

Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

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Release Needless Platform Man Power

JUST before America's entry into the war the manager of a Southern railway wished to change to one-man operation, for which his town is ideal. The news got to the men in such distorted fashion that they thought one-half would lose their jobs at once. There followed the threat of a strike, the manager's toes chilled at once, and no more was done in the matter. In the meantime a great shipyard was begun near by and the men who had been so worried about their jobs on the cars began to leave in droves. Of course, there was also the effect of the draft to make matters worse. For all that, the property is still run with two men on cars that need little more than air equipment to serve as one-man cars.

This is not an isolated case. There are scores and scores of cities equally adapted to change to one-man operation. Instead of timorously hoping that the next one or two drafts will leave them unscathed, these companies should get busy now to reconstruct their cars at least as fast as their men leave or are taken from them. Any attempt of medium-sized roads to compete with war wages is out of the question, except by reducing the number of men required to run an equal or even a greater number of cars.

Engineering and Transportation Are of Primary War Importance

THE operations of an army in the field depend now so much upon engineering that this war has well been termed largely a war of engineers. That the members of the engineering profession in the United States have responded to the call made upon them is shown by the fact, brought out at the A. I. E. E. meeting last week by General Black, that our four principal engineering societies have more than 10 per cent of their members in the service, this percentage rising, in the case of the A. S. C. E., to 14½ per cent. According to the same speaker, also, there are in the Engineer Corps of the regular army some 8000 commissioned officers and 200,000 enlisted men with engineering experience, and probably an equal number of men with engineering experience in other branches of our military forces. To these must be added, of course, to get the total engaged in war work, the very large number of engineers engaged in the construction at home of war equipment and its transportation, as well as in other allied war activities.

General Black used the figure of 25 lb. as the amount of supplies required by an army at the front per man

per day, and to deliver this finished product at the front means, of course, not only its transportation to an American port and then across the sea, but the transportation at home of many times that weight of raw material to the factory as well as of the workers themselves to and from their work. All this means that engineers and transportation men have an especial responsibility in this war to put forth their best efforts to defeat the enemy. Those not able to engage directly in foreign military service should do everything they can at home to maintain their efficiency and output to the uttermost.

McAdoo's 1-Cent Rate for Soldiers Should Not Injure the Interurbans

HOW will interurban electric lines be affected by Director-General McAdoo's order that soldiers and sailors under certain conditions shall be entitled to a rate of transportation of 1 cent per mile on steam railroads? A few seem to expect serious results and state that as the electric lines have in many cases gone to considerable expense to handle this class of traffic, the government should recompense them for the revenues lost. Even if this low rate should become chargeable on interurban lines, however, there is no reason for fear.

Secretary McAdoo's steam-railway order reads: "All fares now constructed at a lower basis than 3 cents per mile shall be advanced to the basis of 3 cents per mile—subject to the following exceptions: (E) Officers, enlisted men and nurses of the United States Army, Navy and Marine Corps, when traveling in uniform at own expense, shall be granted the privilege of purchasing passage tickets at one-third regular one-way fare when on furloughs or official leave of absence, except that this reduced fare shall not be granted on short-term passes from camp or on liberty from ships or stations to near-by cities." Probably only 10 per cent of the service riders on the interurban lines are on furloughs or official leave of absence.

Thus the service revenues on interurban lines would be only slightly reduced by an application of the 1-cent rate to such carriers, and the loss would be negligible in view of the generally improving rate situation. The institution of the 3-cent steam railroad rate has given the interurbans an unparalleled opportunity to secure the rate structure which they need for their own and the nation's welfare. As the electric carriers find themselves enabled by increased rates to perform in full their essential functions, they will be doubly glad to give any aid desired for the boys of Uncle Sam.

First Aid to Electric Railways Is Needed at Once

THE one outstanding defect in the present system of utility regulation is *delay*. Electric railways are in straits, some are in the last throes. But they cannot, as a rule, get speedy relief.

A year ago the New York Public Service Commission, Second District, received petitions for relief from more than thirty companies. It was months before the first case was decided. Then the highest court in the State decided that the commission had not power to act, and an appeal had to be made to the separate municipalities. As a consequence, many of the companies have not yet had relief.

Nearly every application for increased rates results in long drawn out and expensive proceedings varied by all the political or legal moves for delay that ingenious politicians or lawyers can devise.

In Massachusetts the increased fare movement became marked as early as 1914. The utilities in that State have been under public control more than thirty years, so that all capital issues have had the approval of the authorities, and no question of "watered stock" can be raised. Yet the average time for disposal of the fifteen cases for higher fares instituted from Jan. 1, 1914, to May 24, 1917, was 144 days, varying from 36 to 379 days each.

The appeals made early in the present year by the Comptroller of the Currency, John Skelton Williams, and Secretary McAdoo, backed up by a letter from President Wilson himself, for *speedy assistance* to utilities and especially electric railways in the hour of need, as necessary to the war work of the government, may have had some effect somewhere, but they have not changed the record materially. The long battle in New Jersey over the emergency rate case of the Public Service Corporation still goes on, although this company's service in the war program is most marked.

A notable exception is the quick decision made by the Maine commission in the case of the Lewiston, Augusta & Waterville Street Railway, which applied for a 7-cent basic fare. This case was disposed of and the fares began to come in within thirty days.

Is it possible that the lesson of the experience of the steam railroads has not been learned? Years ago these carriers proved that not only did they need greater revenue but they needed it at once. Otherwise, new extensions, new terminals, new locomotives and cars could not be provided as they were needed for growing service.

When, last winter, we paid \$10 a ton or so for coal—double the rates prevailing when the railroads just asked for relief—we were paying only part of the enormous bill which that delay in granting higher rates brought about. The savings on freight and passenger rates were trifling compared to the extra cost of coal and countless other things which the lack of transportation facilities increased.

And now we must pay the increased rates anyway, for Mr. McAdoo has put them up probably to much higher figures than would have answered had the railroads been allowed to make the increase themselves. The politicians may have won a victory, but it is costing the public dearly.

The Bay State Street Railway in Massachusetts with nearly 1000 miles of track, by reason of insufficient income, was allowed to go into the hands of a receiver. Now not only are the fares higher, but more important, the receiver got permission of the courts to discontinue about 140 miles of track.

When the drowning man is hauled out on the bank, it is no time to wait for physicians' conventions. He needs first aid immediately. Questions of investment, fair return, valuation and the like, pertinent and proper as they may be when there is ample time in the regular procedure, should not be raised to delay action upon the present emergency applications of electric railways for immediate relief.

When higher wages must be paid—and that they should be paid admits generally of no argument—and the company's revenues will not meet the bill, the public must meet it at once or delay the war program at the cost of lives abroad. It is the same with advancing bills for coal and other materials, higher taxes and the like.

The questions of adequacy or excess payment of dividends and the like can be taken up at leisure. But now is no time, when these questions stand exactly as they have stood for years in most cases, to begin the long-detailed and time-killing study that such questions necessarily involve.

The government's War Labor Board has taken this ground. If local authorities and commissions cling to the policy of obstruction, the government by one means or another will have to clear the track, through exercise of its war powers. That its program will hardly result in so much hesitation over a 1-cent increase in the fare—or even more—is shown by the course taken with the steam railroads.

Applying the Lessons of the June Conventions in October

IN REGARD to its 1918 annual convention the American Electric Railway Association is fortunate in having the opportunity to study in advance a number of other war-time conventions. June is an important convention month for associations closely bordering on the electric railway field. The National Electric Light Association, the American Institute of Electrical Engineers, and the American Society for Testing Materials have held their usual conventions, and the Master Car Builders' Association and the American Railway Master Mechanics' Association held a short joint meeting of representative members to attend to necessary business.

In all of the June conventions the entertainment features were very properly subordinated to the idea of contributing to the winning of the war. This thought of the winning of the war was probably stressed more forcibly at the N. E. L. A. meeting than at the others, but it was evident in all of the programs of the associations mentioned. Every one of these represents an industry or a line of engineering activity which is vital to the success of our greatest of all national tasks. Power supply, transportation and first-class materials for all construction are certainly three of the most essential elements in putting up a winning fight. The test of the success of these meetings is the spirit in

which those who attended, as well as those affected by the reflected influence, go about their tasks after the conventions. If each is imbued with the conviction that all considerations must bend to the country's needs, then the expenditure in time and money of those who attended the conventions will have been justified, and only then.

In surveying as a whole the conventions held in June, these aspects stand out prominently. First it is not necessary or desirable to hold large conventions, as the needs of the hour can be met by a small, representative and earnest group qualified to lead the thinking of the industry which it represents. Second, in planning the program provision should be made for postponing, until after the war, all discussion which does not relate essentially to the means for winning. Third, the addresses and discussion should be unusually definite and concrete in their suggestions, leaving for peace times, if ever, those more diffuse and ephemeral dissertations which sound well but contain little of definite applicability.

As we said editorially some weeks ago, the spirit of these war-time conventions should be cumulative. We shall be greatly disappointed if our own convention in October does not show the result of careful study of the weak as well as the strong points in the meetings of our sister societies.

Justice Will Have Its Due in the Long Run

THAT the decision of the New York Court of Appeals in the Rochester fare case need not be discouraging to utilities seeking rate increases in other states is the cheerful conclusion which develops as one regulating body after another gives its views on jurisdiction over cases of this kind. Within the past few weeks we have had encouraging news from both Missouri and Pennsylvania on the fundamental point involved in the New York decision—the power of the State to alter franchise rates imposed under a constitutional requirement for municipal consent to electric railway construction and operation. It will be recalled that, owing to the defective state of the regulatory law in New York, the court there did not rule directly upon this constitutional question, although it uttered a dictum which has led many to fear that the State will not be able to change franchise rates without a constitutional amendment.

In the St. Louis fare case the Missouri commission decided that it has power to change franchise rates, and that whatever authority the city may have had to enact the ordinance in question it was necessarily adopted subject to the provisions of the Constitution that the charter and ordinances of the city conform always to the laws of the State. The commission held that the only harmonious interpretation of the constitutional consent clause in connection with other constitutional provisions relating to the police power and legislative control over rates gives the State the right to alter franchise rates when it so elects. Indeed, the commission stated in plain words that it does not agree with the dictum of the New York Court of Appeals.

The Pennsylvania commission in the recent Petroleum Telephone Company case expressed the sound principle

that adequate service cannot be rendered by a utility company unless it shall be permitted to charge such reasonable rates as will enable it to meet operating, maintenance and fair return obligations. The opinion said:

"While rates carried in municipal ordinances may be enforced so long as they remain reasonable and do not offend against other rate provisions of the public service law, whenever under changed conditions they become unreasonable, inadequate or unduly discriminatory, they place a burden upon the public from which the public has a right to be relieved, and the machinery for proper adjustment having been created, whereby the exercise of the police power may be put in motion, all ordinances carrying unjust or inadequate rate provisions must give way. We are of the opinion that such exercise of the police power of the State does not invade the authority of municipalities or violate the sanctity of ordinance contracts."

This decision, dealing as it did with telephone law, concerned primarily the supremacy of the State rate-making power over municipal consents required by statutory enactment and did not address itself directly to the question of control over rates fixed under a constitutional consent clause. In this connection, however, it may be pointed out that the Attorney General of Pennsylvania has now advised the commission of full power on its part to fix reasonable electric railway rates, notwithstanding the fact that such rates were specified by local authorities as a condition upon which they gave constitutional consent for the construction of the lines. This is a non-legalistic broad-minded interpretation of the law—such an opinion as the New York Court of Appeals should hand down when it comes to rule unmistakably on the constitutional point involved.

Another interesting recent decision in regard to State rate-making is that of the New Jersey Court of Errors and Appeals quoted in the June 22 issue of the *ELECTRIC RAILWAY JOURNAL*. It held in brief that the State sovereignty is still unimpaired, and that municipalities cannot exceed the authority intrusted to them and must not consider their powers extended even by implication. The question of a constitutional barrier did not arise, however, for the New Jersey constitution does not confer upon cities the right to grant street franchises, and the requirement for municipal consent was imposed by legislative acts. We mention the case here only because it is an excellent late example of what the New York Court of Appeals recognized when it said: "The paramount power of the Legislature over the subject of fares has been upheld in the absence of a constitutional limitation." And now, in view of the other opinions mentioned, is it too much to hope that the supremacy of the State power will eventually be recognized by all the courts without even such a qualification?

Utility companies must not despair because a court or commission here and there holds that it is without power to give relief in cases of this kind. Justice will have its due in the long run, and the real or imaginary barriers which stand in the way of adequate rates must give way eventually, even though laws have to be changed or constitutions amended. The fight for a square deal must go on.

The New South Wales Government Tramways

Australia's Greatest Electric Railway System Serves a Large Area and Provides Both City and Suburban Service—A Unique System of Route Signs, Easily Distinguishable from a Distance, Aids Particularly to Accelerate Traffic at Switch Points

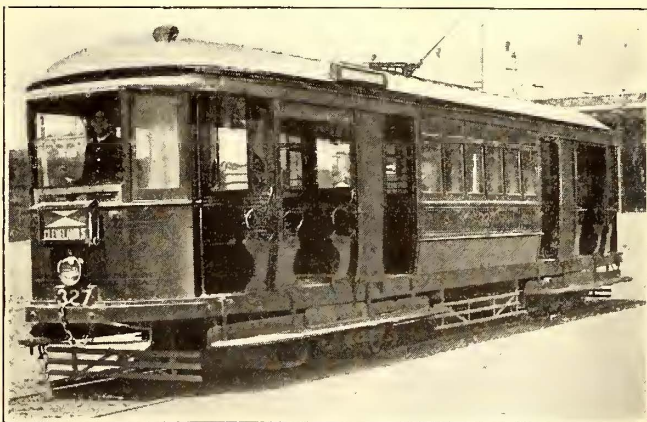
SYDNEY, the metropolis of Australia, is justly proud of its electric railway system. The New South Wales Government Tramways, as this system is called, as the name implies is owned by the state and controlled directly by the Chief Commissioner for Railways and Tramways, James Fraser. A general idea of the extent of the system and the location of the various places served can be obtained from the accompanying map. Transportation is provided to the many beaches, race tracks, pleasure grounds, etc., as well as to all the suburbs to the south and east of the city. There is very little railway competition at these points. There are many different routes, thirty of which converge to Circular Quay, the port of Sydney. An idea of the heavy nature of the traffic may be gained from the fact that between 4000 and 5000 cars pass Railway Square, one of the busiest centers of the city, between 6 a.m. and midnight each day. The system comprises 350 miles of standard-gage (4 ft. 8½ in.) track in the city and suburbs and includes one or two isolated sections. The



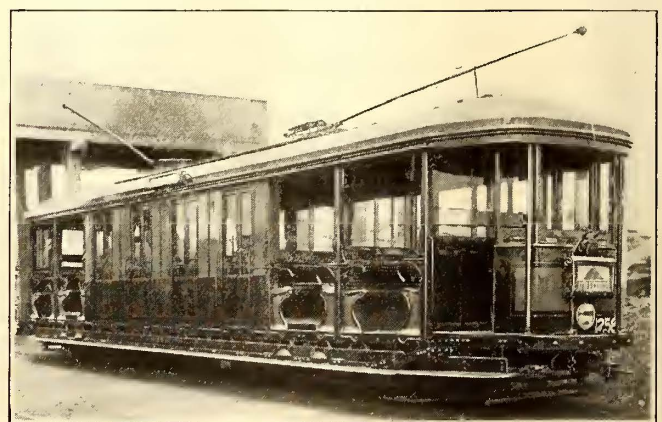
MAP SHOWING TRAMWAYS AND RAILWAYS OF SYDNEY AND ENVIRONS

rolling stock equipment is composed of 1387 motor cars, eleven trailers and 105 service cars. These were all built locally except a few of the earlier ones built by the American Car Company. All are thoroughly serviceable and are provided with the most modern devices to give the passengers comfort, safety and a rapid means of transportation. As shown in the accompanying illustrations, the cars are of single deck construction and have the end section open while the center section is closed. In the latest type car used, side doors are provided for the closed section. In other types, entrance and exits are provided on each end of the closed section. Running boards are arranged along the sides for boarding and alighting. The latest type of car used is known as

the "O" class. Cars of this type are 44 ft. 5 in. long over all and 9 ft. wide over footboards. A seating capacity for eighty passengers is provided. The control equipment is Sprague-General Electric, type M, arranged for multiple-unit operation so the cars can be connected up in trains when desired. Other types of



CLASS "O" CAR HAVING ACCOMMODATION FOR EIGHTY PASSENGERS



CLASS "L" CAR WITH ACCOMMODATION FOR FIFTY-SIX PASSENGERS

cars have K controllers and the remainder of the electrical equipment is General Electric. All cars are equipped with air brakes.

Destination signs are located just above the headlights at both the front and rear of all cars. In addition, side signs are provided at the edge of the roof. The end destination sign boxes, in addition to having the names of the various places served by the system, are provided with variously colored routing signs. These signs have geometrical figures of different colors which are visible from a considerable distance both day and night and enable the signal men properly to set the switches to give the car its proper route.

The following is a list of some of the forms in which these signs are arranged, and an idea as to their appearance can be obtained from the accompanying illustrations: White ground with one green circle; white ground with two red circles; white ground with two green circles; white ground with two green crosses; white ground with diagonal red cross; white ground with three green diamonds; white ground with green



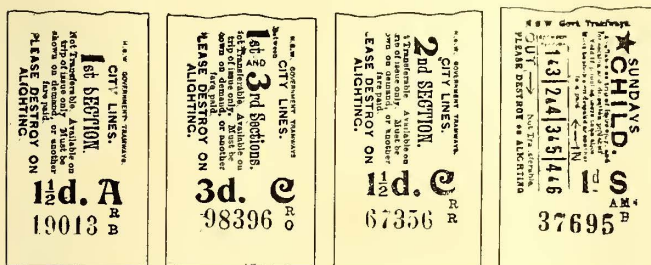
END VIEWS OF DIFFERENT CARS SHOWING LOCATIONS OF DESTINATION SIGNS

suitable points throughout the system. The location of these is indicated on the accompanying map.

In order properly to house and maintain the rolling stock, twelve carhouses are provided. The largest of these is located at the Dowling Street Depot, at which 700 men are employed. In addition an extensive construction and maintenance shop for the building and repair of rolling stock is located at Randwick.

The system of fare collection is based on the section or zone principle. The fares are moderate considering the service given. A section is from 1 to 2 miles long and the fare charge is 3 cents for a single section or at a rate of 2 cents per section where two or more sections are traveled. Each conductor is supplied with a ticket case to hold tickets of ten different denominations, as each section or combination of sections has its distinct colored ticket. Transfers are not used.

Several of the tickets are shown in an accompanying illustration. Some of the colors used are: for first section tickets, cerise; second, white; third, gray, etc. For tickets applying to more than one section, that for the first and second sections is green; first to third, sal-



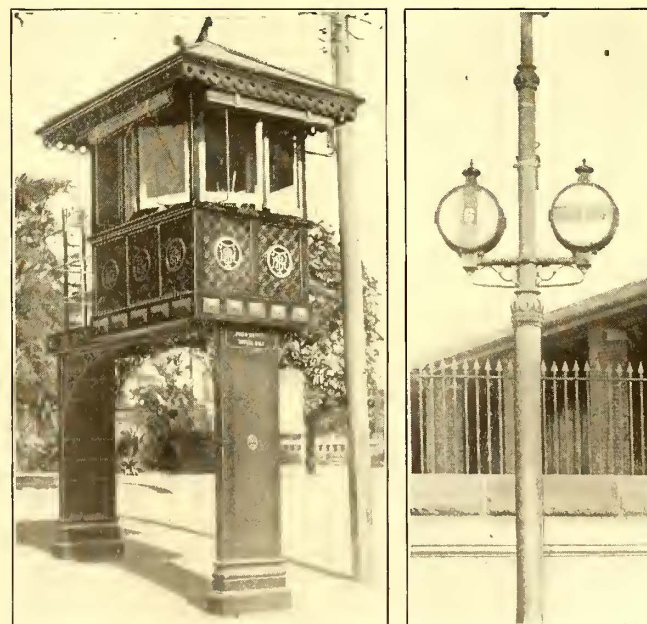
TICKETS USED BY THE NEW SOUTH WALES GOVERNMENT TRAMWAYS

and red triangle; green ground with white diamond; green and white triangles; red and white diagonal bars.

