, vice-president and general manager. The rate of pay of 45 cents to 55 cents an hour has been reduced to 38 cents to 48 cents, a maximum reduction of 15 per cent.

More Bus Lines Planned.—The Board of Estimate of New York City has voted to authorize Grover A. Whalen, Commissioner of Plant and Structures, to put in operation a bus line from Eighth Avenue and 155th Street to the Dyckman Street ferry landing. The board also authorized bus lines from Fifth Avenue and 110th Street to Mosholu Parkway and from the Fort Lee ferry landing to Mosholu Parkway.

City Stipulates Settlement Terms.—The City Council of Des Moines, Ia., on June 27 pigeonholed indefinitely three ordinances proposed to place the Des Moines City Railway on a footing where it could be financed until a new franchise is negotiated and through Mayor Barton, served notice on the company that it must reduce fares substantially before buses will be eliminated from car line streets, and must bring in a complete, detailed franchise proposal before any franchise action will be taken.

City Must Restore Tracks.—The controversy between city officials of Lafayette, Ind., and the Terre Haute, Indianapolis & Eastern Traction Company was settled temporarily at least by Judge Ferdinand A. Geiger in Federal Court on June 23. Judge Geiger entered an order giving the city three days to replace the 15 ft. of track which was removed by the city. This will enable the railway to operate its cars by way of Kossuth Street to the interurban station. He also gave the city thirty days in which to restore 2,000 ft. of tracks in Main Street.

Financial and Corporate

Nearly All Companies Reported in "Chronicle" Show Increase in Gross Over Last Year

The statistics in the accompanying table are from the *Commercial and Financial Chronicle* for June 25 and give the gross earnings of the electric railway companies reported in the regular weekly list of public utilities for which the *Chronicle* publishes monthly figures. All of the electric railway properties listed in that department were included except those whose monthly earnings are less than \$100,000, or where the company supplies a combined utility service and the greater part of the earnings comes from electric lighting and power.

GROSS EARNINGS OF VARIOUS COMPANIES SINCE JANUARY 1 THIS YEAR AND LAST YEAR

	Period Ended	Current Year	Previous Year
Brooklyn City R.R.	March	\$2,664,937	\$2,401,385
Coney Island & Bklyn	March	576,989	529,209
Nassau Elect., Bklyn.	March	1,113,119	1,450,105
New York Consol.	March	5,316,987	5,085,766
Bklyn. Qu. Co. & Sub.	March	428,462	418,154
Chattanooga Ry. & Lt.	April	447,313	432,639
Cumberland Co. (Me.)			
P. & L.	April	1,058,719	940,752
Duluth-Superior Trac.	May	756,624	809,054
East St. Louis & Sub.	April	1,375,619	1,338,745
Georgia Lt. P. & Rys.	April	577,234	564,879
Harrisburg Railways	April	560,964	563,016
Hudson & Manhattan	April	4,343,186	3,468,496
Illinois Traction	April	7,450,003	6,751,171
Interboro Rap. Tran.			
(total sys.)	May	23,675,145	22,986,332
Lake Shore Elec. Ry.	April	1,86,064	995,044
Nashville Ry. & Light.	April	1,283,371	1,220,313
Newp. N. & H. Ry. G. & E.	April	1,112,164	1,030,043
N. Y. & Queens Co.	March	279,856	233,556
N. Y. Railways	March	2,260,010	1,793,018
Eighth Avenue, N. Y.	March	277,737	163,592
Phila. Rap. Transit.	May	17,987,696	15,475,733
Port. (Ore.) Ry. L. & P. Co.	April	3,399,221	2,958,907
Porto Rico Railways	March	340,885	316,951
Reading Trans. & Lt. Sys.	April	963,174	946,793
Third Avenue System	April	4,310,722	3,499,666
Twin City Rap. Trans.	April	4,717,181	4,135,037
Virginia Ry. & Power	April	3,419,192	3,111,072
Winnipeg Elect. Ry.	March	1,487,578	1,400,625

Reduction in Taxes Urged

The Chamber of Commerce, of Kansas City, Mo., in extensive resolutions urging reduction in taxes for the Kansas City Railways, points to the distinction between a public utility of this kind and an ordinary business enterprise. The resolutions make plain the fact that street railways can be turned to no other use than that for which they were built, while most other businesses can turn the property to other than the original uses.

The resolutions constitute a clear and complete picture of the value and relation to a community of its street railway system. They further demonstrate that taxes should be reduced because of the reduced value of the property as reflected in the selling price of the securities.

It is the opinion of the Chamber of Commerce that a valuation based on about the lowest permissible percentage of market value of its outstanding

securities is the maximum basis of taxation in the public interest under the present emergency conditions; that the maximum measure of relief by reduction of taxes of all kinds, even to the extent of complete remission of them, for the time being, if that were possible, would be for the best interests of the public, and that increased taxes must be reflected in increased fares if good service is to be continued.

In conclusion it is resolved that a copy of the resolution be sent to each member of the State Board of Equalization, and that the members of that body be urged, for the sake of the best interests of the people of Kansas City, to give serious consideration to the conditions and propositions set forth by the Chamber of Commerce, and to grant the fullest measure of relief within their powers.

Receiver of Atlantic City Road Discharged

A. J. Purinton has been discharged as receiver of the Atlantic City & Shore Railroad, Atlantic City, N. J., on application in the United States District Court before Judge Rellstab. The company was placed in the hands of Judge C. L. Cole as receiver on Nov. 26, 1915. Mr. Purinton succeeded Mr. Cole as receiver on June 9, 1919. The appointment of a receiver followed inroads made into the receipts of the company when fleets of jitneys started to operate on Atlantic Avenue, Atlantic City, occupied by the railway. It is alleged the company lost \$84,000 in the first eight months in competition with the jitneys. Subsequently the city ruled the jitneys off the main thoroughfare, shunting them to Pacific Avenue, which parallels Atlantic Avenue. That aided the railway, but it is said the principal factor in restoring the credit of the company has been the fact that for more than a year the company has been operating most successfully under a 7-cent fare.

\$39,403 Surplus in Seattle in May

The Seattle (Wash.) Municipal Railway showed a surplus of \$39,403 for May. The number of passengers carried was 8,202,955, compared with 10,838,603 in May, 1920. Car miles decreased from 1,341,380 in May, 1920, to 1,285,153 in May, 1921. Cost of operation per car mile in May, 1921, was 28 cents, and per car hour \$2.58, as against 31 cents and \$2.77, respectively, last year.

Total revenues for the month were \$530,148, and total operating costs \$361,927. The revenues exceeded the operating costs by \$168,221. Out of this sum \$128,818 has been set aside for interest and depreciation funds.

California Railroads to Challenge Validity of King Tax Bill

Announcement has been made that the Southern Pacific Company and Santa Fe Line would file a suit in the Federal Court to test the validity of the King tax bill, which was passed during the last Legislative session of the State of California, increasing the state tax rate on the gross receipts of steam railroads and electric railways from 5½ to 7½ per cent. As an aftermath of the announcement of the Southern Pacific officials of its intent to file suit, the State Board of Equalization on June 14 announced that it would deny the protest of the Southern Pacific and Atchison, Topeka & Santa Fé against the use of the 7 per cent rate.

It was declared in a statement issued by the board through its secretary, M. D. Lack, that the proposed suit will be a legal test of the method, or the so-called Seavey formula, used to determine tax rates on corporations. In the event the railroads were successful in their attack on the King bill, the reductions in tax rates would necessitate an ad valorem of 22 to 25 cents per \$100 on general property to make up the deficit, the statement said.

The passage of the King tax bill was reviewed in the *ELECTRIC RAILWAY JOURNAL* of March 5, 1921, page 464.

New Issue of Bonds Offered

The Columbus, Delaware & Marion Electric Company, Columbus, Ohio, will immediately float a bond issue to the amount of \$500,000 under a new general mortgage to secure \$1,822,000 of 8 per cent bonds covering all the property owned by the company. This mortgage was recorded at Marion, Ohio, on May 17. The first and refunding mortgage securing the 5 per cent gold bonds due 1937 is closed so far as additional bonds in the hands of the public are concerned, as no bonds can be issued except as they may be deposited as security for the new general mortgage or issued for the purpose of refunding the present divisional bonds which are now outstanding.