Signal towers are provided adjacent to crossings and junctions. A Park Street signal box is shown in an accompanying illustration. The design is arranged to harmonize with the surroundings and presents an attractive appearance. The monogram of the railway system appears on each panel. The signaling and switching system is interlocking. An additional illustration shows the form of signal used. These consist of two separate disks with a red stripe on a white background. When the stripe is in a vertical position as shown in the signal numbered 6 in the illustration, the indication is clear, and when in a horizontal position, as in 7, it indicates stop.

The railway tracks, in general, are located on public thoroughfares, but there are some locations where the physical condition of the country makes it undesirable for the car lines to follow the public highways. This is especially necessary on the Spit-Manly section where the cars have to ascend and descend hundreds of feet from the sea level and "negotiate" the steep cliffs rising from the shores of the harbor. There is a section on the Balmain line where the track is so steep that it is necessary to use a dummy truck to pilot the cars up and down the steep inclines.

Power for operating the cars is supplied from a direct-current overhead trolley system with rail return at 600 volts potential. The system has three generating stations located at White Bay, Ultimo and Rushcutters Bay. There are also several substations situated at



PARK STREET SIGNAL BOX, NEW SOUTH WALES GOVERNMENT TRAMWAYS, AND TYPE OF SIGNALS USED

mon; second and third, light green; first to sixth section, blue, etc. Referring to the illustration, it will be noted that the fare is printed on each ticket and is indicated in pence as 2d, 3d, etc. The large letter immediately following the fare denotes the day of issue. A is used for Mondays and Thursdays, B for Tuesdays and Fridays, C for Wednesdays and Saturdays and S for Sundays and special fares. Underneath is the serial number of the ticket and immediately following are two letters. The topmost letter indicates the depot of origin—R for Rozelle, N for Newtown, AM for Enfield, etc. The lower letter denotes the series. Special rates of fare are provided for school pupils, teachers, members of the military and naval cadet forces, blind persons and apprentices. Special rates of fare are also provided for through transportation to the parks and race courses.

Some of the statistics regarding the operation of this railway system for the year ending June 30, 1917, are as follows: Passengers carried, 295,303,714; car mileage, 25,361,992; earnings, \$10,043,700 approximately; units of power generated, 94,326,199 kw.-hr.; men employed, 10,000. There are at present about 1000 men of the Tramway Traffic Branch in active service with the Australian Imperial Forces. At the Rozelle Depot a fine monument has been erected to the memory of fallen comrades and a similar memorial is in the course of erection at Dowling Street Depot. The cost of these monuments has been defrayed by the voluntary contributions of the staff.

Standing to the Colors at Jacksonville

A PATRIOTIC custom which appears to be original with Jacksonville, although it has since spread to other Florida towns, is standing to the colors for one minute at 6 p.m. every day. At that instant the flags throughout the city are lowered, and conductors in the standing cars announce: "Six o'clock—please bare your head and stand to the colors." This act is carried out by the passengers and by men on the shipyard ferries and elsewhere. The custom, which was first purely voluntary, has now been embodied in an ordinance of Jacksonville.

The Jacksonville Traction Company was glad to comply with this patriotic practice, but it found the power-house machinery less amenable. The first time the experiment was tried, the engines in the power station nearly ran away to their ruin. It was therefore decided to modify the plan by stopping different groups of cars within four minutes, as follows: Riverside and Highway cars stop at 5.58 p.m.; Phoenix Park, Main Street, West Bay Street cars at 6 p.m., and Fairfield, Lavilla and Newman cars at 6.02 p.m. This plan has worked out satisfactorily.

The shortage of men for electric railway work has been felt in Louisville. At one carhouse of the Louisville Railway where it has been the custom of the company to have about twenty-six extra men on hand there were recently only two extra men. The company has used various means to induce men to accept positions. The company has recently begun advertising in the newspapers of the county seat of every county in the State, seeking men between the ages of twenty-one and forty who are not in class 1 of the army draft.

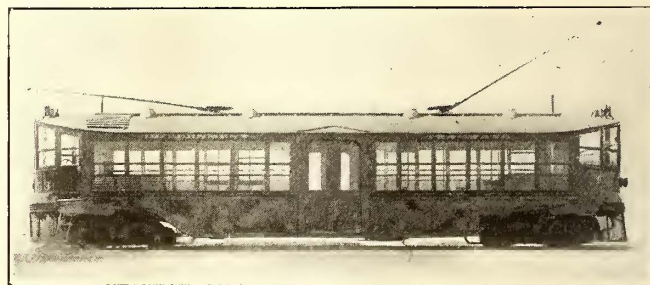


AUSTRALIAN BUILT CAR AT PERTH

New Cars for Perth

THE Perth Government Tramways have recently put in service ten maximum traction double-ended cars of the type shown in the first engraving. They were built in the company's shop and are mounted on Brill-62-E trucks and equipped with GE-218-C motors. General Electric air brakes and Ohio Brass sanding valves are used.

As an experiment the company has also added two center-entrance cars, one of the Washington type, the other of the New York type. The Washington type car has four GE-58-A motors with K-36-J controllers without contactors. The doors are hand operated. The New York type car is mounted on Brill-62-E trucks and



NEW YORK TYPE OF CAR AT PERTH

equipped with GE-218-C motors with K-36-M controllers. The capacity is fifty passengers seated and twenty-two standing, and the car has carried ninety passengers. Both cars are fitted with Westinghouse air brakes. As prepayment operation is not used, the fare box apparatus has been removed. Both cars were built by the J. G. Brill Company.

The Perth Government Tramways system comprises about 36½ miles, measured in single track, and has been a government property since July, 1913. A new power station of 12,000-kw. capacity has recently been put in operation. Distribution in the city is at 6000 volts and to the outlying districts at 20,000 volts.



WASHINGTON TYPE OF CAR AT PERTH

Power Supply for Electric Railways

At Its Atlantic City Convention Last Week, the A.I.E.E. Discussed a Number of Topics Directly Applicable to Electric Railway Power Supply—Membership Is Now 9370

THE thirty-fourth annual convention of the American Institute of Electrical Engineers was held at Atlantic City last week with an attendance of about 200 members and guests. Abstracts of several of the papers were given in the June 29 issue of this paper, page 1229, and a number of others are abstracted this week. The convention was of the simplest possible nature, with few papers which could be considered without the sectional arrangement of the program sometimes found necessary and desirable by the Institute.

Retiring President E. W. Rice, Jr., in his presidential address, reviewed the progress recently made in the design of generating apparatus, after complimenting the Institute on the addition of 1235 members during the year, bringing the total to 9370. He said that the efficiency of electric generators is about 90 per cent and transformers 98 per cent, with no material change in three years. Water turbines have been improved, having a maximum efficiency now of 90 per cent. At the same time steam turbines have reached 75 to 80 per cent of Rankine efficiency, that is the percentage of the heat available within the working range of pressure and temperature. Thermal efficiencies have gone from 10 per cent to 21.6 per cent in fifteen years. Mr. Rice also referred to the progress that had been made in increasing "system" efficiency, *i. e.*, the energy efficiency of a system, and to the effects of operating substations automatically and of tying power plants together electrically.

In addition to the technical papers General William M. Black, Chief of Engineers, U.S.A., addressed the Institute on "Engineers and the War." Charles E. Stuart of the Fuel Administration also spoke, stating the attitude of the administration toward the utilities. This is that no drastic measures will be adopted in curtailing power generation until absolutely necessary, and every effort will be made to induce economy in the use of power. There is an acute shortage due to increased demand and decreased production.

A Bird's-eye View of Electric Transportation

The Coming of the Light-Weight Motor, the Electrification Situation and Other Matters Were Considered in the Traction and Transportation Committee's Report

THE annual report of the traction and transportation committee, signed by N. W. Storer, chairman, was chiefly concerned with heavy traction and light-weight motors. It called attention to the unprecedented operating difficulties of the past year. With labor conditions at their worst, the maximum tonnage ever offered, rolling stock and motive power sadly deteriorated due to a long period of lean income—all added to a winter of unprecedented severity, it is little wonder that the trunk lines practically collapsed under the strain. The

collapse of the steam railways, however, did not extend to electrified lines, especially to the electrified steam railways. These roads operated successfully through the hardest weather. The committee urged as a war measure the most careful consideration of the possibilities of electrification, both by the government and the railways, stating that electrification will eventually be adopted because the character of service will be so much better that the railways cannot afford to do otherwise. During the war, however, the amount of electrification work done will probably be limited to places where it is absolutely essential, or especially advantageous, in order to facilitate handling of traffic necessary for the proper prosecution of the war.

LIGHT-WEIGHT MOTOR HAS COME TO STAY

In electric railway circles, the past year has been one of great hardships. The long continued cold weather, combined with the heavy falls of snow, resulted in a very unusual number of break-downs with little opportunity for recuperation. First, the general labor and material situation made it difficult to secure good maintenance. In addition, the street railways have been working for several years under increasingly heavy financial difficulties, so that in many cases the equipments were in no condition to stand the extra strain.

A feature which contributed to this result was the light-weight campaign. Ten years ago there was great need for this campaign. The idea became prevalent that it costs a railway 5 cents per pound per annum to haul its equipment around, so that it has been the end and aim of practically every man having anything to do with the design of cars and equipment to cut the weight. This has been done in a more or less scientific manner, but like all campaigns of this kind, the pendulum has swung past the limit in some respects, probably due to the fact that it is impossible to recognize the limit until it has been passed and trouble encountered. Fortunately, such trouble has not been sufficiently widespread to do more than point to the limit.

Possibilities for trouble with light-weight motors are mainly as follows: (1) open ventilation, leading to the introduction of snow into the working parts of the motor, with resulting danger to insulation; (2) higher armature speeds, leading to more rapid deterioration of armatures and wear of bearings; (3) reduction of area of parts thus increasing unit stresses; (4) danger from overloading due to lack of sufficient thermal capacity to withstand abnormal loads.

The ventilated motor has come to stay. Its advantages are too many to give up because of the slight damage resulting from snow. The logical thing to do when there is danger from this is to put tight covers over the motor openings in the winter time. The additional margin due to the lower ambient temperature in

the winter will, in practically all cases, be sufficient to keep the motor temperature within safe limits.

High armature speeds should be approached with conservatism, care being taken that the armature is sufficiently substantial to withstand the additional strains, and that bearings are of liberal dimensions, with adequate lubrication.

The use of high-grade steel is recommended, but is preferred as an additional factor of safety, rather than to get minimum weight. It must be remembered that it is not always possible to secure special grades of material for making repairs.

Trouble from overloading with the light-weight motors has come as a very disagreeable surprise to operators. It is subject to careful analysis and the reasons are easily understood. The chief reason is that the limitations of the ventilated motor are not generally understood.

The trade has been educated to believe that the continuous rating of the railway motor is the one that determines its service capacity; and that if its continuous rating is equal to the integrated loads in service, it will be ample to perform the work. This method of selecting motors was quite satisfactory with the old non-ventilated type of motors, where the motor had sufficient thermal capacity to absorb the losses generated in the short applications of heavy loads, without reaching abnormal temperatures. The modern highly ventilated motor, however, has relatively a very high continuous rating, as compared with the one-hour rating. The latter, as is well known, is really the gage of the thermal capacity of the motor and of its capacity for handling heavy intermittent loads.

When the motor that is selected for its continuous rating is required to develop four times this load for a few minutes under some abnormal condition, a non-ventilated motor would be loaded to only about 60 per cent above its one-hour rating, while the highly ventilated motor would be loaded to two and one-half or three times its one-hour rating, resulting in a much greater rise in temperature. Where this abnormal load is applied at low speed, as is apt to be the case, the trouble is further accentuated, due to the decreased ventilation secured with fan-cooled motors.

The logic of this situation is simply that motors of the ventilated type for a given service will require a higher continuous rating than one of the non-ventilated type. Due regard must be paid to the capacity for short-time overloads in order to avoid reaching a dangerous temperature under abnormal conditions.

There seems to be a distinct tendency towards more conservative selection of equipments for street car service, since it has been definitely established that the cost of maintenance of motors which are worked beyond their capacity, added to the cost of unreliable service, is so high as to offset any possible saving resulting from the lighter weight. This is also leading to a return to four-motor equipments, simply because of their greater reliability under abnormal conditions. It is hoped, however, that any return along these lines will be taken with the greatest care and with the maximum utilization of the experience that has been secured up to date. Having been at both extremes, it should now be possible to adopt a mean position which will give the very best results.

Great savings in energy can be effected without cutting the weight of the equipment, by attention to improved methods of operation and, especially, by the further use of field control. It is hoped also that eventually it will be possible to make use of regenerative control for elevated and subway equipment, at least. This has worked out so satisfactorily on mountain grades that its extension to car equipment seems very desirable.

Experience with an Automatic Hydroelectric Power Plant

Seven Months' Operation of Cedar Rapids, Ia., Automatic Plant Has Demonstrated that Scheme Used Is Practical for Existing Local Conditions

SINCE October, 1917, there has been in operation at Cedar Rapids, Ia., the automatic hydroelectric plant of the Iowa Railway & Light Company. This plant is a further development of the automatic substation idea. Its construction and operation were covered in a paper at the Atlantic City meeting by J. M. Drabelle and L. B. Bonnett, the former of the Iowa Railway & Light Company and the latter of the General Electric Company. This plant was fully described in the issue of the *ELECTRIC RAILWAY JOURNAL* for Dec. 1, 1917, page 980, and its salient features were emphasized in an editorial on page 978 of the same issue. Supplementing the earlier article the following notes are based on the paper by Messrs. Drabelle and Bonnett, to indicate the results of the last winter's experience with the plant.

When the paper was written the station had been in operation about seven months, and during this time the total flow of the river had been used at all times. The plant had fed into the transmission system a total of about 3,000,000 kw.-hr. There were a few failures to start, as no automatic apparatus can be absolutely infallible, but the source of the failures has been found and removed.

The equipment is designed to shut down in case of abnormal conditions, so that all the machines will be protected against injury. It operated so successfully that, in spite of the shortage of help and pressure of other work on the part of those in charge, the plant ran continuously for ten weeks with no attention of any kind to the automatic equipment. There have been several cases of exciter trouble at the main steam station, resulting in a complete shutdown of the automatic plant. As soon as the bus voltage was restored the automatic equipment put the hydroelectric plant back onto the line without attention of any kind and with no damage to any machines.

Since the plant was put into operation the changes that have been made consist essentially of substituting heavier and more reliable relays at one or two points in the control system. The plant has successfully withstood short-circuits, exciter failures in the steam plant, low and high water, and all of the test conditions which those in charge of the work desired to place upon it, without damage. Incorrect operations have been brought about artificially, further to test the plant, and it has been operated by the regular operating force of the steam plant. There has been no occasion to keep men in the hydroelectric plant to watch its operation.

In concluding their article the authors point out that if the automatic development means anything at all it will now be possible to develop a large number of small, low-head plants and to tie them in on a high-tension system, leaving their operation entirely to the float switch and voltage relays. If there is voltage on all three phases of the high-tension line and water for the turbines, they will start up and go onto the line without wrecking themselves or disturbing the operation of the remainder of the system. In these days of scarcity of coal and of labor, together with high prices for these, the utilization of our water power is of national importance. With the elimination of the excessive cost of labor for small plant operation, many water-power sites can be made paying investments.

Keeping Direct-Current Apparatus from Flashing

High Speed Circuit Breakers and Arc Barriers Have Been Proved Effective in Limiting the Effects of Short-Circuits

THE latest practice in protecting d.c. equipment from flashing was described in a paper by J. J. Linebaugh and J. L. Burnham, both of the General Electric Company, Schenectady, N. Y. The subject is of particular importance at this time on account of the flashing problems incident to the automatic substation and to high-voltage heavy traction. As the authors point out, the problem of protection from flashing has for many years confronted engineers who build and operate d.c. machines. Some form of bar-

coils short-circuited by the brush as each segment of the commutator passes from under the brush. The spark or arc tends to hold, due to the inductive character of the coil, and if the arc is of sufficient volume the vapor produced thereby forms a low-resistance path between segments and from brush to brush or to frame. The value of load that causes flashing when applied suddenly, *i. e.*, short-circuit, is a function of the time required to throw it off. The quicker the circuit is opened the higher the value of current that will not cause arcing.

With the ordinary circuit breaker which begins to open at about one-quarter of a second there is a certain maximum load which cannot be exceeded for each commutating machine without causing flashing. If feeders have a sufficient resistance to limit the short-circuit current to this critical value, flashing will occur only on the rare occasion of a short-circuit in a feeder itself. It has been the standard practice of nearly all manufacturers to recommend the tapping of feeders, especially railway feeders, at a sufficient distance from the substation to insure enough resistance in the circuit to limit current in case of short-circuit near the station.

With special high-speed circuit-opening devices, operating at about 0.005 second, the more sensitive machines, such as 60-cycle synchronous converters for railway voltages, may be short-circuited without flashing over even though the maximum current is of higher value than would cause flashing with suddenly applied load in ordinary circuit-breaker operation.

After considerable experimentation the engineers of the General Electric Company decided to concentrate

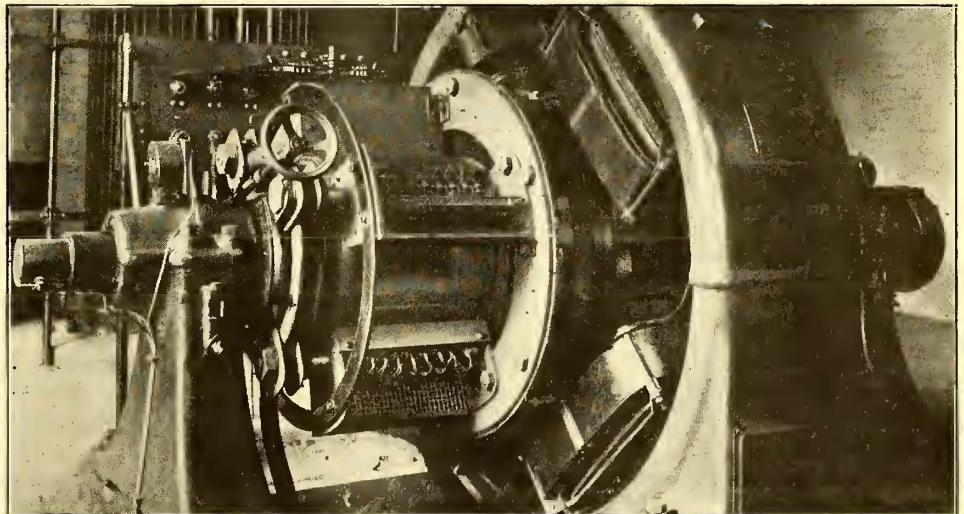
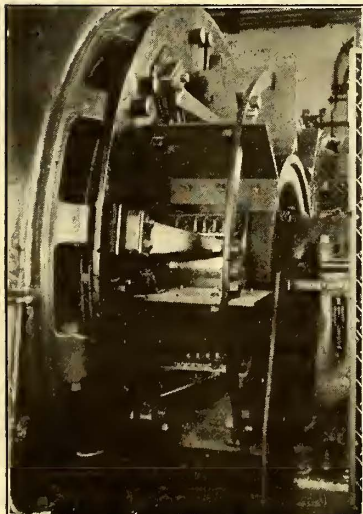


FIG. 1—FLASH BARRIER INSTALLED ON 2000-KW., 3000-VOLT, SYNCHRONOUS MOTOR-GENERATOR SET USED IN CONNECTION WITH HIGH-SPEED CIRCUIT BREAKERS. FIG. 2—500-KW., 25-CYCLE, 600-VOLT SYNCHRONOUS CONVERTER EQUIPPED WITH COMMERCIAL FORM OF FLASH BARRIER INSTALLED IN AUTOMATIC SUBSTATION

rier has been the most common protection suggested, but most attempts to apply this plan have been unsuccessful. It was realized, also, that the means for preventing flashing at the commutator and brushes of d.c. machines must operate to remove the cause very quickly. In this paper a special form of barrier which gives the required protection, and two forms of high-speed circuit breakers were described.

A flash at the commutator starts from excessive sparking, produced by the breaking of current in the

their energies on the design of a circuit breaker using the principle of a latch, a heavy spring and a series tripping coil. The problem was to obtain very quick tripping, rapid acceleration of contact and a sufficient number of ampere-turns in the magnetic blow-out to insure rapid breaking of the arc. A very special latch with a light tripping movement was designed somewhat similar to the hair trigger on a rifle, so that about 0.001 in. movement of the plunger would trip the breaker.

A breaker of this type was tested exhaustively in connection with a 2000-kw., 3000-volt d.c. synchronous motor-generator set built for the Chicago, Milwaukee & St. Paul electrification, and some have been in service in the substations of this railroad since early in 1917.

Later another type of high-speed breaker has been developed and forms part of the more recent equipment being furnished to the St. Paul. This consists essentially of a contactor having a laminated structure with electric holding coil and series bucking coil so that it opens when the load current reaches a value sufficient to offset the ampere-turns of the holding coil.

ARC BARRIERS ARE NECESSARY ALSO

In connection with the tests described it was found that even with the very high speed obtained it was not possible completely to protect the machines from flashing on the most severe short-circuits, and barriers were designed and installed to supplement the circuit break-

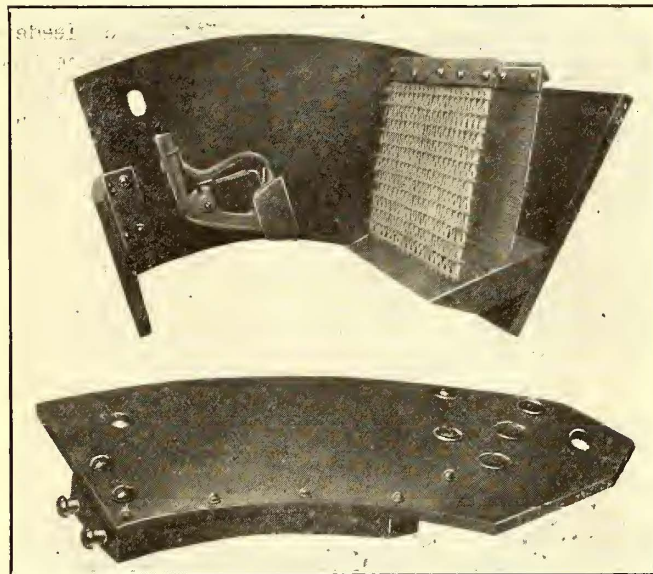


FIG. 3—FLASH BARRIER WITH FRONT REMOVED TO SHOW LOCATION AND CONSTRUCTION OF ARC SCOOP AND WIRE MESH ARC COOLERS

ers. Barriers of the type shown in Fig. 1 were installed to delay the time of flashover so that the breaker could give complete protection.

Further experimenting resulted in the general arrangement of a successful barrier as shown in Fig. 2. Here a close-fitting box of fireproof insulating material surrounds each set of brushes and is located so as to give a small clearance between the box and the commutator. On the side of the box toward which the commutator rotates after leaving the brush is fastened a V-shaped "scoop" (see Fig. 3) of fireproof insulating material, preferably having good heat conductivity. This points toward the brush and has a small running clearance from the commutator. Radially above the scoop about 1 in. apart are two metal screens, one coarse and one fine mesh, through which the arc is successively forced and cooled.

The scoop runs very close to the commutator with narrow edge and small clearance and picks up the arc from the commutator and deflects it into the arc coolers which, from their construction, allow free passage of all gases generated by the arc. The cooling and con-

densing of the arc reduces the gas pressure so that shields at the end of the commutator, installed to prevent the arc from being thrown from the end of the commutator and communicated to the pillar block and frame, are permissible.

Direct-current machines for use in automatic substations are being equipped with these barriers and short concerted tests at the substations have been taken, indicating that they will take care of any short-circuit experienced in actual service. These barriers are in operation and short-circuit tests were taken on a 500-kw., 600-volt, 25-cycle synchronous converter of the Des Moines Electric Railway; a 500-kw., 600-volt, 60-cycle synchronous converter of the Columbus Electric Railway & Light Company, Columbus, Ohio, and a 500-kw., 30-cycle, 1200-volt synchronous converter at Montith Junction, Mich., and other installations are now in service.

The investigations and tests indicate that if any commutating machine is equipped with barriers and the last high-speed circuit breaker described, complete protection will be given against external short-circuits of all kinds so that interruptions to service will not be of any greater duration than necessary for closing the circuit breaker as in ordinary overload operation.

DISCUSSION ON ANTI-FLASHING APPARATUS

The paper of Messrs. Linebaugh and Burnham brought out some interesting discussion. One speaker referred to methods developed by the Interborough Rapid Transit Company to prevent flashover. In one case a condenser was connected in series with the trip magnet so that the latter would be actuated when there was an instantaneous drop in voltage. He emphasized the disadvantages of a high-speed breaker stating that it is easier to use a choke coil with the trip coil shunted across it. With this arrangement the switch will open when there is an impulse voltage impressed.

Another speaker commended the method described by the authors as logical in supplementing existing apparatus. He mentioned another method of attacking the problem, consisting of the short-circuiting of the windings of the machine through collector rings to reduce the voltage below the flashover point and at the same time to reduce the field flux. (See *ELECTRIC RAILWAY JOURNAL*, May 4, 1918, page 858.) Attention was also directed to the disadvantages of barriers in that the commutator and brushes are rendered inaccessible thereby.

Large Diameter Trolley Wheels Give Good Results

The Oakland, Antioch & Eastern Railway is reported to be enjoying continued success with various makes of 10-in. trolley wheels originated by this company and described in an article by F. A. Miller in the *ELECTRIC RAILWAY JOURNAL* of Aug. 14, 1916, page 278. With a 6-in. wheel previously used, the limit of life was frequently as low as 90 miles with a trolley pole tension of 35 to 40 lb. With the 10-in. wheels it was found that the tension could be reduced to from 25 to 30 lb. and the life of these wheels with this reduced tension was increased to 6000 miles and more. Wheel dewirements and pole troubles were also greatly decreased.

Employees Demand Wage of 60 Cents an Hour

In Leading Cases Before War Labor Board Union Representatives Give Their Idea of a Reasonable Wage—Want Platform Time of Nine to Ten Hours Performed in Eleven to Thirteen Hours, With Time and a Half for Overtime—Cleveland Railway Says Demands Are Excessive

THAT 60 cents an hour is a reasonable wage for electric railway trainmen is the contention advanced by union representatives in leading cases now pending before the War Labor Board. Data to this effect were introduced by brief and by witnesses before the board at the hearings which began on Monday, June 24, in Washington, D. C.

It will be recalled that upon the opening of the hearings the joint chairmen, William H. Taft and Frank P. Walsh, stated that the board wished to hear arguments upon two points: (1) What recognition should the board, in making wage awards, give to the financial status of the companies? (2) What is a living wage? As described in detail in the *ELECTRIC RAILWAY JOURNAL* of June 29, the arguments on the first point during the week seemed to impress the chairmen with the fact that although it is the duty of the board to fix reasonable wages, despite the poor financial condition of utilities, any awards made should be accompanied by a recommendation for fare increases by federal action in order to prevent the awards from being nullified and maximum production from being injured.

When this point became established, and as the railway men and union representatives were drawing up a mutually satisfactory brief holding that both Congress and the President have power to increase electric railway fares without assuming further control of the properties, the attention of the board was turned to the second question—that of a living wage. Some evidence and briefs were then presented, from which one can secure a good idea of the general propositions being advanced before the board.

The board announced that in order to expedite proceedings and not cumber up the records, it would consider as evidence in any of the twenty-four cases before it the relevant and material evidence in any of the other cases. The companies to make arguments after the general railway case was completed were asked, therefore, to confine their attention to local conditions. Inasmuch as most of the railway men had come prepared to discuss the point of wages only in connection with their individual cases, not much general evidence was introduced by the carriers. The Detroit and Cleveland companies, however, presented arguments on their cases, and the Chicago Surface Lines, the Chicago Elevated Railways and the Public Service Corporation of New Jersey were given a short extension of time to prepare evidence in detail.

ISSUES RAISED IN CLEVELAND AND DETROIT

According to the union brief, the principal points in controversy in Cleveland and Detroit include schedules,

wages and overtime. In the men's opinion, schedules and overtime are so interwoven with wages that unless both are satisfactorily fixed an award of a substantial increase in wages could be made ineffective by operation within excessive outside time and with improper pay for overtime.

At present the wages in Detroit are 30 cents an hour for the first three months of service, 35 cents an hour for the next nine months and 40 cents an hour thereafter. In Cleveland the present wages are 32 cents an hour for the first year and 35 cents an hour thereafter. The request of both the Detroit and Cleveland organizations is for a wage rate of 60 cents an hour. It has been agreed that the Cleveland award by the War Labor Board shall be effective as of May 1, 1918, and that for Detroit as of June 1, 1918.

LIMIT DESIRED FOR OUTSIDE TIME

The employees in Cleveland and Detroit, it is said, are not seeking a shorter work day, although various public bodies are decreeing a basic eight-hour day. The men are willing to work for a longer period "as that is the only way they see of obtaining an adequate weekly wage." In their opinion, however, the runs should be so arranged that the platform time would be from nine to ten hours performed as follows: 40 per cent of the runs within eleven hours; 40 per cent within eleven to twelve hours, and 20 per cent within twelve to thirteen hours—with, of course, the understanding that each 40 per cent would be considered a minimum and the 20 per cent a maximum.

To show the board that this proposition is practical, the men quoted from agreements between these Massachusetts companies and their employees as follows:

Boston Elevated Railway:

At least 70 per cent of all schedule runs are to be within eleven hours, and in no case is a schedule run to have outside time in excess of fourteen hours.

Bay State Street Railway:

In the arrangement of schedules as many runs as possible shall be made nine hours to be completed within eleven consecutive hours, consistent with the remainder being arranged to the best advantage in runs of not less than eight or more than nine and one-half hours, to be completed within twelve consecutive hours, except that not more than 20 per cent of the total runs may exceed twelve but not fourteen consecutive hours.

Springfield Street Railway:

Worcester Consolidated Street Railway:

Not less than 60 per cent of the schedule runs shall be not more than nine hours work, and shall be so arranged that not less than one-third thereof shall be completed within eleven consecutive hours, and not more than one-third thereof shall be completed within twelve consecutive hours, and that the remainder thereof shall be completed within eleven and one-half consecutive hours. Not more than 40

per cent of the schedule runs may be, but shall not exceed, nine and one-half hours' work, and shall be so arranged that not less than one-half thereof shall be completed within eleven consecutive hours, and not more than one-half thereof shall be completed within twelve consecutive hours.

James H. Vahey, counsel Amalgamated Association of Street & Electric Railway Employees, stated that when a man started to work at 5 a.m. he ought to finish work at least in the middle of the afternoon. The men must submit to hardships necessary to the business, but the outside hours should be as short as possible in order that the men may be enabled to get rest and recreation.

The union leaders also called attention to the decision of Justice Higgins of the Australian Commonwealth Arbitration Court (6 Com. Arb. 168). Justice Higgins fixed eight platform hours a day to be performed within nine consecutive hours. He went further and fixed a week of only six working days, with provision that "the overtime for any excess of forty-eight hours

Owl-car runs should be straight with no more than eight hours' time to pay the full ten hours' time allowed to other employees.

COST OF LIVING UP 42 PER CENT

In taking up the wage question itself, the Detroit and Cleveland brief presented as a basis the following summary of the rise in the cost of living for the last two years:

	Per Cent Increase	Weight	Product
Food.....	52	43.47	2,260
Rent.....	20	15.25	305
Clothing.....	53	13.02	690
Fuel and light.....	31	5.69	176
Sundries.....	35	22.57	790
Total weighted increase, 42.21 per cent.			4,221

In commenting upon this table the brief states that the Railroad Wage Commission decided to adopt a fig-

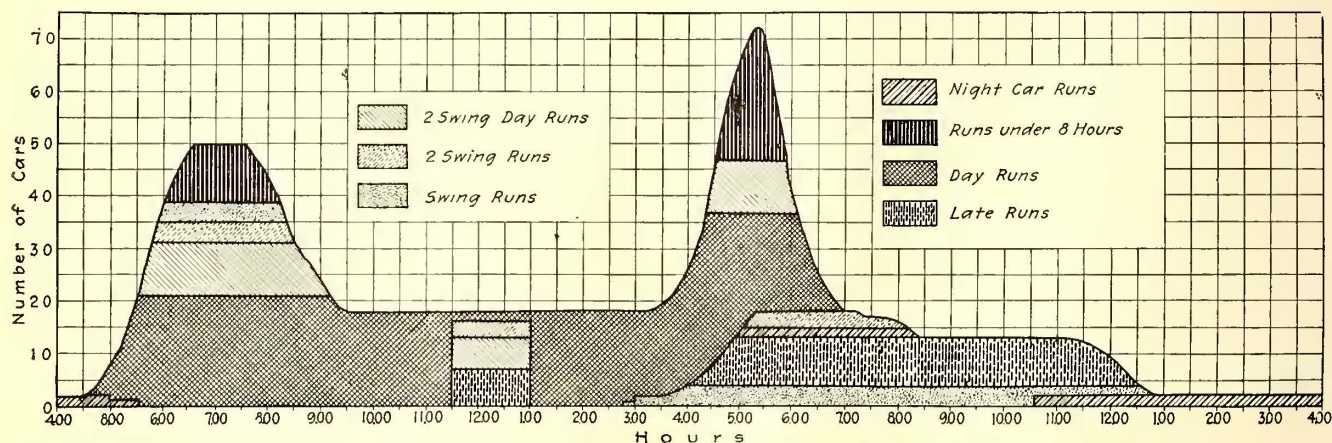


DIAGRAM NO. 2—CLASSIFICATION OF RUNS ON TYPICAL CLEVELAND LINE UNDER PROPOSED WORKING CONDITIONS

shall be calculated at time and a quarter for the first two hours, and at time and a half afterward." This overtime rate of time and a half applied to all time on Sundays and holidays.

CLEVELAND PROVISION OF TIME AND A HALF FOR OVERTIME IS DEMANDED

The employees in Detroit are asking the War Labor Board to make the same overtime provision as already exists in Cleveland, namely:

All motormen or conductors who are called upon to work extra trips or do other extra work in addition to the runs to which they are respectively assigned, shall be paid time and a half for all such time, and time and a half from the completion of their run to the starting time of the extra trip or extra work. Where a run has a swing of one hour or less, the motorman and conductor working such run shall be paid for such swings. (This does not apply to relief for dinner on two-swing runs.)

In general, the employees allege, the trades such as machinist, carpenter, painter and the like have a basic day which is usually only eight hours long, and then receive double time for all overtime. Electric railway employees are asking only time and a half after a day's work of from nine to ten hours. Extra pay for overtime, it is said, is the logical way to force the standard day of reasonable hours with no work thereafter.

As for Sunday and holiday work, the Detroit and Cleveland men ask that it be established on a basis of not to exceed eight hours straight time in one day.

ure of from 37 per cent to 38 per cent as representing the rise in the cost of living for the United States as a whole for the two-year period from January, 1916, to January, 1918. It would, however, be natural now to expect a higher increase for the following reasons:

1. The period used in the table is from May to May. In this period a greater increase took place in all the items (particularly clothing) with the exception of food.

2. The figure for rent increase was taken by the Railroad Wage Commission at 10 per cent, which was the average they found for the country as a whole.

They found the increase in what they called the "Eastern Territory," however, to be 15 per cent.

3. What figures could be obtained on rentals in Detroit and Cleveland show that the figure for rent increase for those two cities is too low.

4. In the words of the Railroad Wage Commission, the figure for the increase in clothing is low.

With regard to a minimum wage expressed in dollars, the employees cited the finding of Dr. Chapin, professor of economics Beloit College, to the effect that an income of \$900 or more properly permits "the maintenance of a normal standard at least as far as the physical man is concerned." Since his investigation in 1907, however, the cost of living has advanced about 75 per cent, which would give a living minimum wage of \$1,575 upon the same standard of living.

The desired hourly rate of 60 cents would give the following yearly incomes:

Eight hours per day; 300 days per year; income of	\$1,440
Eight hours per day; 325 days per year; income of	1,560
Nine hours per day; 300 days per year; income of	1,620
Nine hours per day; 325 days per year; income of	1,765
Ten hours per day; 300 days per year; income of	1,800
Ten hours per day; 325 days per year; income of	1,950

Thus, the employees state, at a rate of 60 cents an hour a man would have to work at least nine hours a day for 300 days a year in order to earn a wage of \$1,620 and save \$45 above the \$1,575 cost of living. If he wished to save more, as he should do, he would have to work either more days a year, or else more hours a day.

Applying the increase in the cost of living during the last two years to the wage rates received by the men in 1916 gives the following results (only the maximum rates being considered):

	Wages in 1916	Increase	Result
Cleveland	34 cents	42%	48½ cents
Detroit	35 cents	42%	49½ cents

If 5 cents is added for compensation for past hardships and another 5 cents for the increase expected during the coming year, the wage rate of 60 cents an hour, in the men's opinion, then shows itself to be fair and reasonable. Moreover, this rate is asserted to

Upon the basis of the increased cost of specified items of expenditure in 1911, 1914 and 1917, as compared with the cost as ascertained for 1900 by the Bureau of Labor Statistics, the records for families with incomes of \$1,000 and under \$1,100 would be:

	1900	1911	1914	1917
(340 Families—Nine Months)				
Food	\$349	\$457	\$509	\$764
Clothing	136	151	152	264
Rent	158	211	209	251
Fuel and lighting	44	44	50	90
Sundries	213	243	239	315
Total	\$900	\$1,106	\$1,159	\$1,684
Increase in 1917 over 1911, 52 per cent.; over 1914, 45 per cent.				

The average wage of the men involved in Chicago, it is said, is about \$90 per month or \$1,080 per year, and the comparison shows that it will take \$1,684 a year to cover the present living cost on the basis of the 1900 standard. This result is close to the figure of the Bankers Trust Company arising from a 50.9 per cent increase. Moreover, it is added, the April *Monthly Review* of the Bureau of Labor Statistics reports the average family budget for twenty-four principal cities in this country to be \$1,650.