Rhode Island Receivers Will Pay \$1,000,000

Justice Tanner of the Superior Court in a recent decree ordered the receivers of the Rhode Island Company to pay \$1,000,000 to Cornelius S. Sweetland, receiver of the United Traction & Electric Company. This is a reimbursement sum for the use of the properties of the Union Railroad, Pawtucket Street Railway and the Rhode Island Suburban Railway since the operation under the receivership. The United Traction & Electric Company owned all the capital stock of these companies. A decree of the court provided a payment on the part of the Rhode Island receivers, for the use of these properties a sum to be determined by Richard E. Lyman, master in chancery.

Neither an Electric Company Nor an Electric Railway Among Them

The *Wall Street Journal* in its issue of June 30 lists sixty-two of the more important companies that have ceased paying dividends since the first of the year, giving the capital outstanding and losses to security holders based on the last or usual dividend rate. The total capital outstanding of the companies is \$978,366,953, exclusive of stock having no par value, while the dividend payments omitted total \$23,040,897. In this long list there is neither an electric company nor an electric railway.

Desire to Foreclose Ohio Electric Railway

The Fidelity Trust Company, Philadelphia, Pa., trustee under the mortgage securing the second and general 5 per cent bonds of the Ohio Electric Railway, has filed an intervening petition in the case of the railway in the Federal Court at Toledo, Ohio, asking for the sale of practically all of the property to satisfy its obligations of \$5,000,000 under the mortgage securing the bonds.

The bonds were issued on June 2, 1913, against all of the property owned by the company. They bore interest at 5 per cent, payable semi-annually. Failure to pay interest within ninety days constituted default under terms of the mortgage according to the petition.

The clauses in the trust agreement describing the property covered indicate all of the system from Zanesville through Columbus and Springfield to Toledo.

Receiver B. J. Jones, Columbus, asked recently for the partition of the Ohio Electric system into its subsidiary lines.

The city of Columbus intervened to protect a claim due on a lien on the property within the city limits there. Clarence P. Steiner also filed to protect a damage judgement of \$600 against the company.

The court has issued no orders in the matter yet.

Sufficient Revenue Not Provided by Present Fare

The International Railway, Buffalo, N. Y., recently outlined its program and policy of 1921. The six months' report, January-June, 1921, now in course of preparation will show, according to President H. G. Tulley, that the company will do little more this year than meet its fixed charges after providing in its operating expenses the full annual allowance of \$1,016,000 for depreciation and renewals, in accordance with the Public Service Commission formula.

Industrial depression has been felt very much in Buffalo. This is noted in the traffic handled on the lines of the International Railway. It is estimated that 1,300,000 fewer passen-

gers are being carried a month than during the first six months of 1920.

The statement of the company says in part:

The program of repaving, undertaken by agreement with the city of Buffalo and other municipalities, requires during this year the rebuilding of more than 20 miles of track construction, of which 13 miles is entirely new and the remainder rebuilt to conform with city paving requirements. This, with 50 miles of trolley wire renewals, complete overhauling of more than 300 cars and other necessary improvements and additions to property, will require a total expenditure approximating \$2,000,000.

\$1,330,000 for Improvements

In an ordinance drafted by T. J. L. Kennedy, first assistant corporation counsel, for the public utilities committee of the City Council, provision is made for eight street railway extensions, the purchase of fifty additional cars for the Seattle Municipal Railway and the acquisition of all the railway properties of the Western Washington Power Company within the city limits.

The proposed ordinance has been prepared on recommendations from the railway department. It is intended to cover the betterments now contemplated by General Superintendent D. W. Henderson and the Council. The estimated cost of the proposed improvements has been placed at \$1,330,000. The Council would be authorized to issue and sell negotiable bonds to that amount.

The Western Washington Power Company line referred to is the Greenwood Avenue line, 2.28 miles in length, operated by the city since Jan. 1, 1920, on an agreement with the owners that when a bond issue was called, it would be purchased at the Council's appraisal.

Montreal Tramways Loses Appeals

The Montreal (Que.) Tramways was unsuccessful on June 28 in two appeals before the Court of Appeal which was asked to sanction the addition of \$534,055 and \$243,596 to the capital of \$36,286,295 upon which the company has a right, under the existing contract with the city, to exact a revenue of 6 per cent per annum.

The first appeal was from a decision of the late president of the Public Service Commission of Quebec, dismissing the company's appeal from a ruling of the Montreal Tramways Commission, rendered on Aug. 25, 1919, deducting the sum of \$534,055 from the capital on which the appellant has a right to 6 per cent interest.

In the second appeal, the tramways protested against judgment dismissing an appeal to the president of the Public Service Commission from a decision of the Tramways Commission which refused to add to the capital upon which the company has a right to 6 per cent interest, the sum of \$243,516.

Under the statute covering the Public Service Commission, appeals lie to the Court of Appeal only on questions of jurisdiction and questions of law. In this case, therefore, the finding of the fact was accepted without question.

No Rights Over Rentals

Pennsylvania Court, in Significant Ruling, Opposes Inquiry Into Rental Payments Under Leases

The Supreme Court of Pennsylvania on July 1 denied the right of the Public Service Commission to inquire into the reasonableness of the approximate \$10,000,000 annual rentals paid to underlying companies by the Philadelphia Rapid Transit Company.

In an opinion written by Justice Alexander Simpson, Jr., the court, in essence, declares that what a public utility such as the Philadelphia Rapid Transit does with the money it receives by way of "reasonable return for the service it furnishes" is no concern of the Public Service Commission or the public.

If the Philadelphia Rapid Transit, from the rates which it is authorized to collect, is not able to pay its fixed charges (of which the rentals are a part), and at the same time maintain or extend its service and facilities, that also is no concern of the commission or the public, says the court.

The opinion proceeds to point out that the underlying companies are not "operating" companies and that they do not render "service" or "make or collect rates," and consequently are not amenable to the commission. Says the opinion further:

No contract made by a public utility is subject to a direct attack and revision, unless it is in itself a rate contract; and no contract may be indirectly reviewed in such cases, unless it has some relation to one or more of the elements to be considered in revising the rate * * * Fixed charges for franchises and assets long since acquired and now entitled to be retained only by continuing the payments provided in the lease thereof are not among those elements * * *

Besides, neither the commission nor the public has anything to do with the disposition of the rates which the utility is authorized to collect nor is it any concern of either that the sum total thereof may not be sufficient to enable the operating company to pay its fixed charges and maintain or extend its service and facilities. The company is entitled to receive a reasonable return for the service it furnishes, and no more; the public is entitled to receive an adequate return for the reasonable rates it pays, and no more.

Beyond making sure of these two things, the statute does not vest a greater power in the commission, so far as the matter under consideration is concerned. It has ample authority to see that its orders, as to service and facilities are fully complied with by the Philadelphia Rapid Transit Company, if the effect of so doing is that the latter's stockholders receive no return on their investment, because of the necessity for compliance with the terms of the leases, this concerns them alone, and not the complainants or the public.

Moreover, if the statutes give to the commission the power to reduce these rentals, it may also increase them, a conclusion which would be a great surprise to everybody and against which, if decreed, these interveners would be among the first to complain. As the matter now is, the law gives neither right, and hence the commission should at once have halted this attempt to induce it to exceed its powers. * * *

It follows that appellee was right in objecting to interveners' attempt to subject the rentals to the jurisdiction of the commission, but was wrong in supposing the remedy for its error in not dismissing the intervening complaints was by appeal.

The decree of the Superior Court is reversed, the appeal from the order of the Public Service Commission is quashed and the record is remitted to that body for further proceedings according to law.

Counsel for the underlying companies say their contention has been upheld.