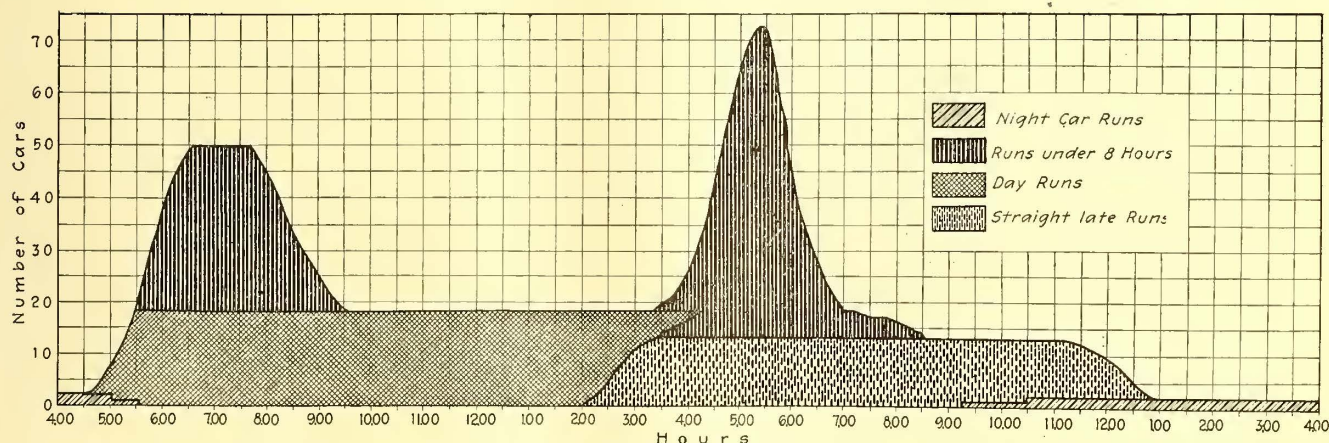


DIAGRAM NO. 2—CLASSIFICATION OF RUNS ON TYPICAL CLEVELAND LINE UNDER PROPOSED WORKING CONDITIONS

be below the going rate for skilled labor, in which class the employees place themselves because of their exercise of skill and assumption of responsibility.

SPECIAL DATA ABOUT CHICAGO

From the brief filed by the union men in the cases of the Chicago Surface Lines and the Chicago Elevated Railways it appears that the surface trainmen are receiving from 30 cents an hour for the first three months up to 39 cents an hour for the fifth year and thereafter; the elevated motormen, 41 cents an hour; the elevated conductors 34 cents an hour and the guards 31 cents an hour.

On the basis of tables prepared by the Bankers Trust Company, New York, to show the proper percentage of the salary of employees to be paid as a bonus to offset the increased cost of living, it is said that the surface and elevated employees who are receiving from \$900 to \$1,199 are entitled to an increase of from 50.2 per cent to 50.9 per cent, while those receiving less than \$900 are entitled to a raise of more than 48.4 per cent. This, it is stated, does not take into consideration the increase in the cost of living since December, 1917.

In the course of the hearings John Fitzpatrick, of the Chicago Federation of Labor, stated that the general rate of wages specified for 1917 in the building trades of Chicago was 70 cents an hour; for 1918 the rate has been increased to 80 cents with one or two exceptions. In his opinion, this gives the closest basis for considering the rate of wages which should apply to electric railway operation in Chicago. Mr. Fitzpatrick said that the pauper budget established by the United Charities of Chicago was \$1,000 for a family of five. Provision for insurance and other necessary items not included would increase this amount by \$108. Even the pauper budget itself, however, would require a wage rate of 46 cents an hour.

CLEVELAND RAILWAY PROTESTS AGAINST EXCESSIVE INCREASE

The Cleveland Railway, as noted in last week's issue, concedes that its employees are entitled to an increase in wages because of the sudden and unexpected rise in the cost of living, but it can find no excuse for the men demanding a raise to 60 cents an hour, or 71 per cent, at this time. Motormen and conductors are not skilled employees, in the sense in which the

term "skillful" is commonly used, for only a few days' training is needed to enable one to perform the duties. The work is not difficult—it is, in fact, much easier than almost any other unskilled employment. On the other hand, the work is attractive and continuous, not being affected by weather conditions as are the building and many other trades.

At the suggestion of the War Labor Board the Cleveland Railway collected the data shown in the accompanying table bearing upon the wages paid and increases made in other lines of employment. This table shows that the railway, between March 1, 1910, when it resumed the operation of its railroad after the receivership, and May 1, 1917, when its last wage agreement with its motormen and conductors was made, advanced wages 41 per cent, while the average increase in the other occupations, including the advances of June 1,

COMPARATIVE WAGES AND INCREASES IN CLEVELAND

Employment	Cents per Hour 1910	1918	Per Cent Increase
Electric railway men.....	24	35	41.0
Bricklayers.....	60	90	50.0
Iron-workers.....	60	90	50.0
Lathers.....	56½	85	51.1
Plumbers.....	56½	81½	43.8
Steamfitters.....	56½	81½	44.4
Carpenters.....	45	80	77.8
Hoisting engineers.....	45	85-90	88.9-100
Building laborers.....	25-35	55	57.1-120
Pipefitters.....	45	70	55.5
Painters.....	42½	67½	58.8
Stonecutters.....	56½	77½	37.8
Average.....	48.29	77.50	60.49

1918, has been 60 per cent. An advance of 60 per cent to trainmen over the average wage of 24 cents an hour that they were receiving in 1910 before the company resumed possession of its property would bring the average wage now to 38.4 cents. The same advance over the average wage paid June 1, 1910 (25 cents an hour), would give them now 40 cents.

If the same increase in wages were granted to the employees of the Cleveland Railway, as was recently allowed to the steam railroad men, conductors and motormen who on Dec. 31, 1915, received 29 cents an hour would be raised to 41 cents an hour, and those who then received 32 cents an hour, the maximum then paid, would be advanced to 45½ cents an hour. The company believes, however, that a smaller advance should be made to its trainmen than to steam railroad men.

Bradstreet's "Weekly Food Index" for each week of this year and each corresponding week of 1917, indicates an average advance in the prices of thirty-one foods of less than 20 per cent over last year. It indicates also a gradual decrease in rise in prices since the beginning of 1918. The percentage increase of 35.34 for the first week in January, 1918, as compared to the same week in 1917, has gradually dropped to 8.61 for the last week reported in June.

In the matter of changes in working conditions, the Cleveland Railway objects that several hundred more men would be required to follow out the men's demands. It is even now difficult to find enough men to operate the railway properly.

Diagram No. 1 shows the number of cars necessary to give the service required by the city on a typical line and the present arrangement of runs to operate these cars. Diagram No. 2 shows the same line, with

the runs rearranged as proposed by the union. Comparison of the two shows the enormous increase in the number of short runs and in men required.

The total number of men now working eight hours is 1951. Under the proposed scale the number of men working eight hours would be 1385; that is, 566 men who are now working eight hours would have to be satisfied, under the proposed arrangement, with something less than eight hours. The total number of men now working less than eight hours is 423, which number, under the proposed schedule, would be increased to 1844. That is to say, 1421 additional men would be required to work less than eight hours.

The number of men now operating three typical lines is 350. The proposed arrangement would require 476 men to do the same amount of work. For the entire system 2374 men are required to operate the present schedule. Under the new arrangement 855 additional men would be required—an increase of 36 per cent—to operate the same number of car-miles.

Under the present arrangement, the company has now a five-hour minimum; that is, a man is paid for at least five hours if he works at all. At present the company is required to pay each year for 179,819 hours for which it has received no service. The proposed arrangement of runs would increase this "dead" time to 462,134 hours a year, for which the company would be required to pay the full wage without receiving any service. At the present wages this would require an expenditure of \$161,746. If the maximum demand as to wages were granted, it would cost the company \$277,280 a year for "dead" time alone.

During the hearings F. H. McCulloch, Evanston, Ill., testified that the 10-mile Evanston Railway is paying 38 cents an hour, or about \$120 a month. The policemen, firemen, drivers of coal trucks, drivers of milk wagons and all men performing service similar to that of electric railway men are receiving at least 20 per cent less. The company has more applicants than it can take into service. Small lines of this sort should not be overlooked in the general wage discussion.

CURRENT OPINION IN WASHINGTON

Newspaper reports that the War Labor Board will hand down its wage decisions in the near future are not subject to confirmation in Washington. It is stated to the Washington correspondent of the *ELECTRIC RAILWAY JOURNAL* at the office of the board that there are so many reports and briefs still to be considered that some time may elapse before decisions are reached. Mr. Taft has taken much of the material to his summer cottage at Murray Bay, Canada, where he purposes to work further before decisions are announced.

In official as well as electric railway circles in Washington it is believed that President Wilson will soon appoint an electric railway administrator because of the necessity of giving assistance under a strong guiding hand to the electric railway industry as a war measure. The appointment may be made at any moment. On the other hand, there may be a delay because of the continued absence of the Director General of Railroads from the city. There is a disposition in official circles to doubt recent newspaper reports that Peter Witt, Cleveland, will be the appointee.

Five Cent-Seven Cent Fares for Pittsburgh

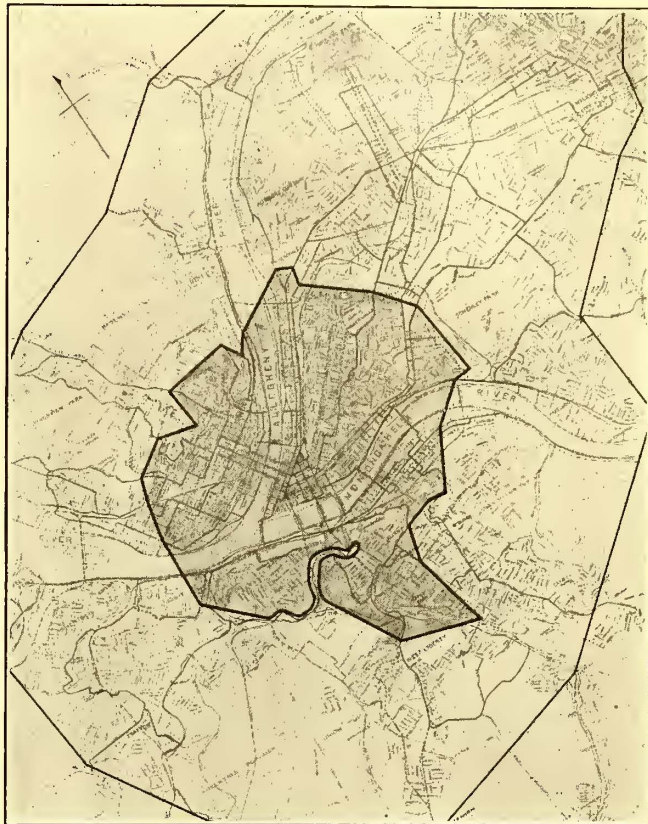
An Analysis of Conditions Shows This to Be the Most Equitable Arrangement — Outbound Passengers Pay as They Leave, While Inbound Passengers Pay as They Enter

ON JUNE 20 the Pittsburgh Railways superseded the former 5½-cent fare which has been in effect since Jan. 22 last by inaugurating a 5 cent-7 cent fare. This is a combination of a flat rate and a zone system and is believed to combine the good points of each class of rates.

The 5½-cent fare placed in effect last January included the use of tickets sold either two for 11 cents, or ten for 55 cents. If a cash fare was paid the amount was 6 cents, and if a dime was given and pennies were not available for change, a 4-cent rebate coupon was given. This system was explained in the *ELECTRIC RAILWAY JOURNAL* of Feb. 9, page 278.

During the past months the majority of the car riders have availed themselves of the 5½-cent fare by purchasing tickets, but the greater number bought the two-for-11-cents tickets instead of the longer strips, in spite of the fact that they used the cars every day. The sale of tickets in such small quantities was found to cause great inconvenience to the conductors.

The number of persons traveling on the cars has decreased about 8 per cent during the past four months as compared to the same period last year. The company attributes this decrease in part to the large number of young men who have gone into military service and who were formerly in the habit of using the cars, especially in the evening; in part to the natural instinct of persons to economize during this time of necessary sacrifice, and, in part, but of less importance than the other factors, to the ½-cent increase in fare. In consequence of this decrease in travel, the increase



CENTRAL AREA REPRESENTS PITTSBURGH'S 5-CENT ZONE. TO RIDE IN OUTSIDE AREA FARE IS 7 CENTS AND BEYOND SECOND LINE ANOTHER 7 CENTS

in revenue resulting from the 5½-cent fare has been little more than 2 per cent. It therefore became necessary to obtain a further increase in fares, and various methods were proposed and analyzed. It was determined that it would take at least 7 cents, if a uniform fare was charged, to insure proper street car service.

The inequalities of a flat fare have been appreciated by the railway industry from time immemorial. The Pittsburgh Railways analyzed one of its typical lines to determine the extent of this discrimination. It was found that based on the car-miles and passenger-miles per day in each 1-mile zone between Pittsburgh and Wilkinsburg the amount of fare that would be paid at the average rate of fare then in effect, if each passenger paid according to the distance he rode and according to the number of passengers on the car in each mile zone, would be as follows:

First mile	1.49 cents
Second mile	1.50 cents
Third mile	1.60 cents
Fourth mile	1.63 cents
Fifth mile	1.75 cents
Sixth mile	2.15 cents
Seventh mile	3.99 cents
Last ¾ mile.....	6.60 cents

In place of this, however, the man riding 1 mile and supposedly entitled to a rate of 1.49 cents was paying for the passenger who rode the longer distance. On the other hand, a true zone system was considered impracticable for a city the size of Pittsburgh.



REPRODUCTION OF NOTICE WHICH APPEARED IN PITTSBURGH NEWSPAPERS

DIVISION No. 1—ALLEGHENY—Continued

ROUTE NUMBER AND NAME	FARE		FARE GOOD BETWEEN
	Day	Night	
110 Charles St. Transfer	7 cents ^①	10 cents ^①	Perryville & Taggart and Taggart & Irwin.
111 Troy Hill	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Gardner St. City Loop and City Line, Troy Hill, Gardner St. and City Line, Troy Hill.
111-A Lowrie & Gardner	5 cents ^②		City Loop and Lowrie & Gardner
112 Reedsdale St.	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Pennsylvania & Beaver. City Loop and Manchester Barn. Pennsylvania & Beaver and Manchester Barn.
114 Western Ave	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Pennsylvania & Beaver. City Loop and Manchester Barn. Pennsylvania & Beaver and Manchester Barn.
116 Woods Run (Via Union Line.)	7 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Columbus & Fulton. City Loop and Brighton Road & Woods Run Ave. Columbus & Fulton and Brighton Road & Woods Run Ave.
116 Baseball Loop	5 cents ^②		City Loop and Exposition Ball Park
116 Exposition Transfer	5 cents ^②		City Loop and Exposition Buildings
122 Shadeland & Superior Transfer	7 cents ^②	10 cents ^②	Shadeland & Brighton Road and Superior & California
123 Spring Hill	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	Ohio & Chestnut and Buehler St., Spring Hill.
125 Finview	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	Lacock St. Loop and Lanark & Finview. Lacock St. Loop and Perryville & Taggart. Lanark & Finview and Lacock St. Loop. Lafayette St. and Lacock St. Loop
128 Harmony Route (P. R. Co. fare only)	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Steps near Suffolk St. City Loop and Evergreen Road. Steps near Suffolk St. and Evergreen Road
127 Crowsnest	5 cents ^②		5th & 6th Aves. and North Ave.

^①Operated only on special occasions

DIVISION No. 2—WEST END

ROUTE NUMBER AND NAME	FARE		FARE GOOD BETWEEN
	Day	Night	
201 West Park	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Halfway Stop between Corlies and Steuben Sts. City Loop and West Park Loop Halfway Stop between Corlies & Steuben Sts. and West Park Loop
202 Carnegie	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Main & Washach City Loop and Bell School Main & Washach and Bell School Main & Carson and 4th Ave. Loop, Carnegie
203 Heidelberg	7 cents ^②	10 cents	Carnegie Barn and End of Line, Heidelberg.
207-A Sheridan-Ingram-Crafton (Via Sheridan.)	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Halfway Stop between Corlies and Steuben Sts. City Loop and Main & Carson. Halfway Stop between Corlies & Steuben and Main & Carson
206 Crafton & Thornburg	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Main & Washach City Loop and End of Line, Thornburg Main & Washach and End of Line, Thornburg
206-A Thornburg Shuttle	7 cents ^②	10 cents	Thornburg Jct. and End of Line, Thornburg
206 Mt. Washington (Via West End)	5 cents ^② 7 cents ^③	10 cents ^② 10 cents ^③	City Loop and Main & Washach City Loop and Bailey Ave. & Castle Shannon Incline. Main & Washach and Bailey Ave. & Castle Shannon Incline.

^①Indicates advance or increase in rate.^②Indicates reduction or decrease in rate.

^③This fare may be paid by ticket, which will be sold only in quantities of eight for 55 cents. A rebate slip will be attached to each strip of eight tickets, which will entitle the carrier thereof to any rebate which the Company or the Receiver may be required to make on account of the increased rate. A rebate slip will also be given upon payment of increased night fare.

NOTE—Increase in rate shown in heavy face type.

NOTE—Extra Trippers are operated on these divisions at certain times, the regular fare over the route or portions thereof traversed being collected.

6

PAGE OF TARIFF SCHEDULE. (NOTE: NIGHT FARES HAVE NOT BEEN PLACED IN EFFECT)

To obtain a more equitable assessment upon the car rider than the flat-rate system provides, and at the same time to eliminate the inconsistencies of a true zone system of collection, Pittsburgh has been divided as shown on the map on page 15. All persons who ride within the limits of this central 5-cent area pay a 5-cent fare—a reduction of $\frac{1}{2}$ cent over that paid since last January. All persons who pass from the 5-cent to the 7-cent area, or vice versa, pay a fare of 7 cents. Also, all persons who ride entirely within the 7-cent area pay a 7-cent fare. The 5-cent area varies in radius from 2.2 miles to 3 miles and depends upon natural boundaries and local conditions for the dividing line.

The 5 cent-7 cent system of collection is very simple. All passengers boarding the cars in the downtown district pay as they leave the cars. This permits loading through all doors and greatly facilitates the maintaining of faster schedules during the rush hours. If a passenger leaves the car within the 5-cent area, he pays a nickel; if he leaves after passing the boundary of this area, he pays 7 cents. If a passenger transfers inside the 5-cent area to a car which will carry him into the 7-cent area his transfer bears such a mark of identification that the second conductor collects 2 cents upon presentation of the transfer. All passengers boarding inbound cars pay as they enter—if in the 7-cent area 7 cents, regardless of how far they ride; if in the 5-cent area, 5 cents.