Important Pamphlet Issued by Bank

To stimulate the interest of investors in securities of public service corporations and to help the continued development of the utility industry as of vital importance to the material welfare of the people, the National City Company, New York, N. Y., recently issued a booklet, "The Giant Energy," which presents the public utilities of today as an attractive field for the discriminating buyer of high-grade, carefully investigated securities. In an interesting and novel way "The Giant Energy" tells the story of electric light and power development and in illustrations of household articles electrically operated, generating stations, powerful locomotives hauling long trains over the "Rockies" and Cascades the impressive record of progress in this industry is shown. The booklet will encourage the man with funds for investment to give careful consideration to the fundamental soundness of the business which stands behind public utility bonds. In conclusion the pamphlet says:

Before the war public utility securities issued by corporations of undoubted strength and based on sound values and earning power were sold on a basis to yield around 5 to 5½ per cent. Now with largely increased values and increased demand for output the same class of securities can be bought on a basis to yield from 6½ to 8 per cent. Discriminating investors are now analyzing the public utility situation and buying well-secured bonds. Such analyses should pay investors through strong security and liberal return from well-selected public utility issues.

Financial News Notes

Railway Changes Name.—The Durham (N. C.) Traction Company, organized and operating since 1901, certified with the Secretary of State about a month ago to a change in name to the Durham Public Service Company.

Preferred Dividend Passed.—The directors of the Duluth-Superior Traction Company, Duluth, Minn., have passed the preferred dividend of 1 per cent. The company has been paying its preferred dividend since January, 1901. The payment of the company's common stock dividend was stopped in October, 1918.

Municipal Line at Tacoma Still Behind.—According to a report filed by City Comptroller John M. Roberts of Tacoma, Wash., the municipal railway there lost \$2,334 in cash in May, and has a total deficit, after inclusion of all charges for interest, taxes and depreciation, of \$5,724. Receipts were \$8,069 and expenses \$10,404.

Recently Sold Property Reorganized.—The Sunbury & Selinsgrove Electric Street Railway, Sunbury, Pa., a part of the system known as the Sunbury & Susquehanna Railway, was recently reorganized with a cash capital of \$120,000 and a bond issue of \$230,000.

The property was sold at receiver's sale a few months ago.

Protective Committee for Seventh Avenue Holders.—A protective committee to represent the holders of the first consolidated mortgage 5 per cent gold bonds of the Broadway & Seventh Avenue Railroad, New York, N. Y., has been formed with the Metropolitan Trust Company as depository. The committee is headed by Harold B. Thorne, vice-president of the Metropolitan Trust Company.

Traffic Increases in 1920.—According to the fifteenth annual report of the Pacific Gas & Electric Company, Sacramento, Cal., 1920 was a peak year for the railway system. There were 15,770,295 passengers carried, a gain of 1,690,923 over 1919. Jitney competition had spent itself on account of local enactments and the railway showed a remarkable gain in business in contrast to 1914, when jitney competition greatly diminished the company's revenue.

Operating Arrangement to Be Renewed.—The Dallas (Tex.) Railway will again take over the line of the Standard Traction Company, now serving Mount Auburn and Parkview additions to the city of Dallas on the East. The lines of the Standard Traction Company are now being operated by George P. Dunlap as receiver under orders issued by the District Court of Dallas County. Final details of the agreement between the companies remain to be worked out.

Messrs. Milner and Nicklett, Directors.—At a meeting of the board of directors of the Community Traction Company, Toledo, Ohio, recently, A. P. Nicklett, secretary, auditor, and purchasing agent of the company, was elected a director. The board also elected W. L. Milner, formerly chairman of the commission which drafted the cost-of-service ordinance, a member to represent the public interest in the company. From time to time additional directors shall be elected to represent the city.

Settlement Proposal Made.—A proposal which may solve the railway problem in Lafayette and West Lafayette, Ind., has been made to the city by Clarence H. Geist, president of the Northern Indiana Gas & Electric Company. The gas company has an option on the railway and offers to exercise the option if the citizens will raise \$100,000 to help finance the project. The gas company would turn the railway over to the Terre Haute, Indianapolis & Eastern Traction Company for operation. Regulation of the jitney traffic also is asked.

Right to Abandon Service Denied.—The City Council of Sheridan has denied the application of the Sheridan (Wyo.) Railway for permission to abandon service in Montana and Summer Streets. The Council acted in accordance with public petitions and remonstrances against the suspension. General Manager Jones has stated that the suspension did not depend upon a

paving problem, but was one of economy in operation as it could be shown that the entire city system was a non-paying proposition. He said that he would take the matter before the Public Service Commission and if relief were denied to him he would resort to the courts.

Reorganization Cost \$434,400.—While declaring that certain charges and disbursements in the reorganization plan of the United Railroads, San Francisco Cal., appeared to be excessive, the Railroad Commission in a decision on June 27, held that it was without jurisdiction to pass upon the expenditure, as the funds to be used were not subject to the commission's control. The reorganization expenditure aggregates \$434,400. This sum has been accumulated out of net earnings, made possible by non-payment of interest on bonds. In this way, the commission points out, the bondholders are really standing the cost.

Reorganization Plan About Ready.—Talk has been renewed recently of the coming reorganization of the San Francisco-Oakland Terminal Railways, Oakland, Cal. The San Francisco *Bulletin* of June 23 said: "The definite information as to the details of reorganization and refinancing were not obtainable, but it was admitted that such a move was under way. President Alberger said that the directors have been meeting with San Francisco financiers three times a week for the past six months and that while the plans are practically adopted the company is not yet ready to make the details public."

Railway Extends Notes.—The holders of the \$750,000 of one-year 6 per cent notes of the Chattanooga Railway & Light Company, Chattanooga, Tenn., which matured on June 1 are offered a new one-year 8 per cent note in exchange for their maturing notes. In all other respects except rate of interest and maturity the new notes will be identical with the present ones. The notes will be secured by deposit of \$682,000 Chattanooga Railway & Light Company's first and refunding mortgage 5 per cent gold bonds and \$389,000 Look-out Mountain Railway's first mortgage 6 per cent gold bonds.

Brooklyn Employees Buy Bonds.—Approximately 1,000 employees of the surface lines of the Brooklyn (N. Y.) Rapid Transit Company have joined the National Thrift System and subscribed for nearly \$100,000 in bonds. The drive was started on May 10. The employees of the rapid transit lines will be solicited during the current month. G. L. Terhune, who directed the campaign, expressed his appreciation for the men's co-operation. The *Brooklyn Rapid Transit Monthly* in commenting on the bond movement said that Mr. Terhune's talks on the value of systematic saving were directly in line with the campaign now under way for power saving: "Saving power, saving material, saving money—the three made a well-rounded thrift campaign of vital interest to every one at the meetings."

Traffic and Transportation

Six Cents in Knoxville

Original Application Denied—Commission Abrogates Contract for Engineering Advice

The Tennessee Railroad & Public Utilities Commission recently issued an order allowing the Knoxville Railway & Light Company, Knoxville, Tenn., to charge a 6-cent fare, effective July 3. The original application of the company was for a 7-cent fare and a 2-cent transfer charge. As noted in the *ELECTRIC RAILWAY JOURNAL* for July 2, this was denied, the commission holding that the company had not set up sufficient reason for such an advance.

The commission also abrogated the contract between the Knoxville Railway and the American Cities Company by which heretofore the Knoxville company has been paying 3 per cent of its gross income to the American Cities Company for operating and engineering advice. The commission held that the practice at present in existence of the company's paying to another corporation any percentage of its gross receipts for operating and engineering advice shall be discontinued on June 30, 1921.

The company was also directed in the order to furnish light and power to all consumers at standard rates thereby eliminating the discrimination which appears in contract rates. There probably will be later hearings before the commission to adjust these rates. The order of the commission in part follows:

That the company may from and after midnight of July 3, charge a maximum fare on its railway system of 6 cents for each continuous ride upon the same car between any two points upon the railway lines of the Knoxville Railway & Light Company, where 5 cents or less is now being charged, and the Knoxville Railway & Light Company shall give transfers without charge, the use of such transfers to be governed by conditions in effect prior to this order.

The Knoxville Railway & Light Company shall on or before Aug. 1, 1921, file with this commission a standard schedule of electric light and power rates.

All bills rendered for electric light and power consumed during the month of July, 1921, and billed on or after Aug. 1, 1921, shall be billed at the rate set forth in the standard schedule of rates filed with the commission. In other words, rates for electric light and power shall remain as at present, except in those cases, whether under contract or not where service is being rendered at more or less than standard rates, the rates to said customers being served at more or less than standard rates shall be decreased or increased to conform to standard rates.

The company shall furnish to the commission at as early date as possible a statement showing in detail the cost of the appraisal of this property, segregating these costs as between engineers and their assistants, employed by the Knoxville Railway & Light Company and the engineers and assistants representing the Tennessee Railroad & Public Utilities Commission. After the receipt of this report by the commission such an order will be entered as to the disposition if these costs as may later be determined by the commission.

The object of this order is to place the operations of the Railway & Light Company on a service-at-cost basis, so that the patrons of the company shall pay for service only such rates as will provide suffi-

cient funds to pay all operating expenses and take care of an adequate amount of renewals and replacements and render a reasonable return on the investment.

The commission reserves the right to amend or modify this order from time to time in the future as the necessities of the case may demand.

Accounts of the Knoxville valuation were given in the *ELECTRIC RAILWAY JOURNAL* for May 21, 1921, page 970, and Dec. 25, 1920, page 1302.

Six-Cent Rate to Be Continued One Year

The 6-cent fare for the Dallas (Tex.) Railway has been continued in effect under an ordinance passed by the City Commission of Dallas. While the traction company will accept the new fare ordinance, according to Richard Meriwether, vice-president and general manager, the terms are somewhat disappointing and the company has not been granted just what it had asked for. The traction company had sought a continuance of the 6-cent fare for an indefinite period, leaving the city to revoke it at any time the commissioner might see fit. However, as adopted the fare ordinance continues the 6-cent fare for a period of twelve months and makes no provision for its continuation beyond that date.

According to Mr. Meriwether, the company will not be able to rehabilitate its finances within one year, especially when there is no guarantee of income after one year. The company will accept the new fare ordinance, however, Mr. Meriwether said, with a desire to co-operate with the city and do everything possible to improve the street car service. Reference to the company's application for a continuation of the 6-cent rate was made in the *ELECTRIC RAILWAY JOURNAL* for June 25.

Commission Suspends Rate Advance

In an order recently issued, the Oregon Public Service Commission suspended until Oct. 1 operation of the new tariffs increasing the fares on the lines of the Southern Pacific Company in Salem, Eugene and West Linn. The commission announces that an investigation would be prosecuted to determine the reasonableness of the rates included in the proposed new schedules. The Salem company and the West Linn company propose to increase single-ride fares from 5 to 8 cents, while the Eugene company, in addition to asking an advance from 5 to 8 cents on its city lines, sought to raise the rates between Eugene and Springfield from 10 to 16 cents. The new tariffs would have become operative July 1, had not the order been issued. The application for increased rates was filed with the commission several months ago, the companies claiming at that time a 7 per cent return on the investment.

Emergency Proved

Court Holds New Jersey Company Was Justified in Seeking Ten-Cent Rate—Difference Over Emergency

Holding that the increase in its rate of fare from 7 cents to 10 cents sought by the Public Service Railway was in a large measure justified, the New Jersey Supreme Court on July 1 handed down an opinion setting aside the decision of the Board of Public Utility Commissioners denying the increase. The court also remanded the case back to the commission for further consideration "in order that it may fix a just and reasonable rate based on the evidence in this particular proceeding."

The increase to 10 cents was asked as an emergency rate, but the commission in denying the application held that the emergency was gradually passing with the improvement in economic conditions. Justice Bergen, who wrote the opinion by the court, maintained that the railway was entitled to sufficient revenue to relieve its straitened financial condition. The opinion says:

We think the evidence shows conclusively that a considerable part, at least, is just and reasonable, and that the major part is required to pay the cost of operation and maintenance, and that, without additional income to make required repairs, they cannot be made, thereby endangering the lives of passengers.

A rate which does not provide for the depreciation fund imposed by the board, nor for the operating expenses of the utility company, is not, in our judgment, a just and reasonable rate, which the statute contemplates. The evidence clearly shows that the present rate under existing conditions will bankrupt the company as well as endanger the lives of its passengers for want of funds to make imperative repairs. To require a maintenance fund to be carried, and at the same time refuse an income to provide it, is, to say the least, a peculiar exercise of discretion under our statute relating to the power of fixing rates.

The board treats the situation as an emergency that soon will pass. To call this situation an emergency and to refuse relief for that reason is giving a meaning to the word emergency which neither our statute nor adjudged cases warrants. Why an increased tax, enhanced cost of labor, of operation and of necessary repairs should be called an emergency is not apparent to us, either from the evidence, or conditions of which we can take judicial notice, nor, as the board did, can we assume that other conditions will shortly exist.

Assuming the estimate of the board is correct, there will be a deficit of \$400,000 if the service is to be efficient and safe for the public use, without taking into account the losses for 1918, 1919 and 1920, amounting to more than \$1,600,000. If this be called an emergency it is one that needs prompt relief, and ought not to be postponed until the board has reached a result in another case involving the fixing of a just and reasonable rate based on valuation. The prosecutor is entitled to cost of operation and fair return on capital invested, under the statute, and to have its rights determined on the case made by it in this proceeding.

Counsel for the railway, in a brief filed on July 5 with the Board of Public Utility Commissioners in the valuation case, maintained that a 10-cent fare is the lowest that the company can charge to meet operating expenses, taxes, replacements and pay a return on its stock. The company places the value of its property for rate-making purposes at \$200,898,906. This is nearly \$76,000,000 higher than the valuation fixed by Ford, Bacon & Davis, acting for the state valuation commission. The brief is considered one of the most complete ever filed in a rate-making case.

Jitney Competition Not Favored

Connecticut Commission Believes in Protection of Existing Transportation Franchises from Unfair Competition

The Public Utilities Commission of Connecticut has denied the application of W. A. Perrett and Christopher Glenney, brought under chapter 77 of the Public Acts of 1921 for a certificate of public convenience and necessity for operation of jitneys in competition with the trolleys and steam railroad between Hartford and Manchester, about 10 miles distant. Under the provision of this act jitneys are named common carriers and become subject to commission jurisdiction on and after July 15, 1921. The act also provides that no one shall operate a jitney until the owner has obtained a certificate from the Public Utilities Commission that public convenience and necessity require its operation.

SEVERAL hundred cases were brought before the commission during the month of June. The first case heard involved many issues applicable to other cases and in the decision the commission outlines the general principles controlling their action, although some of the principles do not pertain specifically to this case.

JITNEY FARE LOWEST

The rates of fare between Hartford and Manchester are 33 cents for the steam railroad, 20 cents on the trolley by use of a ticket, or 30 cents cash with a free transfer in each case, as compared to a 15-cent fare on the jitney without transfer to other lines.

The existing transportation facilities, the commission found, were capable of handling all the passenger traffic between Hartford and Manchester, although the record of rush hour service on the trolleys prior to the advent of the jitneys did show some overcrowding. The present record, however, shows many vacant trolley seats and many trolley cars operated at a loss.

The question of public convenience and necessity as between competing jitneys and street railway service over the same route is clearly raised. The street railway is operated under a franchise granted by the state, and it has been the legislative policy of the state to protect such franchises and refuse competing franchises in the original franchise territory so long as such territory is being reasonably and adequately served under the original grant.

ADEQUATE SERVICE THE CRITERION

A certificate of public convenience and necessity for jitney operation, the commission says, is in the nature of a franchise, but without the corresponding obligations of permanency and continuity of service on the part of the recipient that is imposed upon the chartered utility companies. The granting of a certificate for jitney operation involves to a limited extent the same principles as a legislative grant to a proposed street railway in competition with already existing franchises. Such a competitive franchise should not be granted if the existing franchised company is willing and capable of giving adequate service at reasonable rates.