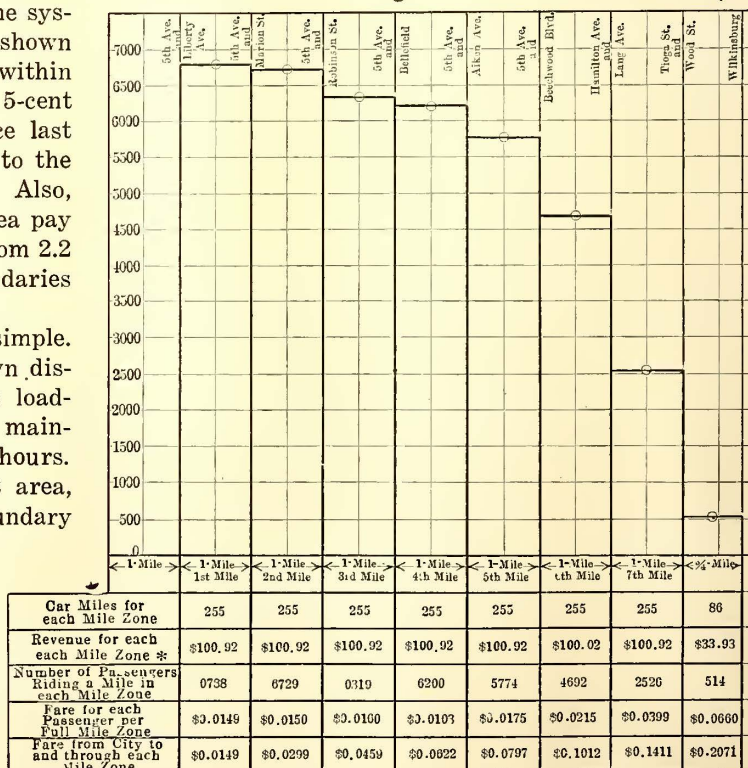
Two registers are used on the cars for recording the two rates of fare. Only one of these can

be operated at a time, and when the car is passing from one fare area to the other the conductor has to go forward in the car and change certain mechanisms, an operation which would be noticeable to the passengers if performed other than at the proper time. Thus both error and dishonesty are eliminated.

On May 18 the company issued a schedule of rates and fares for Pittsburgh and surrounding territory in the form of a twelve-page pamphlet giving detailed information concerning fares, tickets, rates for special cars, etc. A page from this tariff is reproduced herewith, but it should be noted that the night rate of 10 cents has not been put into effect.

The new system of fares upon inauguration worked without friction. Passengers understood and paid the correct fare without question. Tickets are being sold eight for 55 cents, and it is expected that the majority of patrons living within the 7-cent area will avail themselves of these, both for convenience and economy. The only complaint which has been received concerns the passenger who rides a short distance entirely within the 7-cent area. It is understood by all railway men that it is the outlying end of a line that produces a deficit in receipts, and it is only fair that a passenger should pay for the service he receives. As both the value and the cost of the service in this section are greater than in the business district, the price should be correspondingly greater. Aside from this, the answer to this criticism is that it was a choice between a 5 cent-7 cent fare or a universal 7-cent fare, so the suburban patron would pay 7 cents in either case.

It is estimated by the Pittsburgh Railways that the 5 cent-7 cent fare will increase the revenue of the company to \$16,300,000. Figures substantiating or refuting this estimate will be available at a later date.



* Based on Average Receipts per Car Mile, for whole System for Last Three Months

CHART SHOWING NUMBER OF PASSENGERS AND FARES PER FULL MILE ON EXACT ZONE SYSTEM FOR TYPICAL LINE

Skip Stop Will Save One Million Tons of Coal

Wastefulness of Every-Corner Stops Shown by Simple Comparisons—Fuel Administration Greatly Interested in Reform

BY CLARENCE RENSHAW

Conservation Division, United States Fuel Administration

IN THE TRAIN of troubles which the scarcity of fuel and other war conditions have brought to the electric railways, there is one bright spot. This is the growing recognition of the inconsistency of requiring the cars to stop at every street corner, regardless of whether these corners are located 100 or 1000 ft. apart.

On the electric railways of most cities there have heretofore been from twelve to fifteen stopping places per mile, averaging, in general, probably 400 ft. or less apart. The cars used on these lines are, in most cases, at least 40 ft. long, so that there is usually a stopping place about every ten car lengths. Where trailers or multiple-unit cars are used so as to give two-car trains, there is then a stopping place about every five lengths.

WHAT THE SKIP STOP MEANS

This is startling in a way, but the real situation can be better understood by a simple comparison. The average person has a length on the ground of about 12 in.

or 1 ft. In walking he ordinarily covers about 2½ ft. at each step. If in walking to reach a certain destination he were obliged to come to a standstill every four steps and then start again, he would be operating on a basis comparable with the usual city street car. If he were obliged to stop every two steps, the conditions would then compare with those for a two-car train.

If a railway manager will try stopping in this manner every four steps on his way to catch a train some morning, he will then have an interesting experience to discuss with the next electric railway official that he meets.

There is another simple experiment he should try before he undertakes to discuss this question, however, or he will not have the full story. He should go at a quiet hour when no one is looking, to the nearest building that is equipped with a revolving door and he should step in and out of this door, say, ten times. In doing this, he should not follow his ordinary habit of leaving the door

UNITED STATES FUEL ADMINISTRATION
WASHINGTON, D. C.

Bulletin No. 1985

SUGGESTIONS TO BE CONSIDERED IN ADOPTING THE
"SKIP-STOP" SYSTEM IN ORDER THAT MAXIMUM
FUEL SAVING AND REASONABLE IMPROVE-
MENT IN SERVICE MAY BE OBTAINED

In adopting the skip-stop system as a fuel-saving measure during the war, there are three fundamental principles which must be observed in order that the proper results may be assured. These are as follows:

- A. The system must be applied to the entire city, including the business district as well as the residence district, and not merely to the latter.
- B. The stopping points must be located so as to serve the people to the best advantage rather than to secure uniform spacing or to follow any arbitrary rule. This may bring some of the stopping points on the near side of the street, some on the far side, and some in the middle of a block. It is better, however, to have such a diversity, with the points properly located, than to have uniformity if convenience of location is sacrificed to secure this result.
- C. The number of stopping points must not be too great. There should be not more than eight per mile (averaging 660 ft. apart) in business districts, six per mile (averaging 880 ft. apart) in residence districts and four per mile (averaging 1320 ft. apart) in the open country.

The remarkable improvement in the service which has been affected in Washington by the skip-stop system has been largely due to the proper observance of these principles.

In addition to the above, which may be regarded as fundamental, there are a number of other items which should be carefully considered in each case, but which, on account of local conditions, may or may not apply. These are:

1. If the system is inaugurated gradually instead of all at once, it is preferable to put it into effect first in the congested downtown districts where a number of lines converge and to make it apply to all of the lines in that district. This will effect an immediate improvement in service on all of the lines and will prepare the way for a greater improvement when the system is extended.
2. The stopping points should be plainly marked, preferably by signs bearing the words "Car Stop" or some similar designation which will be clear to anyone, rather than mere-

ly by a colored stripe on the pole or other designation which is not self-explanatory.

3. There should be a sign in each car giving a list of the points at which stops are made, where this is practicable, or where this is not practicable, calling attention to the fact that the car stops only at certain streets and suggesting that passengers find from the conductor the nearest stop to their destination.

4. Where lines diverge, the stopping points should be located so that the stopping of cars of one line will not hold back cars of the other line. A typical instance is where one line continues on a given street while a second line follows the same route for a portion of the distance and then turns into a side street. In such a case if the cars of the first line stop in both directions beyond the point where the second line turns off and if the cars of the second line stop in both directions on the street which they alone use, the above object will be attained.

5. In many cases a staggered arrangement of stopping points, so that if the cars bound in one direction stop at First Street, Third Street, etc., those bound in the other direction will stop at Second Street, Fourth Street, etc., will distribute the advantages of the system in a more equitable manner among all of the patrons than an arrangement by which the cars stop at a given point in both directions and skip the next former stopping point entirely. There are other cases, however, where this arrangement is not practicable.

6. In connection with the introduction of the skip-stop system, the matter of safety stops should be carefully reviewed. There are many points at which cars are now required to come to a standstill where equally safe operation can be obtained merely by having them slow down to a speed of 5 or 6 m. p. h.

7. Where interurban cars enter cities, it is desirable that they should not be required to stop at every city car-stopping point (since such cars require much more power for starting than the city cars) but they should stop not oftener than every quarter mile. This can readily be arranged for by the use of special signs at the interurban car-stopping points.

8. By observing the above policies it is ordinarily possible, when introducing the skip-stop system, to reduce the number of stopping points on city lines by from 30 to 40 per cent. This usually reduces the number of stops actually made by about 25 per cent. Under these circumstances the schedule speed of the cars can, as a rule, be increased by from 10 to 12 per cent. (without any increase in the maximum speed) while at the same time the power required (and hence the fuel) is reduced by a corresponding amount.

9. It has been more or less common, in introducing the skip-stop system, to begin with one or two lines and to reduce the stopping points only in the outlying sections, making all stops as usual in the business district. Such an arrangement does not give satisfactory results from the standpoint of either fuel economy or improvement in service. It is in the effort to avoid the introduction of the system on such a basis in any future cases that we are calling especial attention to the above principles which it is necessary to follow in order to secure the desired results.

spinning carelessly behind him as he goes in or out, but he should carefully stop it each time he passes and should start it again on his return trip. He should then go in and out another ten times, but during this period he should start the door once for all. He will find that a very light touch each time he passes will keep the door turning rapidly and he will be surprised at the difference in effort necessary to complete the series of enterings and leavings.

He is now ready to be of service to his railway friends if the local fuel administrator has not reached them first. In discussing the matter, he will not need to talk "speed-time curves," "acceleration," "kilowatt-hours," or any similar technical terms to prove his point. If one of his friends should happen to be of the "old school," now rapidly disappearing, (*i.e.*, all right from the shoulders down, but dead above them) and if the friend should pooh-pooh at his enthusiasm, he should not lose his temper but should remember how *he* felt last week. He should then, without unnecessary words, make his friend perform the above experiments for himself.

WHAT THE FUEL ADMINISTRATION IS TRYING TO DO

The United States Fuel Administration is confronted with the staggering task of reducing the coal consumption of the country by 60,000,000 tons per year. It must do this in ways which will not impose undue hardship on domestic consumers nor interfere with the production and transportation of material necessary for the war. It is the aim of the administration to save one of these sixty million tons by getting the electric railways throughout the country to introduce the skip-stop system on their lines. This idea was suggested to the Fuel Administration last winter by the American Electric Railway Association War Board which, as a means of illustrating the possibilities, had a study made in Washington which showed that the skip-stop system there should save approximately 10,000 tons of coal per year.

The results which may be looked for in general from this system are that, if properly applied, it should make it possible to increase the schedule speed of the cars by approximately one-eighth without any increase in the maximum speed, while at the same time reducing the power and hence the fuel consumption by a similar proportion. As an example of what has actually been accomplished the railway companies in Columbus, Toledo, Cincinnati and Detroit have reported savings in coal by the skip-stop system at the rate of 3600, 7300, 10,000 and 21,000 tons per year respectively.

HOW THE SKIP STOP SHOULD BE INTRODUCED

To obtain these results as to saving in fuel and at the same time to improve the service, it is essential that in adopting the skip-stop system it should be put into effect in the business district of a city, as well as in the residential districts. It is also important that the stops which are retained should be located sufficiently far apart to make the change worth while. The Fuel Administration has asked that the stops be located so that the distances between them will average not less than $\frac{1}{2}$ mile in business districts, $\frac{1}{2}$ mile in residential districts and $\frac{1}{4}$ mile in the open country.

Finally, the administration has suggested that the stopping places retained should be located according to the needs of the traffic, rather than by any arbitrary

rule, even though this should bring some of them on the near side of the street, some on the far side and some in the middle of short blocks. The administration has embodied these and other detailed suggestions in its Publication No. 1985, reproduced with this article.

In many cities, the stopping places of electric cars are regulated by municipal authorities or state public utility commissions. In such cases, the necessary authority must first be obtained from these bodies before the system can be put into effect. The United States Fuel Administration has been taking up the matter with these bodies where necessary through the various state and county administrators, and when the matter has been properly explained these bodies have all been glad to co-operate. The general public also has cheerfully accepted the skip-stop system, at first as a war measure necessary to save fuel, but afterwards on account of the improvement in service.

My own experience in Washington illustrates the improvement effected. Before the adoption of the system I could take a car at the corner of the cross street on which I lived and I then had a ride of about twenty minutes. After the skip-stop system was put into effect, I had to walk one and a quarter minutes away from the city to the nearest stopping point, but after boarding the car here I had a ride of only twelve or fourteen minutes. The conditions in Washington are peculiar, however, and there are few other places where so great a percentage increase in speed can be expected. In every instance, however, there should be a material improvement from the adoption of the skip stop.

ONE MILLION TONS SAVING POSSIBLE

In endeavoring to secure the adoption of the skip-stop system throughout the country as a conservation measure the Fuel Administration assumed from the start that it would have the hearty co-operation of all of the railway companies so that it need devote its efforts only to the public bodies. This, in general, has been the case. There are a number of companies in various parts of the country, however, whom the news of the movement has not yet reached, as well as a few which have not appreciated the importance of carrying out the details of the measure to the full extent asked by the administration.

Inasmuch as the skip-stop system will effect the desired saving in coal, not only without handicapping the service but with the actual improvement, and thus with benefit both to the public and the railway companies, it is an extremely unusual and desirable type of conservation measure. While the administration is endeavoring to secure the adoption of the system on a national basis as quickly as possible, it will appreciate anything which railway men themselves can do to assist it in spreading the news of the movement or in securing the prompt adoption of the system.

The measure is in effect or is about to be put into effect on a state-wide basis (that is, in all cities of the state of sufficient size to warrant it) in Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Pennsylvania, Maryland, Indiana and the District of Columbia. In addition to this, it has been adopted in twenty-two large cities in other states. It is estimated that the above cities cover about one-third of those necessary to secure the desired saving of 1,000,000 tons per year and that the remainder will fall into line in the near future.

Power Limiting Circuit Reduces Load a Maximum of 30 per Cent

THE contract under which power is supplied for the operation of the electrified divisions of the Chicago, Milwaukee & St. Paul Railway involves a minimum payment per month of 60 per cent of the kilowatts for which the railway company has exercised an option, the power company standing ready to serve at any instant the number of kilowatts so optioned for. It thus becomes highly desirable for the railway to be in a position to hold its maximum demand down to a minimum—in other words, to run at as high a load factor as possible. The power indicating and limiting system for securing this result consists of a 1200-volt circuit running from the first to the last substation, and fed from a very small motor-generator in the load dispatcher's office. In each substation where there is a power company feed tap, there is installed a contact-making wattmeter, which introduces into the power indicating and limiting circuit an additional ohmic resistance whose amount varies with the load supplied at such feed tap.

There is also in each substation automatic apparatus which, when the total kilowatts used in the system reaches the amount optioned for and consequently when the current in the power indicating and limiting circuit has a certain value, causes resistance to be inserted in the fields of the substation generators of the motor-generator sets. This reduces the voltage on the trolley system, causing the speed of all trains to be decreased.

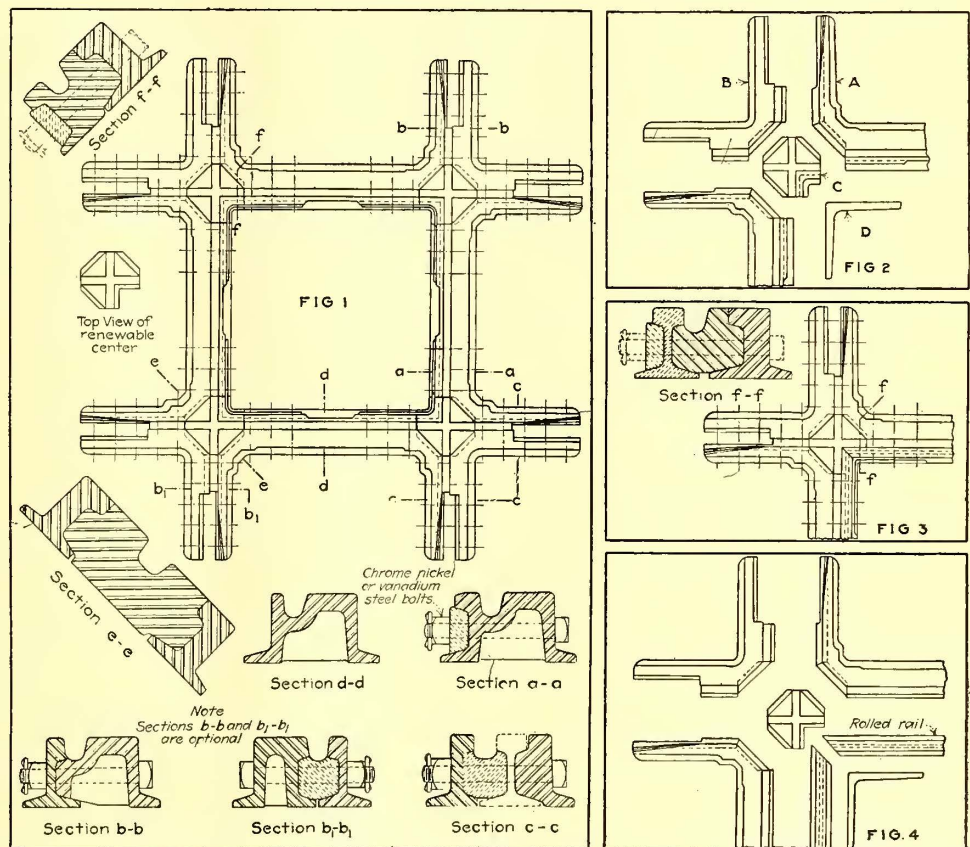
The maximum reduction in load thus obtainable is about 30 per cent of that which would be used in case the power indicating and limiting system were not provided. The apparatus is so arranged as to reduce the voltage of the most heavily loaded substations first, and also to reduce the voltage of any individual substation so as to throw this load on the other substations when the load on such substation reaches the certain amount for which the apparatus may have been adjusted. In the dispatcher's office there is a switchboard on which is mounted apparatus for controlling the small motor-generator set supplying the system, and also indicating and curve drawing wattmeters which show for any instant the total kilowatts supplied by the power company.

This work, like other electrical features of the St. Paul electrification, is in immediate charge of R. Beeuwkes, electrical engineer.

Articulated Cast Manganese Crossing with Renewable Centers

SINCE the description of the plain articulated cast manganese crossing, in the issue of the *ELECTRIC RAILWAY JOURNAL* for Jan. 26 was published, the inventor, Stephen Balkwill, president The Balkwill Manganese Crossing Company, Cleveland, Ohio, has secured patents on a renewable center crossing. The general principle used in this crossing is the same as that underlying the earlier one, but the new crossing has renewable centers, flexibly supported, around which the other parts of the articulated crossing are assembled. The details of construction are shown herewith by a number of line drawings.

Fig. 1 is a general assembly plan of a right-angle crossing of the new type, while Fig. 2 shows the separate pieces ready to put together. A complete crossing consists of four U-shaped pieces, like *A*, four corner pieces like *B*, four centers like *C* and four angle bars on knee-braces like *D*, together with chrome nickel or vanadium heat-treated steel bolts for fastening all together.



AN ARTICULATED TRACK CROSSING WITH RENEWABLE CENTERS

Fig. 1—Plan of right-angle cast manganese crossing.
Fig. 2—Separate parts of crossing represented in Fig. 1.
Fig. 3—Plan of right-angle crossing with rolled rail guards.
Fig. 4—Parts of crossing represented in Fig. 3.

In the drawings a number of cross-sections have been reproduced in order more clearly to show the construction. It will be noted that cross-sections *b* and *b1* are stated to be optional. The only difference between the construction as indicated in the two sections is that in *b* the two pieces forming the section at this point are directly connected together. In the alternative construction shown in section *b1* a filler block or separator is used between the two main pieces, which are recessed

to receive it. The former construction is slightly more substantial but the latter construction can be used, if desired, in order to simplify the grinding operation in fitting the parts together.

The feature of particular interest in this crossing, aside from the renewable character of the centers, is the arrangement of projections and recesses by means of which the several parts of the crossing are keyed or interlocked intimately and yet a certain amount of flexibility is provided. Projections, or tongues, are provided on the corner pieces which fit into recesses or grooves in the limbs or guard arms of the U-members. Both U-members and angle members are recessed to receive projections or tongues on the sides of the centers. All joints are a ground fit, manganese to manganese, no spelter being used. This plan is particularly applicable for combination steam and electric railway crossings, when one flangeway is deeper than the other. The same crossing body is used for all depths of flangeway and the renewable insert is made with any combinations or depths of flangeways as desired. All of this is clearly brought out in the cross-sections.

In some cases it is found desirable to use rolled rail guards, which can be done as shown in Figs. 3 and 4. This makes one extra set of four pieces, but somewhat simplifies the U-shaped castings. Exactly the same principle applies here as in the construction already described.

More than twenty railroads are using the plain articulated crossings of which many score have been installed during the past year. It is the expectation of the company that the new type will prove popular with electric railways in replacing the older types of crossings having renewable centers held in place with spelter.

Factors Affecting Arc Welding

THE arc welding process of repairing broken parts and fabricating new construction has been well known to railway repair shop men for a number of years. All the problems incident to the process, however, have not been solved. They still offer fruitful fields of endeavor for both the chemist and metallurgist. A recent investigation of the welding of mild steel by O. H. Eschholz, of the research engineering department, Westinghouse Electric & Manufacturing Company, has thrown some new light on these problems.

Of the various arc welding processes the one in which a metal rod acts both as electrode and weld filler has the widest use. With this process the filler rod automatically attains the melting temperature and is deposited in a molten state on the hottest section of the weld.

When, in the course of making a weld the metal electrodes are separated, an arc is formed having a highly luminous central core of iron vapor surrounded by a flame of oxides. In order to prevent excessive burning of the iron, the arc must be screened from local air currents as much as possible. This makes it necessary that the welder manipulate the electrode in such a manner that maximum protection by envelopment of the arc is secured. The best way of doing this is by the use of a short arc and the proper inclination of electrodes to compensate for air currents. The use of a short arc also promotes the fusion, concentration and economy of electrode deposit as well as gives it freedom from poros-

ity and reduction in the area affected by heat treatment due to the arc. With long arcs the arc flame cannot be controlled so that it becomes impossible adequately to protect the deposited metal from oxidation. The excessive porosity often found in welds, in the process of making which the arc was broken, is largely due to this cause. In general the action of the atmospheric gases is to refine the vaporized metal. As the field of application of the welding process widens, a method of securing better control of the weld ingredients appears more and more desirable. The use of a refractory tube or asbestos coating has been suggested. However, the difficulty of electrode manipulation is increased thereby to a prohibitive degree and excessive quantities of slag are formed and unavoidably imbedded in the weld. Better possibilities appear to lie in the development of an electrode which generates during operation an atmosphere of permanent gases enveloping the arc.

The fusion obtained at the weld surface and in the body of the filler is determined by the scarf angle, arc current and electrode diameter as well as by arc length. When the abutting sections of the material to be welded are inclined at too sharp an angle, the bottom of the weld is inaccessible and good arc contact is prevented.

The best results are secured when arc currents ranging from 20 amperes for a $\frac{3}{32}$ -in. electrode to 200 amperes for a $\frac{3}{16}$ -in. electrode are used. Porosity and incomplete fusion often result from welding with too low an arc current. The amount of slag formed and retained by the weld is dependent upon the cleanliness of the electrode and the manipulation of the arc flames to minimize oxidation.

Surface inspection of completed welds is an unsatisfactory check on the weld's characteristics. Observations, or preferably an automatic record of the arc voltage and current and electrode manipulation during welding, permit the formation of a better estimate of the finished product.

Pitting Overcome by Insulating Bearings from Their Shells

CAUSES and weak insulation are given as the cause of bearings becoming pitted by T. A. Borden of the engineering department of the Hydro-Electric Power Commission of Ontario, and another engineer claims that eddy currents are set up in the iron of the armature structure by short-circuited laminations. Both of these engineers agree that the best way to remove the trouble is to insert thin sheets of insulating material between the bearing shells and their housing in order that the stray current-circuit may be broken.

Referring to a previous experience, Mr. Borden states that in one case a brush was placed at one end of the shaft of a motor-generator set to reduce the sparking, on the journals and oil rings. This did away with the sparking at that end, but greatly increased the sparking on the other journal. With a brush placed at each end, the current was so great that the brushes were heated to an excessive temperature. Further experiments showed that this current had a value of several hundred amperes when measured either with a shunted d'Arsonval type meter or with an induction-type instrument through a series transformer.

LETTER TO THE EDITORS

Proper Designation for Pipe

NATIONAL TUBE COMPANY

PITTSBURGH, PA., July 1, 1918.

To the Editors:

We have noticed of late a number of references to pipe in editorial columns of the business papers, somewhat as follows: "Wrought-iron pipe was used in the steam lines." "This device was made from ordinary wrought-iron pipe, etc."

We should like to point out that there are three proper designations for pipe, as below:

Wrought Pipe. This is the generic term for steel or iron pipe. The average dealer in pipe refers to himself as a "dealer in wrought pipe." This means that he sells both steel and iron pipe.

Wrought-Iron Pipe. This means just what it says, namely wrought-iron pipe, the product of a puddling furnace. This product comprises about 10 per cent of the wrought pipe made in this country.

Steel Pipe. This also means exactly what it says. Steel pipe comprises about 90 per cent of the present output of wrought pipe in this country.

Because wrought-iron pipe was the original pipe many people still refer to ordinary pipe as "wrought iron," whereas "wrought pipe" is the proper term. In the ordinary article referring to this product the chances are ten to one that the product is steel pipe, but in the absence of definite information the proper term is "wrought pipe." The term "wrought-iron" pipe is distinctly erroneous.

W. L. SCHAEFFER, Advertising Department.

Individual Contracts Forbidden

THE National War Labor Board has just handed down a decision which should be of interest to many electric railways. It is to the effect that the General Electric Company shall eliminate individual employment contracts at its plant at Pittsfield, Mass. At the same time the board turned the entire controversy at Pittsfield over to William H. Taft and Frank P. Walsh, the joint chairmen, as a section of the board with instructions to establish a just system of collective bargaining between the company and the men.

The decision is the first of its kind made by the War Labor Board. Individual contracts, submitted to men upon taking up employment at the plant, are characterized by the board as a source of irritation. One of the principal demands of the men was that the contracts be abolished and that a system be established by which the workers could deal collectively with the company. The order of the board is that such of the contracts as are now in existence be eliminated and that the company be directed to make none in the future.

The staff of the War Labor Board will devise a system of elections by which workers may choose committees to represent them in dealing with the employing firm. Up to this time the company has not recognized

either committees or individuals representing groups of the workers. At Schenectady, however, where there is a high percentage of organization, committee representation has for some time been recognized and accepted.

AMERICAN ASSOCIATION NEWS

Bulletin No. 23 Sent Out

THE American Electric Railway War Board has just issued bulletin No. 23 accompanying a copy of the brief submitted by the board to the National War Labor Board in the matter of the power of the President to fix rates of fare on electric railways. The War Board explains that it expects also to mail to member companies copies of the statements by Mr. McCarter and Mr. Gadsden to the War Labor Board, as soon as they can be printed.

May Outing for Rhode Island Company Section

THE May meeting of the Rhode Island company section was held at Peace Dale, near Narragansett Pier. The members went from Providence in special cars. The festivities included a trip to the pier, a sumptuous dinner and a varied program of short talks.

Program Largely Musical at Section No. 6 June Meeting

THE Chicago Elevated Railroads Company Section met on June 18 and was entertained with music, and amusing stories and reminiscences. Henry Cordell read a paper relating to his work on the Chicago, North Shore & Milwaukee Railroad. About 75 members and guests were in attendance.

Tribute to the Memory of Capt. H. A. Bullock

BY LETTER BALLOT the executive committee of the American Association has passed resolutions of appreciation of the work of Capt. H. A. Bullock, who was killed in action in France on May 31. Captain Bullock has been an active association worker and, so far as known, was the first member of the association to give his life for the cause.

Experimental Lecture at Toledo

DR. E. E. F. CREIGHTON, of the research department of the General Electric Company, gave an experimental lecture on lightning protection before an audience of nearly 500 at a recent meeting of the Toledo section. He traced some of the early history of the lightning arrester, paying especial tribute to the aluminum cell. He showed by means of experiments the effect of surges on transmission lines and illustrated the manner in which a good lightning arrester relieves the line from these surges.

Recent Happenings in Great Britain

Power Supply a Difficult Problem—District Board Proposed—The Shrinking Penny Fare—Economy Essential Everywhere

(From Our Regular Correspondent)

The committee appointed by the Board of Trade to consider the question of electric power supply has issued its report in a white paper. The chief recommendations include one that a new body called the Electricity Commissioners should be appointed and that it should assume the powers of the Board of Trade, the local government board, the local government board for Ireland, and the Scottish office, relating to the supply of electricity. It is suggested that it receive large additional powers for regulating and encouraging the generation and distribution of electricity. The other recommendations are that subject to an appeal to Parliament in certain cases these commissioners should have general control over the generation and distribution of electricity in the United Kingdom; that the existing system under which electricity is separately generated for small areas should be abolished; that the commissioners should, after local inquiries, divide the United Kingdom into districts where a district electricity board should be set up to purchase all generating stations of authorized distributors, and be responsible for the future generation of electricity in their district; that existing electrical undertakers should, if they so desire, retain their power to distribute electricity within their local areas, but should purchase electricity in bulk from the boards or their lessees, due provisions being made for controlling the profits of distributors so as to insure a cheap supply; that district electricity boards should make no divisible profits, and should be financed by funds raised with government assistance, except where it is shown to be desirable and practicable to finance them locally.

PENNY NO LONGER POTENT COIN

The nimble penny as the tramway fare unit has done wonderful things. It has built up a great service of public utility which, after providing cheap transit on a commercial basis, has been able from time to time out of surplus funds to hand over large sums in relief of rates. But the penny is not the potent coin that it was. The leaps by which wages and prices of material have advanced during the war have radically altered its value. Stages could be shortened, but that would involve considerable disturbance of present organization. It is certain, however, that tramway undertakings will have to find some means of covering the greatly increased costs they now have to shoulder.

A proposal to reduce the number of "request stops" on the Manchester tramway routes will probably be put into force very soon. The saving of coal is not the only consideration, although a very important one. There is

the wear and tear of rails and rolling stock, which is considerably increased by the frequent stopping of the cars. J. M. McElroy, the general manager of the Manchester Tramways, has stated that the number of "request stops" has had a tendency to grow in every town, because pressure has been brought to bear by the public. The Board of Trade tramways committee, of which Mr. McElroy is a member, is giving special attention to this question. The number of passengers on the Manchester tramways has increased since the beginning of the war although the number of car-miles has been reduced. For the year ended March 31, 1914, 205,000,000 passengers were carried, and the car mileage was 19,463,000. For the year ended March 31, 1918, the number of passengers was 240,000,000, and the cars ran only 18,540,000 miles. In other words, the number of passengers increased by 35,000,000 and the car-miles decreased by 1,000,000. The City Council of Manchester has passed a resolution authorizing an arrangement with Mr. McElroy under which he will remain in the service of the corporation as general manager of the tramways department for five years, at a salary of £1,500 a year.

LONDON DIVIDED INTO FARE ZONES

Revised fares on the London County Council tramway routes south of the Thames have come into force. The new system of fares has been arranged on the plan of dividing the routes into stages, of which three can be covered for a 1d., six for 2d., nine for 3d. and anything above nine to the end of the route for 4d. Similarly, increased fares on the routes north of the Thames will come into operation as soon as the County Council has completed arrangements with other authorities in conjunction with whom it works some of these lines. The Council, in common with all other tramway authorities, has been notified that coal consumption in connection with the tramways must at once be reduced by at least 15 per cent. Suggestions made are the reduction of service not required in the national interest, the withdrawal of service for the whole or part of Sundays, the stopping of cars at an earlier hour in the evening, the partial substitution of coke locally produced for coal, and the grant of a bonus to motormen for economy in power consumption.

A new defence of the realm regulation provides that the Board of Trade may authorize the local authority to charge the local rates or funds with any deficiency that may result where a tramway undertaking is carried on efficiently under statutory powers by a local authority but cannot be run without charging fares in excess of those authorized or without applying local

rates in aid of a deficiency in the revenue. The Board of Trade is also authorized to modify any provision in any local act regulating the undertaking, or to relieve the local authority from the obligation of making allowances for the items of renewals or depreciation.

Christopher John Spencer, general manager of the Bradford Corporation Tramways, recently testified before the select committee of the House of Commons on municipal tramways (statutory requirements). He said that since the outbreak of war the cost of production had increased enormously. In consequence almost all tramway undertakings had to consider their financial position. The general manager of the Leeds Corporation Tramways estimated that unless the fares at Leeds were increased there would be a deficit of £45,000 for the current year. The main cause for the increased expenditure on tramways had been the increased cost of labor. The wage bill of tramway undertakings had increased approximately 70 per cent, and in some cases even 100 per cent. The application now under consideration for a 12½ per cent bonus on present rates would, if granted, mean another considerable increase in cost. In munition centers there had been a considerable increase in the number of passengers with a consequent increase of receipts, but expenditures were now increasing more rapidly than revenue.

There was also another disquieting feature in the situation. The Board of Trade had already intimated to tramway authorities that in consequence of war-time circumstances it would be necessary to curtail car mileage. While this would reduce certain expenditure it did not affect standing charges. The present scale of tolls and charges for the carriage of parcels and goods was so obviously out of date that it was impossible to extend the conveyance of parcels and goods without considerable loss to the undertakings. It was suggested by Mr. Spencer that the Board of Trade be authorized to set aside the statutory limitations of tolls and charges in respect to passengers' parcels and goods for the period of the war in cases where it was satisfied that sufficient reason existed.

WOMEN DRIVERS FOR LONDON

Women tramcar drivers will probably soon be seen in London for the first time. They have been driving in Glasgow and other cities for the past two years, but until recently the Commissioner of Police for London has refused to license them. The manager of the Walthamstow Tramways recently stated that five women had passed through the three weeks' course of training, and were ready to take out the cars as soon as their licenses were received. They had all been conductresses on the tramway for some time. They will take the place of Grade I and II men, and will be paid the same rate of wage as the men, 31s., rising to 37s. 6d., with a war bonus of £1 a week.

A. C. S.

News of the Electric Railways

TRAFFIC AND TRANSPORTATION

FINANCIAL AND CORPORATE • PERSONAL MENTION • CONSTRUCTION NEWS

Service-at-Cost Suggestion

Director of Street Railroads of Cincinnati Sees This as Best Way Out for City and Company

W. C. Culkins, Director of Street Railroads of Cincinnati, Ohio, has outlined a service-at-cost plan for the Cincinnati Traction Company in connection with the revision of the ordinance now under way. While the company has made no formal request for an increase in its rate of fare, this is in contemplation. Mr. Culkins has taken it into consideration.

SERVICE-AT-COST BEST

He says it would be unfair to fasten upon the people of Cincinnati until 1931 a franchise drawn to fit the war conditions of to-day. On the other hand, if the proposed franchise is based upon conditions existing before the war the company would refuse to accept it. He says the service-at-cost plan would give the city the kind of service the people were willing to pay for. After all, service was paramount. Should the rate of fare be established to meet present conditions, the new plan would make a reduction possible as soon as a drop in the cost of operation and the price of materials warranted it. In case the company asked for an increase in the rate, the burden of proof would be upon it.

Mr. Culkins also advised elasticity in the contract so far as it relates to the use of the company's tracks by interurban cars. Due consideration should also be given to the possible development of a freight service.

MR. DRAPER PRESENTS COMPANY'S SIDE

When he appeared before the street railway committee of the City Council on June 25 to discuss the proposed revision of the street railway ordinance, Walter A. Draper, vice-president of the Cincinnati Traction Company, presented an array of figures that are calculated to make the members consider well before they decide upon a rate of fare under present conditions.

The company's estimate for 1918, without providing for increase on account of improvements, taxes, higher wages and contingent expenditures will necessitate an income of \$5,906,897. Revenue from other sources and estimated savings will reduce this to \$5,536,897. On the other hand, additional amounts necessary to cover the items excepted would aggregate approximately \$500,000 annually, making a total of \$6,036,897 to be secured from fares.

Mr. Draper said that an increase in the rate of fare would result in a decrease in the number of fares collected.

In 1917 the number of riders was 110,000,000. It is estimated that this number would be reduced to 100,000,000 under an increased fare. These riders would have to yield the amount mentioned above, namely \$6,036,897. To do this the fare would have to be a little over 6 cents a ride. If the city would relieve the company of the tax of 6 per cent on its gross earnings, the amount to be raised from car patrons would be about \$5,700,000 or a little over 5.75 cents a ride.

The net income in 1917 showed an increase of \$200,000 over 1916, but Mr. Draper estimated that the net income for 1918 will show a decrease of \$585,000 from that of 1917, or an actual deficit of \$437,000, without providing for dividends on the preferred stock, funds for improvements or an increase in the wages of the men. He said that this was due to the absence of 18,000 men from the city in the service and the greatly increased cost of materials.

The largest item of expenditure in 1917 was for wages. The amount was \$1,924,000, of which \$1,500,000 went to the conductors and motormen. Despite the fact that the company has a contract with the men running to July 1, 1919, Mr. Draper declared that it would be necessary to increase wages just as soon as additional revenue could be secured. He enumerated other items and showed where increases would be necessary, if the road was to be kept in condition to give proper service.

Wheeling Arbitrators Report Findings

As a result of the agreement between the arbitrators comprising representatives of the West Virginia Traction & Electric Company and the Wheeling Traction Company, Pan Handle and the City Railway lines, Wheeling, W. Va., and the members of Local Union No. 103 of railway employees and a representative of the federal government, the trainmen and others will receive substantial increases for the ensuing year. It is reported that the men will receive from 38 cents to 45 cents an hour, on a sliding scale, this representing an increase of approximately 10 cents an hour. Following the war the men will work only eight hours a day and six days a week.

The arbitration board concluded its report with a recommendation to the Public Service Commission for relief for the various companies affected by the agreement entered into between the employees and the companies, stating that in its opinion there was a pressing need for an examination of the situation by the commission with a view to increasing rates.

New Transit Lines Opened

Several Important Additions Opened to New York's \$350,000,000 New Rapid Transit System

Operation of the new Seventh Avenue subway, which was placed in service in June, 1917, from Times Square to the Pennsylvania Railroad Station at Thirty-third Street, was extended South to the Battery on the main line and to the Wall Street station on the Park Place and William Street branch on July 2.

16.7 MILES OF NEW LINE ADDED

With the portion already in operation, the opening of the Seventh Avenue subway will add approximately 16.7 track-miles to the dual system lines now in use. The Seventh Avenue lines extend south from Times Square as a four-tracked structure to the vicinity of Chambers Street and West Broadway, whence two tracks continue to a loop at the Battery, while the two remaining tracks branch through Park Place, Beekman and William Streets to Wall Street, the terminus of temporary operation.

Eventually the so-called Wall Street branch line will be extended to Brooklyn by way of the Old Slip—Clark Street tunnel line, which will connect with the existing Interborough lines in Brooklyn near Borough Hall. Through service on the Seventh Avenue subway in connection with the old subway north of Forty-second Street will be begun a few weeks hence, when the Lexington Avenue line is completed and can be placed in operation in connection with the old subway in Fourth Avenue below Forty-second Street near the Grand Central Terminal.

Another dual system line placed in operation on July 2 was the portion of the 162nd Street connection, east of Sedgwick Avenue to Jerome Avenue. This connection unites the west side elevated lines in Manhattan with the Jerome Avenue branch of the Lexington Avenue subway in the Bronx. The connection was previously in operation as far as Sedgwick Avenue.