There then arises the question as to what extent the different forms of transportation, the speed, the rates of fare on the jitneys, affect the adequacy

of service and the fulfillment of the requirements of public convenience and necessity by the street railway company. At the hearings it was not claimed that there was greater or even equal comfort riding in a jitney bus compared to a trolley car. It was shown, however, that the jitney made quicker time and charged a lower rate of fare. The speed, however, with jitneys, the commission holds, having a seating capacity of twelve or more passengers is not materially greater than the speed of the trolley car.

The tendency of jitney fares will undoubtedly be upward when a scientific count is kept of operating revenues and expenses, while the tendency in trolley fares should be downward, particularly for short haul passengers. The controlling influences should be the general public good and the general public requirements rather than individual convenience and the desire to engage in business.

It is not disputed that the street railways are absolutely essential, neither was it claimed that jitneys could supply the entire service required.

In cases where the operation of jitney service would result in the discontinuance and abandonment of the trolley service otherwise possible to exist, the commission will be inclined to refuse a certificate of public convenience and necessity until the substitute service shows more stability and permanency than at present. Even when a part of the proposed jitney route is through territory not otherwise served, if this route as a whole is competing with and destructive of trolley service, the application should be denied, provided the street railway company is capable and willing to supply adequate service. It would be highly desirable to have connecting jitney service in such unserved territory.

However, where the traffic demands have outgrown the capacity of existing transportation facilities or where there is no other form of transportation there can be no question but that public convenience and necessity would require additional or supplementary jitney service.

The public good requires permanency and continuity of service, which cannot be reasonably guaranteed by the numerous applicants for certificates to operate jitneys. If such operation proves to be unremunerative and impracticable it may be discontinued at

any time by the holder of the certificate, but in the meantime the trolley may be driven into bankruptcy, dismantled and the general public deprived of all forms of transportation.

To substantiate this argument the policy of the Pennsylvania Public Service Commission is quoted in the case of the Commonwealth Transportation Company, which wanted to operate motor vehicles in competition with the trolleys in Scranton.

CERTIFICATE OF SERVICE OVER GIVEN ROUTE

Where an existing or proposed jitney route parallels the tracks of a steam railroad company, and in thus competing with the service rendered by that company, but on account of the limited number of trains, public convenience and necessity require jitney operation, consideration should be given to granting the certificate, to location of termini, and fixing of schedules. Jitney operation as a rule is without certain facilities, but this fact should not authorize the operators to utilize the station and station grounds of their competitors to run a schedule coincident with their train schedule.

The commission is of the opinion where a single person, association or corporation is capable, willing and equipped to supply the entire necessary service over a given route that it is for the interest of the public as well as for proper public regulation to grant a certificate to any person, association or corporation for the entire necessary service over a route rather than to issue certificates to the several different applicants thereby distributing the service, complicating the schedules, and dividing the responsibility.

For the rendition of good utility service, the party supplying the service must receive a fair financial return and also be protected against unnecessary destructive competition. If no one applicant is capable or willing to supply the entire service, it then becomes necessary, of course, to grant a sufficient number of certificates to supply the necessary service.

SELECTION OF APPLICANTS

Where several parties apply for a certificate over the same route each of which is capable, willing and equipped to supply the entire necessary service on that route, it becomes the task of the commission to determine the party who in its opinion would supply and maintain such service.

The commission in determining or selecting such a party will take into consideration the financial responsibility, the past record of the applicant and his employees, the rendition of jitney service, the type and general maintenance of equipment, and so far as may be expressed, the public sentiment of the people in the community or territory to be served. Public sentiment is important to the extent of affording good will, which is essential for the successful operation and conduct of any public utility.

City Firm in Stand Against Railways

The committee of citizens which attempted to bring about a settlement of the fare controversy between the two street car systems of Spokane and the City Commissioners failed to get the commissioners to concede anything although they secured from the railway people the promise of a 7-cent fare with five tickets for 35 cents. The city commissioners over the protests of a large number of citizens have issued permits to 62 jitneys to cover some ten routes, this being in retaliation for the 8-cent fare authorized by the State Commission to be charged by the electric railways. Only a partial service can be maintained at present. The case was viewed in the *ELECTRIC RAILWAY JOURNAL* for July 2.

Many opinions have been expressed condemning the action of the city authorities. D. L. Huntington, president of the Washington Water Power Company, sent a statement to his employees in which he reviewed the fare controversy, the offer of the company and the flat refusal by the city. He also quoted the public statement of the Chamber of Commerce in which it is said that "the car lines have shown a disposition to be fair and meet every reasonable suggestion."

More Bus Routes Planned

At the hearing to grant certificates for convenience and necessity for the operation of independent motor bus routes held in Waterbury on June 30 the Connecticut Company announced its readiness to operate two supplemental bus routes to serve territories not now reached by trolley service. The fare on these bus routes will be the same as if they were served by rail service. Free transfers will be interchanged.

Hearings were also held during the week at New Haven, Norwalk and Stamford, but only in Waterbury does the railway believe that motor bus service is essential to the transportation needs of the community.

President Storrs said that it was only by having the sole right to do business that the railway company could give the best service. Chief of Police P. H. Smith of New Haven recommended that if the jitneys were allowed to operate they be barred from the center of the city.

Paul Russo, a real estate operator, who had a land development in the territory formerly served by the Shore Line Railway, favored barring jitneys where the Connecticut Company rendered adequate service. He pointed out that while the people complained of the Shore Line service, the minute the service was halted they demanded its restoration.

Vice-President E. G. Buckland of the New Haven Railroad opposed the operation of suburban motor bus routes to Hartford, Derby and Bridgeport and immediate points.

Transportation News Notes

Bus Service Started.—The Delaware Rapid Transit Company has started a new motor-bus line connecting Delaware City, Del., with Wilmington. Hourly trips are made.

Zone Fare Raised.—The new 10-cent zone rate is in effect on the Milford, Attleboro & Woonsocket Street Railway's line which connects with the Rhode Island Company's line in Woonsocket. The old rate was 7 cents for single fares. Strip books are provided, giving thirteen trips for \$1.

Rules in Favor of Railway.—The City Commission of Trenton, N. J., has defeated the resolution introduced by Mayor Donnelly calling for the establishment of a jitney line on the streets of Trenton. The commission declared that jitneys would injure the traction company by decreasing its revenue.

Wins Fare Suit.—The Paducah (Ky.) Railway will continue to collect a 10-cent fare as the result of a recent decision of Federal Judge Walter Evans, making permanent an injunction against the city, which sought to hold the fare at 6 cents. The city, however, may reduce the fare after the franchise expires in October, 1921, if an examination of its earnings shows the 10-cent fare is excessive.

One-Man Cars in Cleveland.—The Cleveland (Ohio) Railway began operating forty-two of its standard double-truck cars with one man about June 1. These cars are being run on some outlying lines and on one cross-town line where the traffic is light. Because of the high number of stops per mile on this cross-town line, the average schedule speed is only about 5 m.p.h., and the service as provided with one man on a car has been satisfactory.

May Solve Traffic Troubles.—One step looking toward the solution of the traffic problem in Newark was reached recently in the form of a tentative ordinance which will be introduced at the City Commission's meeting. This ordinance is the result of the efforts of Director Brennan, Traffic Captain McReil and a special committee of business men. The new traffic code will put an end to all-day parking which is considered the cause of the street congestion and subsequent interruption of traffic.

Automobiles Lead in Fatal Accidents. Deaths resulting from automobile accidents in California for the last three years, and for the first four months of 1921, totaled 2,305, as compared with 1,472 persons killed in all other vehicles, including steam and electric railroads and street railways, according to figures made public on June 24, 1921, by L. E. Rodd, State Registrar and Director of the Bureau of Vital Statistics. The

deaths from automobile accidents for the past three years and the first four months of 1921, were as follows: 1918, 559; 1919, 685; 1920, 804; 1921, 257.

P. A. Y. E. on All Lines.—To establish a uniform system of collecting fares on all cars of the Cincinnati (Ohio) Traction Company, William Jerome Kuertz, Director of Street Railways, has announced the "pay-as-you-enter" system will be extended to all lines. The present system of paying when leaving the cars, in vogue on certain lines, has caused considerable confusion, Mr. Kuertz announced. It also has caused delays at the end of the routes and has multiplied the worries of the conductors. Before any final determination will be made, however, Mr. Kuertz said, the question will be taken up at a conference with the traction officials.

Fare Issue Before U. S. Court.—The Galveston fare fight will be carried to the United States Supreme Court. An order granting an appeal to the Highest Tribunal has been filed in the United States Court at Galveston. The suit is styled Galveston Electric Company vs. The City of Galveston. The railway is seeking relief from what is declared to be a confiscatory fare charge. An injunction against enforcement of a city ordinance prohibiting the collection of more than 5 cents as car fare is sought by the railway, which recently lost its fight in the United States District Court for the Southern District of Texas at Houston when Judge J. C. Hutcheson held that the 5-cent fare order is not confiscatory, but that the earnings of the railway under the 5-cent fare are adequate. In holding the 5-cent fare adequate Judge Hutcheson overruled the master in chancery, Judge J. O. Dannebaum.

Increased Rates Approved.—An increase in fare from 5 to 7 cents in each of the zones of the Burlington County Transit Company, operating between Moorestown and Burlington, N. J., has been sanctioned by the Public Utility Commission. Rates for school children heretofore in effect are continued. Children under five years when accompanied by an adult paying fare will be carried free. Children over five years must pay full fare. Inauguration of the increased fare is subject to improved service, especially on the branch between Borton's Landing bridge and Moorestown. Small dividends had been paid during the past three years, but these had been paid from earnings accumulated during previous years. The board said that this company had never been able properly to maintain its property, and in 1910, owing to inability to pay interest, the road was sold at receiver's sale, the bondholders purchasing the property for \$120,000. It was testified for the board that the property was worth the amount of bonds paid for it, which at that time had a face value of \$400,000. The company also submitted an appraisal of its property showing original cost of \$343,004, and reproduction cost of \$530,911.

Personal Mention

S. S. Colvin is the successor of R. Kingseed as electrical engineer, master mechanic and engineer of overhead construction of the Tiffin, Fostoria & Eastern Electric Railway, Tiffin, Ohio.

Wilfred E. Ervin is now connected with the Trenton, Bristol & Philadelphia Street Railway, Philadelphia, Pa., as secretary. J. Elliott Newlin was previously with the railway in this capacity.

J. L. DuVall is the successor of John P. Dake, master mechanic of the Sioux Falls (S. D.) Traction Company and L. S. Smith has become engineer of maintenance of way following the resignation of William Adams.

A. F. Jones was recently appointed general freight and passenger agent of the Columbus, Delaware & Marion Electric Company, Columbus, Ohio. George H. Dusler formerly held this position with the company.

J. Edgar Reed has recently been appointed superintendent of the Shamokin & Mt. Carmel Transit Company, Mt. Carmel, Pa. A. Howard Thomas, Jr., formerly superintendent and purchasing agent, is no longer connected with the company.

T. A. Darrow was recently appointed superintendent of the Northeast Oklahoma Railroad, Miami, Okla., as the successor to E. M. Tanner. L. M. Greene is no longer connected with the company as master mechanic, E. M. Applegate having been selected for this position.

D. G. Callihan has been promoted from superintendent and purchasing agent to general manager of the Webster, Monessen, Belle Vernon & Fayette City Street Railway and the Westside Electric Street Railway, Charleroi, Pa. The roads were formerly managed by the president, C. F. Thompson.

W. V. Hill, manager of the California Electric Railway Association, has been appointed representative at Washington of the joint tax committee of the American Electric Railway Association, American Gas Association and the National Electric Light Association, according to announcement made by Philip H. Gadsden, chairman of the committee. Mr. Hill is well known because of his active participation in association affairs. During the war he was assistant manager of the American Electric Railway War Board and before that was Washington representative of the California Electric Railway Association. When the War Board was disbanded, Mr. Hill was placed in charge of the Washington office of the A. E. R. A. under the committee of national relations. Owing, however, to the urgency of his duties with the California association he resigned in May, 1919, to return to the Pacific Coast.

F. Hoffman has succeeded J. Morton as auditor of the City Railway Company, Dayton, Ohio.

W. F. West has resigned as master mechanic of the Newport (R. I.) County Electric Company. At present the position is still vacant.

Mr. Fallon Promoted Again

As General Manager of the Chicago Elevated He Relieves President Budd of Many Responsibilities

For the second time within a period a little longer than a year Bernard J. Fallon, assistant general manager of the Chicago Elevated Railways, has received promotion. He has just been made general manager and his duties



B. J. FALLON

and responsibilities have been broadened so as to relieve President Britton I. Budd of a large share of the responsibilities of operating the elevated railways, the fast interurban roads and other electric railway properties.

Mr. Fallon held, until his promotion to assistant general manager in April, 1920, the position of engineer maintenance of way. His operating experience with the Chicago Elevated Railroad has extended over a period of fourteen years. In June, 1907, he was appointed engineer maintenance of way of the old Metropolitan West Side Elevated Railroad. After two years in this capacity he was made assistant general manager of the same road under Britton I. Budd, then general manager. When the several elevated railways of Chicago were consolidated and Mr. Budd became president of the combined system in 1911, Mr. Fallon was made engineer maintenance of way, with jurisdiction over all these combined properties. Some time later his authority was extended to include the Chicago, North Shore & Milwaukee Railroad, the operation of which had been taken over by Mr. Budd for the Insull interests.

Mr. Fallon was born on Aug. 10, 1880, at Rutland, Ill. His experience and training for his work with the elevated systems were gained largely in the steam railroad field. After receiving a B. S. Degree from La Salle Institute, Chicago, in 1898, he became a rodman with the Burlington Railroad. During the following eight years he held the position of assistant engineer, division engineer and finally engineer of track elevation in Chicago. Since his connection with the elevated systems he has served on the American Electric Railway Engineering Association way committee. He is a member and a director of the Chicago Engineers Club and a member of the Western Society of Engineers.

As was previously stated, the more intimate details of operation will now fall on Mr. Fallon. That he is well qualified to shoulder these additional burdens and make an eminent success as an operator, one needs but examine his past record of efficiency and of rapid promotion.

Obituary

George J. Foran, manager of the condenser department of the Worthington Pump & Machinery Corporation and the associated companies of the International Steam Pump Company, since 1901, died on May 12. During the war Mr. Foran was a member of the committee on condensing apparatus of the United States Shipping Board and War Industries Board and also chairman of the American Engineering Service Committee of Engineering Council.

Edward Payson Shaw is dead. Mr. Shaw was well known in electric railway circles, more particularly in Massachusetts. He was one of the first to become convinced of the practical use of electricity and made large investments in electric plants. He equipped with electricity the Haverhill, Merrimack & Amesbury Railway. Another road in which Mr. Shaw and members of the Shaw family were interested was the Boston & Worcester Street Railway. In recent years he had confined his activities largely to real estate developments. All through his active business career Mr. Shaw retained his interests in politics and served the state of Massachusetts in many capacities, among them treasurer of the Commonwealth. He was born in Newburyport in 1841 and was educated in the public schools there and at the academy at London, N. H. He went into business at an early age and soon became interested in various transportation undertakings. Mr. Shaw is survived by two sons, James F. Shaw and Samuel J. Shaw, and by several daughters. His son James F. Shaw, now in the banking business in New York, is a former president of the American Electric Railway Association.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE
MANUFACTURER, SALESMAN AND PURCHASING AGENT
ROLLING STOCK PURCHASES BUSINESS ANNOUNCEMENTS

Steel Companies Again Reduce Steel Rates

Lead of Bethlehem Company on July 5
Followed by Other Independents
and by Corporation on July 6

Effective July 5, the Bethlehem Steel Company has further reduced its steel products in amounts varying from \$4 a ton to \$10 a ton. The change in bars is from 2.10 cents to 1.90 cents; plates and structural shapes, 2.20 cents to 2.00 cents; sheet bar, \$39 to \$35; billets, 4 x 4, \$37 to \$33; slabs, \$38 to \$34; blue annealed sheets, 2.85 cents to 2.65 cents; black sheets, 3.75 cents to 3.50 cents; galvanized sheets, 4.75 cents to 4.50 cents; tin plate, \$6.25 to \$5.75. The former price change was on April 13. Previously the Bethlehem company had announced a 15 per cent reduction in wage scales and a 10 per cent reduction in salaries of employees, effective July 16.