JAMAICA ELEVATED EXTENSION OPENED

On July 3 the New York Consolidated Railroad, a subsidiary of the Brooklyn Rapid Transit Company, placed in service by direction of the Public Service Commission for the First District the unopened portion of the Jamaica Avenue elevated line from Greenwood Avenue, Richmond Hill, to Cliffside Avenue at Jamaica, the terminus of the line. The road was placed in service as far as Greenwood Avenue last year. It will add materially to the transit facilities in Queens.

Government to Control Unskilled Labor

On Aug. 1 Federal Employment Service Will Supplant Private Agencies—Survey of Material Started

After Aug. 1 the United States Employment Service will undertake to be the medium through which employers in the whole country will secure unskilled labor. The country is divided into thirteen districts with four hundred branch offices.

The centralization of recruitment of unskilled labor will affect establishments employing a hundred or more workers. Establishments employing a smaller force will be free, if they choose, to proceed in their usual manner. The concerns which come within the plan, too, will be permitted to hire in the ordinary way such workers as present themselves without inducements from the employer. In other words, employers will be free to engage men who offer themselves without having been solicited, directly or indirectly.

The plan is a military necessity, intended to put an end to the waste and disorganization which arise from "stealing labor." As far as the plan operates to withdraw unskilled labor from industries not directly connected with the war, the withdrawals will be distributed as equitably as possible, under the control of the War Labor Policies Board. Priorities for labor will be established only where there is an actual shortage.

The coming monopoly of the government in distributing unskilled labor will not extend to skilled labor, and for the present such labor may be recruited by all employers as heretofore. At the same time, the offices of the United States Employment Service will in no way decrease their work of providing skilled workers.

LABOR SURVEY ALREADY BEGUN

The United States Employment Service has already begun an approximation of the common labor requirements of war industries for the next three months and of the common labor reserves in each state which may be utilized for war production. With these two national estimates as a basis, the employment service will allot the quotas of unskilled workers which each State will be called upon to furnish.

The war industries will report their needs by means of a special form issued to each industry through the particular government department or board with which its contract is placed. The form asks the immediate common labor requirements, an estimate of the weekly requirements from July 15 through August, and a lump estimate of its needs from Sept. 1 to Oct. 1. The questionnaire also asks, in substance, what percentage of the total of common laborers in each state in 1914 is now engaged in agriculture, transportation, mining or other war work. It then asks the estimated number of common laborers now in each state who are not engaged in war work.

Immediate and full return of the requirement blanks is urged upon every war industry receiving them. Any concern engaged in war work which does not receive its forms should apply at once to the state director of the employment service for the state in which it is operating.

Short Strike in Columbus

Officers of the Columbus Railway, Power & Light Company, Columbus, Ohio, and representatives of the Amalgamated Association reached an agreement on July 1 to submit their differences to the National War Labor Board for settlement. This action was taken in response to a telegram from the board urging that this be done at once in order to prevent loss and inconvenience. The questions to be submitted are hours of labor, working conditions, wages and the reinstatement of seven men who had been discharged. The company recognized the union only tentatively, in order to submit the matter to the board.

Operation was resumed late on the evening of July 1, after the road had been idle almost forty-eight hours.

Bellaire Tries to Shackle Railway

The twenty-five-year franchise under which the Wheeling Traction Company has been operating its lines within the town of Bellaire, Ohio, expired about two months ago. In an effort to secure renewal of its right to operate over these lines, the company presented to the Town Council for its consideration a proposed form of agreement which was practically identical with the old franchise.

The railway proposal was rejected by the city officials, who in turn presented a proposed franchise of their own. This contained many restrictions, as illustrative of which may be mentioned excessive requirements in the way of street paving, lighting of all street intersections along the car lines, and the maintenance of flagmen at all railroad crossings. Altogether the conditions were so burdensome that the traction company could not accept the franchise in its proposed form. It attempted to effect a compromise but was unable to do so.

In the meantime the Council, as a coercive measure, passed a resolution requiring the railway to pay the city \$25 a day rental for the time during which the lines were operated without a franchise. The company has refused to pay the rental, and as a retaliatory measure the Council has just passed another resolution instructing the town solicitor to sue for an injunction prohibiting the company from operating within the Bellaire corporation limits. As the railway is at present the only means of transportation available to a large number of mine and steel mill workers who are engaged either directly or indirectly on government work, complications will likely arise if the injunction is granted.

Operating Agreement on Pacific Coast

City of San Francisco Buys Operating Rights on Private System for Municipal Line

A plan to provide local car service for the residence district west of Twin Peaks Tunnel in San Francisco, Cal., has been presented to the Board of Supervisors by M. M. O'Shaughnessy, city engineer. Officials of both the Municipal Railway and the United Railroads systems have tentatively agreed that the city shall use the tracks of the United Railroads, the rental for which shall apply as part payment on the properties, in the event that the city purchases the private system before the franchise expires. Features of the arrangement are as follows:

The city is to pay to the United Railroads \$100,000 for the right of operation over the Ocean Avenue tracks from Sloat Boulevard to Harold Avenue, this sum to apply as part payment on the United Railroads' lines if purchased by the city before the expiration of the franchise. The United Railroads is to maintain the tracks and trolley and furnish the power for the city cars at the rate of 7¼ cents per car-mile operated, which is said to be the average actual cost of the United Railroads. The city is to construct the necessary connection between its tunnel tracks and the United Railroads tracks. This can be done, it is believed, in about forty-five days.

In Parkside, the track farther to the north, the plan tentatively agreed to by both parties is that the city shall have unlimited use of the United Railroads tracks on Taraval Street, in consideration for which the city is to lower the tracks to grade and pave the street. After this the maintenance will be divided by the city and the private company in proportion to the car mileage operated. In this section power for the city cars will be furnished by the United Railroads at the rate of 1¼ cents per kilowatt-hour. The plan is approved by Mayor Rolph, provided no legal entanglements will result. The whole matter has been referred to the city attorney.

Power Plant Saving Campaign

The United States Fuel Administration has announced the appointment of administrative engineers as follows:

Thomas R. Brown, Pittsburgh; for the western half of the Pennsylvania. He was formerly special engineer with the Westinghouse Air Brake Company.

George R. Henderson, Philadelphia; for the eastern half of Pennsylvania. He was formerly consulting engineer with the Baldwin Locomotive Works.

Edward N. Trump, New York; for the State of New York. He has been the vice-president of the Solvay Process Company.

W. R. C. Corson, Hartford; for New England. He has formerly been a consulting engineer.

The administrative engineers will work under the general supervision of state fuel administrators. The campaign includes: (1) Personal inspection of every power plant in the country; (2) classification and rating of every power plant, based upon the thoroughness of which the owner of the plant conforms to recommendations; (3) responsibility of rating to be based upon reports of inspectors, who will not express opinions, but will collect all the definite information that is available.

State fuel administrations, in their judgment, may entirely or partially shut off the consumption of coal by any needlessly wasteful plant in their territories.

Chicago Ordinance Goes to Main Committee

The sub-committee of the Chicago City Council on June 28 having learned from the traction companies that the proposed ordinance was acceptable recommended it to the main committee. At this meeting a complete draft of the franchise was presented, and attention was called to several features which had not previously been determined.

One of these sections refers to labor. It provides that hours and working conditions shall conform to just and reasonable standards of safety, health, comfort and efficiency, and that all wage earners employed by the company shall receive "wages which shall be just and reasonable and not less than shall be customarily paid for services of like character under substantially similar conditions." The local commission is to have power to settle disputes under this section, if it is finally approved.

Another section paves the way for carrying express matter and package freight on the combined system of surface and elevated lines, at such times as will not interfere with passenger service, subject to regulation by the local commission.

One element of opposition has been overcome by changing the plans for one of the downtown elevated lines which was to have been a double-deck structure. It is expected that sufficient time still remains to discuss the ordinance and get action in the main committee and the City Council before adjournment.

At a recent meeting of the sub-committee Walter L. Fisher placed at the disposal of the members his resignation as special traction counsel. He referred to differences of opinion which had arisen on questions of policy and said he would like to be free to express his objections of the ordinance if it goes to a referendum vote. When this matter was taken up by the main committee it was decided to retain Mr. Fisher as advisor on legal questions.

The full committee began its sessions on July 1 and made several slight changes in the draft of the ordinance as submitted to it.

Dorchester Extension Opened

The Broadway-Andrew Square section of the Dorchester tunnel was opened for traffic by the Boston (Mass.) Elevated Railway on June 29. The new line is a double-track subway with 8845 ft. of single track installed, and is equipped for train operation along the same general lines as the previously operated route east of Harvard Square, Cambridge to Boston. Congestion at the recently opened Broadway station of this tunnel in South Boston, will be relieved by the new line as will also congestion at Dudley Street, Roxbury. There will be a saving of five minutes on each trip from the Dorchester district into and out of the business center of Boston. One of the most valuable features of the new service is the reduction in running time between residential areas in Boston and the Victory plant at Squantum, where destroyers for the United States Navy are being built on a large scale. At Andrew Square there is a transfer station with two surface car loops and two train platforms on a lower level.

News Notes

Fire in St. Louis Destroys Equipment.—A fire on June 14 destroyed a section 400 ft. long by 75 ft. wide of the De Baliviere car sheds of the United Railways, St. Louis, Mo., at Delmar Boulevard and De Baliviere Avenue. The flames consumed nine Olive line motor cars, four trains consisting of motor car and trailer, eight or nine roofless "moonlight" cars, and six storage cars and a snowsweeper.

Bus Men to Be Pensioned.—The Fifth Avenue Coach Company, New York, N. Y., has adopted a system for pensioning its employees who have reached the age of seventy years, or who have been in the company's employ twenty-five years. Any employee who has been in the service twenty-five years and has been disabled will be pensioned under the plan. The pension system will not debar any employee from engaging in any other business.

St. Louis Settlement Vote in November.—The United Railway settlement ordinance will not be voted on in St. Louis until the regular election in November. The final count of the valid signatures on the referendum petitions filed by the Citizen's Referendum League failed to total a sufficient number for a special election within ninety days, as expected. The provisions of the settlement ordinance were commented upon editorially in the *ELECTRIC RAILWAY JOURNAL* of May 4, page 840.

People's Champion After Profits.—At the recent hearing in Flushing, Long Island, on the appeal of the New York

& North Shore Traction Company for a 7-cent fare Mayor Hylan of New York is said to have stated the municipal ownership policy of his administration as follows: "I am in favor of municipal ownership, but I feel that if the city is going to take over a public utility, it ought to take over one that is paying so it will lessen the burden on the taxpayers. Our theory is to take over a public utility that is paying big profits at first and then the next best one and so on so as to help the taxpayers. We prefer that to taking over a losing proposition such as this one."

Wage and Fare Appeals Coupled.—The union of employees of the Memphis (Tenn.) Street Railway has appealed to the Mayor and the City Commissioners to proceed with the investigation requested by the company in connection with its request for 6-cent fares. The employees say they are interested in the 6-cent fare only in so far as it bears on their securing a decent living wage, and that they want the investigation only in order that they may be able to proceed intelligently with their negotiations for a new wage agreement. The men say that "as living costs have advanced 100 per cent in most instances, we feel justified in asking our company for an increase in wages of approximately 85 per cent."

More Buffalo Crooks Sentenced.—Three more conductors employed by the International Railway, Buffalo, N. Y., have been convicted of stealing fares. One was fined \$25; another was fined \$5 and one was sent to the penitentiary for nine months. These convictions bring the total during the last month up to eleven. The men were charged with larceny, and it is alleged they withheld fares from the fareboxes and also manipulated the fareboxes in such a manner that coins would not register on the dial of the machines. One of the men convicted is charged with making devices which he sold to conductors for \$10. These devices could be placed in a farebox in such a manner that the fares would not register on the dial.

How Yonkers Regards Mr. Sutherland.—The Yonkers *Daily News*, in commenting editorially on the career of Leslie Sutherland, recently elected second vice-president of the Third Avenue Railway, New York, N. Y., said in part: "Yonkers is proud of Leslie Sutherland—proud with the pride of a mother who has watched the growth of her child, has seen him reach maturity, has learned to lean not a little upon his strong right arm, and who, with mingled feelings of sorrow and joy, sees him answer the call of responsibilities that will take him away from the home circle. Yonkers had learned to respect his strength, to place faith in his judgment, to call upon him for advice. In a very true sense he became a favorite son. And now, as larger duties call him, she bids him good-by, with pride in her heart, but not without sorrow. Wherever the paths of success may lead him Yonkers cherishes the hope that he will not forget the old home and the mother who loves him well."

Financial and Corporate

I. R. T. Would Issue Notes

Wants to Put Out \$37,700,000 of Three-Year 7 per Cent Securities At About 96½

The Interborough Rapid Transit Company, New York, N. Y., on June 29, filed with the Public Service Commission for the First District, an application for approval of a proposed collateral trust agreement securing \$37,700,000 in three-year 7 per cent notes and for authority to issue and dispose immediately of \$33,000,000 thereunder. Several days ago the company filed an application for permission to issue about \$58,906,000 of bonds to be used as collateral for the contemplated note issue.

The commission set July 10 at 10.30 a. m. as the date for the hearing on the bond issues, and at the same time will consider the merits of the note issue proposal, as the two are linked.

W. F. C. WILL PROBABLY HELP

Eugene Meyer, Jr., a member of the War Finance Corporation, said on June 29, that he felt sure that corporation would take about 30 per cent of the proposed note issue. He said that he personally felt 87½ was a fair price for the bonds, and 7 per cent interest rate reasonable. It is asserted that the conditions will require the sale of the notes at not less than 96½ per cent of par.

Of the proceeds derived from the sale of the \$33,000,000 immediately put on the market, \$31,845,000 are to be devoted to the following purposes:

For equipment under subway contract No. 3.....	\$18,827,000
For Manhattan Railway third tracking.....	10,897,000
For Manhattan Railway power plant improvement.....	2,121,000
Total	\$31,845,000

Last year the commission authorized the Interborough Rapid Transit Company to issue about \$39,000,000 in bonds to meet obligations incurred in the work of constructing and equipping the new subway and elevated lines. These bonds were to be disposed of at 93½ or more. Owing to inability to dispose of the bonds at that price, the company has now requested the commission to permit a large issue of short-term notes to be secured by the bonds as collateral.

Pending the July 10 hearing, city officials will confer in reference to questions involved, particularly whether the city's interest in the dual subway lines will in any way be affected.

Northern Electric Railroad Successor

Articles of incorporation were filed on June 20 for the Sacramento Northern Railroad, which is to take over the Northern Electric Railroad and its subsidiary lines, the plans for the reorgan-

ization of which were reviewed in the ELECTRIC RAILWAY JOURNAL for June 15, page 1161. The articles state that, in addition to operating the road, the new company will build 5 miles of standard gage track from the M Street bridge over the Sacramento River to a point 5 miles distant in Yolo County.

The fifteen directors represent the reorganization committee and the various creditors of the Northern Electric Railway. They are: E. D. Sullivan, F. M. McAuliffe, Delger Trowbridge, William S. McKnight, William H. Gorrill, Walter Slack, Charles C. Sullivan, A. E. Roth, A. D. Plaw, F. M. Hultman, A. E. Wellington, E. K. Pedler, W. G. Gardiner, Jerome B. White and G. S. Sahlender.

The roads taken over by the new corporation are the Northern Electric, the Sacramento-Woodland Railroad, the Marysville-Colusa branch of the Northern Electric and the Vallejo & Northern.

The reorganization committee purchased the Northern Electric Company at the foreclosure sale on May 28.

Responsible for Underlying Bonds

Pittsburgh Subsidiary Wants Controlling Companies Held Liable—Court Refuses Interest Payment Now

George Wharton Pepper, Philadelphia, representing the bondholders of the United Traction Company, appeared before Judge Charles P. Orr in the United States District Court in Pittsburgh on July 1 and filed a petition asking that the Philadelphia Company and the Pittsburgh Railways be jointly held responsible for the indebtedness of several million dollars to the bondholders of the United Traction Company. It is asserted that the property of the underlying companies has not been conserved properly.

The Philadelphia Company, through stock ownership, controls the Pittsburgh Railways, and the latter company in turn owns a large majority of the stock of the United Traction Company. The pending suit in equity was brought by the bondholders of the United Traction Company and was filed several months before the receivers for the railway were appointed.

Almost coincident with the foregoing plea Judge Orr handed down a decision refusing the assent of the court to the payment, at this time, by the receivers of the Pittsburgh Railways, of nearly \$500,000 as interest to underlying companies. Judge Orr says that the prospect of the company performing its full duty to the public and of meeting the just demands of its creditors is at present so dim that

the court hesitates to make an order for the payment of fixed charges.

The Pittsburgh Railways was placed in the hands of James D. Callery, H. S. A. Stuart and Charles A. Fagan as receivers on April 23 by judges of the United States District Court.

T. H., I. & E. Returns for 1917

Gross Earnings Gain \$186,000 or 5.83 per Cent, but Operating Expenses Rise \$223,000 or 12 per Cent

The income statement of the Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind., for the year ended Dec. 31, 1917, follows:

Gross earnings from operation.....	\$3,386,364
Operating expenses.....	2,087,472
Net earnings.....	\$1,298,891
Taxes.....	179,362
Operating income.....	\$1,119,528
Other income.....	200,343
Gross income.....	\$1,319,872
Deductions from income:	
Bond interest.....	\$760,410
Dividends.....	234,291
Interest on notes.....	36,776
Maintenance of organization leased lines.....	3,000
Surplus.....	\$285,393
Sinking fund.....	207,742
Balance.....	\$77,650

While the gross earnings for 1917, as compared with 1916, showed an increase of \$186,840 or 5.83 per cent, the operating expenses increased \$223,794 or 12 per cent, making a decrease in net earnings from operation of \$36,953. This falling off was principally due to advances in the cost of material and increased wages. Taxes were increased \$17,911 above 1916.

The total expenditure for 1917 for maintenance of ways and structures was \$288,054 and for maintenance of equipment \$192,600. Improvements on account of owned lines included the erection of a freight building 401 ft. x 30 ft. on the new freight terminal property on Kentucky Avenue, with the construction of seven tracks on this property.

The total amount expended for added property during the year was \$305,766. The total investment in addition to plant, property and equipment to Dec. 31, 1917, for which no bonds or securities have been issued, and including payments to sinking funds and investments in securities of affiliated companies amounted to \$2,285,467, an increase of \$316,923 over the year 1916.

Miscellaneous traffic and operating statistics for the year 1917 follow:

Passengers carried—interurban lines.....	9,257,115
Passengers carried—city lines.....	13,370,894
Total passengers carried.....	22,628,009
Freight handled (tons).....	99,447
Express handled (exclusive of Wells-Fargo) tons.....	15,362
Car-miles operated—interurban lines....	5,697,875
Car-miles operated—city lines.....	2,338,007
Coal consumed at power station (tons)....	243,522
Power generated, main power station (kilowatt-hours).....	97,181,993

The company refers to the purchase during the year of a coal mine in Sullivan County under an agreement made with three other electric railways in Indiana, one of them the local Indianapolis company. This agreement was previously reviewed in this paper.

Finance Corporation Grants \$1,000,000

New Orleans Company Is Promised Direct Loan If Holders of \$4,000,000 Debentures Accept One-Year Notes—Other Financing Happenings

In pursuance of its apparent policy of helping those utilities which can help themselves, the War Finance Corporation on July 2 announced that it had agreed to advance to the New Orleans Railway & Light Company \$1,000,000 to reimburse it for necessary expenditures, the corporation in return taking the company's note for the amount. The loan is based upon the condition that the holders of \$4,000,000 of two-year 6 per cent debentures, which matured on June 1, exchange them for new one-year 7 per cent notes.