E. G. Grace, president of the company, in his announcement declares that present manufacturing costs do not in any sense warrant reductions, but that his company desires to contribute even more than its full share to re-establish conditions in the steel trade on what may be regarded as a normal basis. He attributes the increase in freight rates as the largest factor in increasing the cost of manufacturing steel products, with materials and labor as the cost factors next in importance.

These reductions were followed by most other independent steel producers early in the week, and on July 6 the United States Steel Corporation announced a similar reduction in its products. Judge Gary also announced the abrogation of the so-called basic or overtime day, which in effect is a lowering of wage scales about 15 per cent on those men working twelve hours a day, effective July 16.

Hickory Tool Handles Cut 15 to 20 per Cent

Manufacturers of wooden tool handles just recently reduced prices on hickory an average of about 15 to 20 per cent, the cheaper grades of wood being reduced the most. Ash handles were also cut about 10 per cent, it is stated. Some producers put these decreases in effect as early as the first of last month, others not until within the past two or three weeks.

The market during the first half of this year has held a very quiet course and at present there is not much activity with steam or electric roads either here or abroad, as consumers have been fairly well stocked up since last year. Some producers expect a

change for the better this fall; others can see nothing ahead until next spring. Dealers and jobbers are buying from hand to mouth and have light stocks on the whole. Producers of wooden handles have fairly good stocks as supplies dumped on them by cancellations have not been worked off. Consequently, immediate shipments can be made. The best grade of hickory wood, however, is becoming scarce, it is stated, partly because the automobile industry has for long been making such inroads on the supply. Production is down low; about 25 per cent of normal capacity would probably be a representative figure.

Strong Volume of Lubri- cation Buying

Unlimited Supply Available as Stocks
of Crude Oil Are Large—Prices
Down 45 per Cent

Buying of lubricants by electric railways holds up very well according to producers. Steam railroad demand has been flat for a long time, for with slack general business conditions fewer cars are operated, but electric traction companies must, of course, maintain their service even at a loss.

The supply of lubricating oils and greases is better now than virtually any time since the war. Producers' stocks are large and crude oil has piled up at refineries to such an extent that it has been necessary to take a loss to move stocks. Some of this surplus will now find an outlet through the automobile trade, which has been expanding ever since the opening of summer and now shapes up as a strong market, especially for fuel oil. In the fall this business will naturally fall off again, but electric railway demand is expected to hold its own. Traction companies are buying close to their requirements and, as usual, are not stocking ahead, but the low point of decreased revenue from depression in the industrial centers has been passed and from now on summer travel to vacation resorts and to the amusement parks will make itself felt.

Price is the only point upon which consumers have hesitated and this has been felt to some extent where renewals of contracts for lubrication on a mileage basis have been made, but in general no more difficulty than usual has been experienced in renewing contracts. Prices of oil are well down, the average general reduction from peak quotations on railway lubricants being about 45 per cent. As recently as the middle of June one of the largest producers reduced prices 20 per cent and on June 28 another made a cut of about 10 per cent.

Tariffs on Electrical Goods Provided in New Bill

Wire, Poles, Ties, Insulating Materials,
Brushes, Axles, Wheels and Metals
Among Items Affected

The Fordney tariff bill, designed to afford full protection to American industries, was formally reported into the House of Representatives on June 28. It is thought that under this measure duties will be in the neighborhood of 30 per cent higher than under the existing tariff. Splitting of duties is common and the American valuation plan is the basis of lists. Paragraphs referring to the electrical industry are printed below:

Mica, unmanufactured or rough-trimmed only, 6 cents per pound and 17 per cent ad valorem; cut or trimmed, splittings, plates, built-up mica and all manufactures of mica or of which mica is the component material of chief value, 12 cents per pound and 17 per cent ad valorem; ground mica, 6 cents per pound and 20 per cent ad valorem.

Carbons and electrodes of whatever material composed and wholly and partly manufactured, for producing electric arc light; electrodes of carbon or graphite for electric furnace or electrolytic purposes; brushes for electric motors, generators, etc.; plates, rods and other forms for making into brushes; other wares not especially provided for, 35 per cent ad valorem.

Incandescent electric light bulbs and lamps, with or without filament, 35 per cent ad valorem.

Storage batteries and parts and materials, 30 per cent ad valorem.

Anti-friction balls and rollers for ball and roller bearings, and parts, 35 per cent ad valorem.

Aluminum, scrap and alloys in crude form, 5 cents per pound; in plates, sheets, bars, etc., 9 cents.

Copper wire not coated nor covered and also tin-coated, 1½ cents per pound; in rolls, rods or sheets, 2½ cents; seamless tubing, 7 cents; brazed tubing, 11 cents; brass wire, rods, sheets, etc., 4 cents per pound; seamless tubing, 8 cents.

Telephone, light, power or railway poles of cedar or other woods, and railroad ties, 10 per cent ad valorem.

Asbestos paper and millboard of long-fiber asbestos and electrical papers not exceeding 0.05 in. thick, 8 cents per pound; of other asbestos fibers, 1½ cents; sheets and plates not exceeding ½ in. thick, 1 cent per square foot, up to 2½ cents for over ½-in. thickness.

Electrical insulators and other articles wholly or partly or in chief value of shellac, copal or synthetic phenolic resin, not especially provided for, 30 per cent ad valorem.

Portland, Roman and other hydraulic cement in barrels, etc., takes 5 cents per 100 pounds; in bulk, 4 cents; other cement not specifically provided for takes 17 per cent ad valorem.

Axles and parts thereof, axle bars, etc., valued at not more than 6 cents per pound, six-tenths of 1 cent

per pound. Wheels for railway purposes and parts thereof, of iron or steel or steel-tired, 1 cent per pound. Axles attached to wheels take wheel duty.

Railway fish plates or splice bars made of iron or steel, $\frac{1}{4}$ cent per pound; all other railway bars of iron or steel, T-rails and punched iron or steel, flat rails, 7/40 cent per pound.

Brake Shoe Prices Again Down

Little change is evident in the market for brake shoes in so far as demand is concerned. Buying continues light, with railways ordering close to their requirements and not stocking far ahead. Replacement buying by steam roads is especially slack because fewer freight cars are being operated owing to the low volume of business.

Prices are again down, one of the leading producers having reduced quotations \$2 per ton on July 1, a cut of about $3\frac{1}{2}$ per cent. This is the third decrease to be made this year, the first, of \$6 per ton on Jan. 1, amounting to about $8\frac{1}{2}$ per cent. The second decrease, made on April 1, was also \$6 per ton.

Manufacturers' stocks at present are not extra large, but the moderate surplus supply of the finished product is sufficient to provide immediate shipments. The large number of cars now in urgent need of repairs in this country, it is stated, is sufficient guarantee that brake shoe business is bound to increase.

Rolling Stock

The Seattle (Wash.) Municipal Railway will obtain fifty additional cars if the ordinance which has been drafted by the Assistant Corporation Counsel of Seattle for the public utilities committee of the City Council goes through.

Track and Roadway

Alabama Power Company, Birmingham, Ala., has been formally granted a permit for the construction of a dam and power plant on the Coosa River near Verbena. The first work to be done will be the building of six miles of railroad from Verbena to the river. The project will cost approximately \$7,000,000. This undertaking was referred to in the ELECTRIC RAILWAY JOURNAL for April 2, 1921.

Sacramento Northern Railroad, Sacramento, Cal., may be included in an improvement program contemplated by the Western Pacific Railroad. The railroad has under consideration the extension of the electric line from its Chico terminal to Red Bluff according to J. P. Quigley, superintendent of transportation. With the purchase of the electric line the Western Pacific plans extensions to penetrate to points that promise to be good feeders to the big line.

San Francisco (Cal.) Municipal Railway will extend its line to the Sunset District. Three possible routes have been suggested. One extension would run from the Market Street Twin Peaks line along Seventh Avenue to Judah Street. The second would be from Duboce Avenue and Market Street to the ocean, using a tunnel 3,400 ft. long with a connection at Duboce Avenue with the Market and Twin Peaks tunnel line. The third possible route would be on Judah Street from the ocean to Auguello Boulevard.

Cincinnati (Ohio) Traction Company will resume service on Aug. 1 over the East End line between Ferry and Lumber

Streets. This announcement was made recently by Walter Draper, vice-president of the company. The line was abandoned several months ago in order to make a fill of 9 feet of ground. The city was compelled to condemn property on the south side of the street and raise houses on the other. When this section is completed a maximum fill of five feet will be started on another section between Corbin and Strader Streets.

Oklahoma Union Railway, Tulsa, Okla., may help in the construction of an interurban terminal with a belt line around the city. While a definite route for this line was not proposed the Sand Springs Railway and Oklahoma Union Railway's lines could be utilized for this purpose by building a connection from the Oklahoma Union Railway's tracks at Fourth Street and Elgin Avenue with the Sand Springs line on East Archer Street.

Chambersburg & Shippensburg Electric Railway, Shippensburg, Pa., will extend its system to the Western Maryland Railway's line.

Houston, Bay Shore & Texas City Interurban Railway, which proposes to build and operate an electric interurban line from Houston along the bay shore to Texas City, near Galveston, has purchased from the Pittsburgh Steel Company 54 miles of 85 lb. rails for delivery in Houston. Grading work on the first unit of the line, which will extend from the city of Houston to the San Jacinto Battlefield on San Jacinto River, a distance of about 18 miles, is well under way, according to Ed. Kennedy, president.

Power Houses, Shops and Buildings

New York Central Railroad, New York, N. Y., is considering the building of a new power house at its locomotive repair shop in Solvay.

Oklahoma Railway, Oklahoma City, Okla., will start work on its new \$150,000 terminal station not later than March 1, 1922. This announcement was recently made by John W. Shartel, vice-president and general manager of the company.

Columbus, Delaware & Marion Electric Company, Marion, Ohio, has just completed a new power plant at Scioto. This plant consists of three Babcock & Wilcox boilers, 866 hp. each with Westinghouse underfeed stokers and condenser. This project was referred to in the ELECTRIC RAILWAY JOURNAL for March 19, 1921.

Professional Note

C. D. Parker & Company, Inc., investment bankers and controlling managers of central station properties at Amesbury, Palmer, Plymouth, Franklin, Great Barrington, Marion and Provincetown, Mass., and elsewhere, have moved from 67 Milk Street, Boston, to a remodeled six-story office building at 150 Congress Street, in the heart of that city's banking district.

Trade Notes

The Esterline-Angus Company, Indianapolis, Ind., has developed a graphic kva. meter.

The Hi-Voltage Equipment Company, Cleveland, Ohio, has developed a new type of lightning arrester for outdoor mounting.

The Black & Decker Manufacturing Company, Towson Heights, Baltimore, Md., has recently placed on the market a portable electric grinder.

The Railway Track-Work Company, Philadelphia, has placed on the market a new "Ajax" resistance-type arc welder.

The Rome Wire Company, Rome, N. Y., has developed a "superservice" cord for portable electric tools, etc.

The Hazard Manufacturing Company, Wilkes-Barre, Pa., has put on the market its new "spiralweave" cables for portable light and power service.

The Knight Engineering & Sales Company, Los Angeles, has placed on the market its new "One-Hand-Y" electric drill.

Edward J. Ronan, representative of the Gold Car Heating & Lighting Company,

died at his home in Brooklyn, N. Y., on July 3. Mr. Ronan had been connected with the company for a period of twenty-one years.

The Diamond Holfast Rubber Company, 33 Auburn Street, Atlanta, Ga., manufacturer of friction tape, has purchased a site of eleven acres for its proposed new factory for the manufacture of its "Diamond Holfast 2-plex" insulating tape.

The A. H. Petersen Manufacturing Company, Milwaukee, manufacturer of tools and dies, etc., announces that it has discontinued this department and will turn over its entire plant to the manufacture of "Hole Shooter" portable electric drills and other automotive devices.

The Quasi-Arc Weldtrode Company, Inc., Atlantic Avenue and Warwick Street, Brooklyn, N. Y., announces that since July 1 it has been in its new quarters at 114 Hudson Avenue, Peekskill, N. Y. In the new location the company has not only much better shipping facilities than before but also better arrangements and machinery for the manufacture of its "weldtrodes." The new works will also be completely equipped for the manufacture of all arc-welding accessories and for the building of the entire line of welding apparatus, including controllers (for both alternating and direct current) and welding generators.

The Standard Safety Equipment Company, 168 North Michigan Avenue, Chicago, has been organized to manufacture and distribute electrical and mechanical safety equipment and supplies, embracing gloves, linemen's blankets, first-aid cases, etc. C. A. Kingsbury and L. W. Dickson, both formerly with F. A. Hardy & Company, are respectively president and secretary. F. L. Hurlbutt, for the last ten years safety engineer of E. I. du Pont de Nemours & Company, is treasurer and in addition will have charge of all service work. A. U. Barnes of the Hardy company has been appointed Eastern manager with offices in the Clinton Building, Newark, N. J. There is also a Detroit office at 414 West Grand River in charge of O. L. Smith. A Cleveland connection and stockroom is under consideration. In addition to safety supplies the company will market a full line of welding equipment. "Standardize for safety" has been taken by the company for a slogan.

New Advertising Literature

Temperature Control.—The Fulton Company, Knoxville, Tenn., has issued two folders on its "Sylphon" temperature regulators.

Pressure Regulator.—The Fisher Governor Company, Marshalltown, Iowa, has issued Bulletin No. 210 on its series 90 pressure regulators.

Temperature Regulator Chart.—A "Temperature Regulator Chart, or Engineering Data Sheet," has been copyrighted by the Fulton Company, Knoxville, Tenn., for use in figuring tank regulators.

Export Trade Directory.—The American Exporter, 370 7th Avenue, New York City, has just published the 1921-22—the seventh edition—of the "Export Trade Directory." There are 1,036 pages in the book.

Insulating Tape.—The Diamond Holfast Rubber Company, 33 Auburn Avenue, Atlanta, Ga., is distributing a leaflet covering the "Diamond-Holfast" two-plex insulating tape recently placed on the market.

Air Purifying Apparatus.—"Carrier Air Washers and Humidifiers" is the title of catalog No. 480, recently issued by the Carrier Air Conditioning Company, Buffalo, covering its air washers, generator coolers and other apparatus.

Stoker Coal Crusher.—The Jones automatic coal crusher for use on Jones standard stokers has been put on the market by the Under-Feed Stoker Company of America, 721 Book Building, Detroit, and a descriptive leaflet concerning it has been issued.

Electric Specialties.—The G & W Electric Specialty Company, 7440-52 South Chicago Avenue, Chicago, manufacturer of electrical specialties, has issued catalog 11, containing bulletin No. 211, covering its pot heads and accessories and bulletin 212, describing its underground boxes.

Fire Protection.—The Oil Conservation Engineering Company, Wade Building, Cleveland, is distributing a pamphlet describing the 10-gal. "Oceco" chemical engine recently developed by the company. The engine is designed particularly for use in electric power stations, transformers, relay and storage-battery stations.