The issue of debentures went unpaid at maturity because of the refusal of the War Finance Corporation to advance the money on the ground that it had no authority to make direct advances to corporations except in exceptional cases. At the time President Curran sent out a circular to the note-holders, explaining the circumstances and asking them not to press for payment until an opportunity had been afforded to work out an extension plan.

This plan, later submitted, called for the refunding of the matured notes, par for par, into the new notes, callable at 100 and interest on thirty days' notice. Mr. Curran now asks the holders to deposit their debentures in acceptance of the refunding plan, as not until its success is assured will the War Finance Corporation advance the \$1,000,000 it has promised. More than 50 per cent of the holders have already deposited their securities.

B.R.T. REFUNDING IS PROGRESSING

Holders of the \$57,735,000 of Brooklyn Rapid Transit Company 5 per cent notes will have until July 10 instead of July 1 to deposit their holdings, under the proposed refunding plan, with the Central Union Trust Company, in order to have them taken up, 30 per cent through cash furnished by the War Finance Corporation and 70 per cent through the new issue of 7 per cent three-year notes.

Up to the close of business on July 2, it was said, approximately \$25,000,000 of the old notes had already been deposited. They were coming in at a rate that indicated the acceptance of the refunding plan by virtually all the holders.

A committee of Philadelphia bankers has been appointed to consider the public utility problem. The members are: J. R. McAllister, John H. Mason, Effingham B. Morris, Arthur E. Newbold, Levi L. Rue, Joseph Wayne, Jr., and William P. Gest, chairman. It is probable that a sub-committee will be appointed to confer with bankers in other cities. Similar committees have been appointed for New York, Boston and Chicago.

The Capital Issues Committee on June 29 announced the appointment of

Dudley Cates, San Francisco, as secretary and chief examiner, and the creation under him of a new bureau of examiners to digest applications for approval of proposed securities issues. This bureau will assist in gathering information on these issues from local capital issues committees in each Federal Reserve District, and from the Fuel, Food, and Railroad Administrations, War Industries Board, and other government departments which can throw light on the war necessity of the project covered by proposed securities issues.

Frederic A. Delano, who has resigned as member of the Federal Reserve Board to enter the army, also has given up his membership on the Capital Issues Committee. A successor will be appointed by President Wilson.

Passes Preferred Dividend

New York State Railways Puts Action Over Pending Result of Its Fare Appeal

The executive committee of the New York State Railways, Rochester, N. Y., on June 14 decided not to declare at this time the regular quarterly dividend of 1½ per cent, due on July 1, on the \$3,862,500 of cumulative preferred stock. Horace E. Andrews, president of the company, in a circular dated at New York, June 18, says in substance:

"The executive committee was obliged to pass the preferred dividend because of insufficient earnings. The preferred dividends, however, are cumulative and must be paid before any dividends are declared on the common stock. The gross revenues have decreased and the operating expenses have greatly increased and the situation has reached a point where an increase in the rate of fare has become an absolute and immediate necessity. Our position is similar to that of other electric railways and also like that of the steam railroads until the government assumed control and established an average increase of approximately 25 per cent in freight and passenger rates.

"A year ago we applied to the Public Service Commission for permission to increase the fare from 5 cents to 6 cents in the cities in which we operate. Before the case could be heard an injunction was obtained restraining the commission on the ground that it had no power to increase the rate beyond that fixed by franchise or agreement, which contention the Court of Appeals later upheld. Your company has, therefore, made application to the City Councils of Rochester, Syracuse and Utica for authority to increase its rate of fare.

"Due to the increased cost of living, the operating employees last month demanded an increase in their rate of

wages, resulting in a cessation for two days of the operation of the company's cars. An adjustment finally resulted in an increase in the rate of wages upon an understanding with the cities that relief would be granted the company if an examination of its books developed the need of it. An examination by certified public accountants has been under way for about three weeks, and it is hoped the examination will be completed shortly after this month."

Financial News Notes

Sale Under Foreclosure Postponed.

—The sale of the properties of the Kansas City, Outer Belt & Electric Railway, Kansas City, Mo., scheduled to take place at Kansas City on June 18, was postponed by Judge John C. Pollock of the United States District Court.

Would Issue \$100,000 of Bonds.—The Hagerstown & Frederick Railway, Hagerstown, Md., has applied to the Maryland Public Service Commission for authority to issue \$100,000 of bonds, of which amount \$35,000 will be used for refunding, and the balance to guarantee a loan of that amount.

\$7,750,000 Kansas City Railways Notes.—The Kansas City (Mo.) Railways has sold \$7,750,000 of three-year 7 per cent collateral notes, Series A, to a syndicate of New York and Chicago bankers. The notes are secured by the deposit with trustees of \$10,134,000 first mortgage 6 per cent bonds, due in 1944.

Interstate Again Passes Preferred Dividend.—The directors of the Interstate Railways, Camden, N. J., have again passed the 3 per cent semi-annual preferred dividend. As was the case six months ago, when the preferred dividend was omitted, several of the leased companies have failed to pay their rental.

Puts Dividend Action Over.—The directors of the Youngstown & Ohio River Railroad, Leetonia, Ohio, on June 25 deferred action on the dividend of both the \$1,000,000 of outstanding common stock, and on the \$1,000,000 of outstanding 5 per cent cumulative preferred stock, usually due at this time. The preferred disbursement, usually payable in April, last, was postponed this year till May 15. The road is classed as a short-line railroad. It is under federal control.

Bondholders Buy Cincinnati Suburban Road.—On June 26 Common Pleas Judge Wade Cushing approved the sale of the property of the Cincinnati, Milford & Loveland Traction Company to the bondholders' committee for \$136,000. Before its future can be determined the Public Utilities Commission will have to act upon its application to abandon its line. L. M. Goldman & Company,

junk dealers of Danville, Ill., offered to make a higher bid on the property, but the conditions were such that the court could not consider them.

Delving Into the Past.—The officers of the North Kankakee Electric Light & Railway Company, Kankakee, Ill., have received notice to appear before the Illinois Public Utilities Commission and explain why a stock dividend was paid without securing permission of the commission. The stock dividend was voted about three years ago. The officers of the company say they took all necessary steps suggested by their attorneys. They did not understand that the permission of the commission was necessary. The company was capitalized for \$100,000. The paid-in capital was \$33,000 and an equal amount of bonds had been sold. After the bonds were paid off the stockholders voted to issue stock to the full amount of the capital authorized. Each stockholder received three shares of new stock for each share that he held previously.

Connecting Railways Passes Preferred Dividend.—The committee of trustees of the Chicago City & Connecting Railways, Chicago, Ill., has passed the dividend on the preferred shares. Members of the collateral trust committee said that there was no probability of the dividend question being considered again until December, when a vote on the January payment is due. The dividend on the preferred stock is cumulative to the extent of \$4.50 a year. This is the first time a dividend was ever entirely passed. Including the July payment of this year there is an accumulation of \$8.50 of dividends due. In January, 1918, \$1.50 was paid. Three per cent was paid in 1917, 3½ per cent in 1916, and \$2.50 in 1915. The last year in which the full \$4.50 dividend was paid was 1913, and the last full semi-annual dividend was July, 1914. Nothing has been paid on the common stock since July, 1912.

Scranton & Binghamton Bondholders Organize.—At the instance of bondholders of the Scranton & Binghamton Railroad, Scranton, Pa., G. Tracy Rogers, Binghamton, N. Y., formerly president of the Binghamton Railway, has consented to organize a bondholders' protective committee to conserve the interests of the bondholders on account of the fact that the company defaulted in the payment of interest due on June 1. The committee is made up of G. Tracy Rogers; H. G. Dunham, president of the People's Savings Dime Bank, Scranton; F. W. Wollerton, president of the Union National Bank, Scranton; William L. Foster, president of the Miners Bank, Pittston, Pa.; W. L. Connell, president of the Connell Coal Company, Scranton; F. L. Fuller, president of the Remington Railway Company; G. R. Bedford, Wilkes-Barre, attorney for the committee. Ford, Bacon & Davis, New York, will make a survey of the property.

Empire United Reorganization Echo.—The Rochester & Syracuse Railroad, Syracuse, N. Y., on June 27 filed with the Public Service Commission for the Second District, a petition asking for the vacating of an order granted by the commission on Oct. 28, 1915, merging the Empire United Railways, Inc., with the Monroe County Electric Belt Line Company. The petition recites that the Empire United Railways, Inc., was authorized to purchase the outstanding capital stock of the Monroe County Electric Belt Line and effect a merger. After the proceedings were commenced to merge the two companies, the Columbia Trust Company, New York, as trustee for mortgage bondholders, commenced an action to foreclose a mortgage given to it by the Rochester, Syracuse & Eastern Railroad to secure the issue of its first mortgage bonds for \$7,500,000 and it was stated in the complaint that the property claimed to be owned by the Monroe County Electric Belt Line Company was

actually owned by the Rochester, Syracuse & Eastern Railroad and subject to the lien of the mortgage. Judgment was entered declaring title to be in the Rochester, Syracuse & Eastern Railroad, and the property of the Rochester, Syracuse & Eastern Railroad, together with the Monroe County Electric Belt Line, was sold under a judgment subject to the lien of the Columbia Trust Company's mortgage.

Would Divide Released Depreciation Fund.—Holders of income 5 per cent bonds of the New York (N. Y.) Railways have organized under the lead of John Candler Cobb, Boston, Mass., for the purpose of bringing action to require the company to distribute to holders of income 5s the reserve fund which was recently released by decision of the Court of Appeals in favor of the company against the Public Service Commission of the First District. As of June 30, 1917, the depreciation or accrued amortization of capital amounted to \$3,127,258, equivalent to 10.20 per cent on the outstanding adjustment income bonds. The New York Railways is the successor to the reorganized Metropolitan Street Railway. The new company was required, before paying any interest on its income bonds or dividends on its stock, to set aside each month 20 per cent of its gross operating revenue for maintenance and depreciation and, if this was not expended during the month, to credit the unexpended amount to an account called "Accrued Amortization of Capital." The company objected to the order on the grounds that the commission was without power to make it; that the required reservation was not always needed in full for the purposes designated and that the directors were the proper persons to determine the depreciation rate and amount of reserve. The court proceedings which resulted finally in releasing the accumulated depreciation fund were reviewed in the *ELECTRIC RAILWAY JOURNAL* of June 1.

Electric Railway Monthly Earnings

CITIES SERVICE COMPANY, NEW YORK, N. Y.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., May, '18	\$1,925,285	*\$38,361	\$1,886,924	\$5,898	\$1,881,026
1m., May, '17	1,565,425	*28,341	1,537,084	234	1,536,850
12m., May, '18	20,487,577	*390,023	20,097,554	8,297	20,089,257
12m., May, '17	15,218,272	*287,038	14,931,234	42,624	14,888,610

CLEVELAND, PAINESVILLE & EASTERN RAILROAD, WILLOUGHBY, OHIO

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Apr., '18	\$41,373	*\$28,571	\$12,802	\$11,570	\$1,232
1m., Apr., '17	45,089	*23,870	21,219	12,515	8,704
4m., Apr., '18	159,795	*110,254	49,541	45,631	3,910
4m., Apr., '17	152,142	*91,916	60,226	46,778	13,448

GALVESTON-HOUSTON ELECTRIC COMPANY, GALVESTON, TEX.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Apr., '18	\$205,083	*\$136,577	\$68,505	\$39,728	\$28,777
1m., Apr., '17	150,698	*106,371	44,327	37,295	7,032
12m., Apr., '18	2,265,272	*1,482,279	782,993	460,092	322,901
12m., Apr., '17	1,952,355	*1,259,273	693,082	440,411	252,671

HOUGHTON COUNTY TRACTION COMPANY, HOUGHTON, MICH.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Apr., '18	\$25,900	*\$16,396	\$9,504	\$4,010	\$4,494
1m., Apr., '17	31,536	*16,091	15,445	5,125	10,320
12m., Apr., '18	340,899	*217,869	123,030	60,810	62,220
12m., Apr., '17	338,476	*196,272	142,204	62,621	79,583

INTERBOROUGH RAPID TRANSIT COMPANY, NEW YORK

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., May, '18	\$3,524,432	*\$2,002,462	\$1,521,970	\$1,186,854	\$358,023
1m., May, '17	3,511,496	*1,712,639	1,798,857	1,023,779	\$854,317
11m., May, '18	37,208,118	*20,913,024	16,295,094	12,366,041	\$3,894,245
11m., May, '17	36,608,909	*17,771,219	18,837,690	11,043,410	\$8,469,450

PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Apr., '18	\$903,655	*\$565,868	\$337,787	\$206,587	\$131,200
1m., Apr., '17	754,687	*460,884	293,803	191,025	102,778
12m., Apr., '18	10,172,652	*6,306,622	3,866,030	2,412,336	1,453,694
12m., Apr., '17	8,571,266	*5,244,570	3,326,696	2,241,688	1,085,008

SAVANNAH (GA.) ELECTRIC COMPANY

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Apr., '18	\$92,579	*\$62,704	\$29,875	\$24,746	\$5,129
1m., Apr., '17	76,968	*51,554	25,414	23,908	1,506
12m., Apr., '18	1,035,134	*694,962	340,172	294,204	45,968
12m., Apr., '17	867,963	*574,882	293,081	285,198	7,883

TAMPA (FLA.) ELECTRIC COMPANY

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Apr., '18	\$84,863	*\$48,347	\$36,516	\$5,085	\$31,431
1m., Apr., '17	82,261	*47,183	35,078	4,372	30,706
12m., Apr., '18	997,955	*574,859	423,096	59,265	363,831
12m., Apr., '17	983,651	*537,088	446,563	52,305	394,258

REPUBLIC RAILWAY & LIGHT COMPANY, YOUNGSTOWN, OHIO

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., May, '18	\$469,142	*\$338,765	\$130,377	\$100,034	\$36,528
1m., May, '17	371,745	*257,291	114,454	82,638	\$37,984
12m., May, '18	5,394,109	*3,775,786	1,618,323	1,090,959	\$616,044
12m., May, '17	4,228,747	*2,623,123	1,605,624	895,941	\$738,895

TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., May, '18	\$804,783	*\$536,420	\$268,363	\$160,777	\$107,586
1m., May, '17	841,764	*531,928	309,836	149,942	159,894
5m., May, '18	4,039,141	*2,972,722	1,066,419	782,468	283,951
5m., May, '17	4,322,748	*2,865,833	1,456,915	730,414	726,501

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

Traffic and Transportation

Freight Rate Hearing

Indiana Electric Roads Appeal for Freight Rates Similar to Those of Steam Lines

Hearings on the petitions of Indiana interurban railways for an increase in freight rates to place their tariffs on a parity with those now in effect on the steam railroads were held before the Public Service Commission of Indiana on June 26 and 27. The following roads were represented at the hearing:

Indianapolis & Cincinnati Traction Company.
Evansville, Suburban & Newburg Railway.
Evansville Railway.
Fort Wayne & Northern Indiana Traction Company.
Chicago, South Bend & Northern Indiana Traction Company.
Winona Interurban Railway.
Terre Haute, Indianapolis & Eastern Traction Company.
Union Traction Company of Indiana.
Marion & Bluffton Traction Company.
Ohio Electric Railway.
Interstate Public Service Company.
Indianapolis & Louisville Traction Company.
Chicago, Lake Shore & South Bend Railway.
Indiana Railways & Light Company.
Fort Wayne & Northwestern Railroad.

ELECTRICS GET UNDESIRABLE BUSINESS

According to the testimony introduced, if the interurban freight rates continue to be lower than those of the steam railroads a great volume of undesirable business would be attracted to the interurbans. It was pointed out that the electric roads were not generally equipped to handle the bulky and heavy freight business, and that such business was not profitable to them. The interurban companies are doing an express business at freight rates. While the higher freight rates were needed on the interurban lines to produce additional revenue it was also necessary that the rates should be as high as those of the steam roads, so that the heavy freight matter would continue to be handled by the latter.

Chairman E. I. Lewis of the commission called the attention of the electric railway men to the likelihood of numerous motor transportation fleets if interurban rates were raised to a point where the gasoline trucks could compete vigorously on light freight. As a means of shunting off the lower classification freight, for example that in the last three classes, he inquired about the advisability of making the rates for classes 1, 2 and 3 prevail for classes 4, 5 and 6. It was agreed it would be hard to predict the results of such a change.

A rather typical case of the conditions of many of the Hoosier electric lines was displayed in that of the Evansville Railways, which handles mostly a freight business. W. A. Carson, vice-president and general manager, testified that his road had not paid dividends on either preferred or common stock since it was constructed in 1907. Each year the deficit grew larger and the road had not met interest on its bonded indebtedness for a year and a half. The net earnings decreased 59 per cent last year.

Suggestions that steam lines handle heavy freight and leave interurbans the lighter class of short-haul freight were made for consideration when conditions make such changes possible.

The hearing is more or less preliminary in character as the commission will look into the public records in this and other interurban cases before granting the increases asked. It is said that the electrics are courting federal control in that some of them have asked the Interstate Commerce Commission to take a hand in obtaining for them the higher intrastate rates desired.

Working to Better the Service

The Kansas City (Mo.) Railways has made some progress on each of the three measures which it is advocating as a solution of the problem of better service. The board of control of the company has made up a complete list of all stops to be made under the proposed skip-stop plan. According to this system the average distance between stops will be 600 ft., thus eliminating 1400 stops and providing for a 38 per cent saving. A list of the stops and an explanation of the proposed change are printed for every line in the city and copies placed in the cars for the information of the public. The schedule was published in one of the newspapers.

The continued advertisement of the "shop early" measure has resulted in considerable relief during rush hours. Women seem to realize that it is to their own advantage and comfort as well as to that of the company and business people to shop between the hours of 9 a. m. and 4 p. m. and arrange their plans accordingly.

The company has continued its study of the industrial situation with a view to getting the staggered work-hour plan adopted by industrial plants and department stores. A complete list of the firms, together with the number of employees in each establishment, has been obtained, and the company is endeavoring to prepare a work-hour schedule for all of its many lines for the purpose of lessening the rush-hour jam.

All Missouri Pleads

With P. J. Kealy as Spokesman Utilities There Place Their Case Before Missouri Commission

A plea for higher rates and for other relief from war-time burdens was made to the Public Service Commission of Missouri last month by representatives of many utility corporations in Missouri, including the heads of large utilities of St. Louis, except the United Railways. That company recently obtained an increase of from 5 to 6 cents in fares.

P. J. Kealy, president of the Kansas City Railways, the principal speaker, suggested four remedial measures, which, he said, when applied by the commission to the utilities, would give relief. A summary of them follows:

FOUR REMEDIES SUGGESTED

1. Request to municipal authorities to relieve the utility from franchise provisions requiring extensions and improvements when not necessary to maintain the present standard.

2. Relief of utilities from all taxes except the general property tax. This would include special impost, car, motor, gross income, street cleaning and sprinkling, park and paving taxes.

3. To require monthly reports of all public utilities touching their earnings and disbursements so that speedy relief may be given when the earnings fail to give a fair return.

4. Elasticity of rates to be granted through definite procedure so that they may be changed to meet the varying costs of fuel, money, labor and materials.

The resolutions adopted in May at St. Joseph by the Missouri Association of Public Utilities, asking that the utilities be granted increased rates in order to meet the increased cost of operation, were presented by a committee.

CLOSER PUBLIC RELATIONS DESIRABLE

In his address Mr. Kealy pleaded for closer co-operation between the utilities, the public and the Public Service Commission. He gave a detailed account of the conditions confronting the various utilities and declared that relief was necessary if they were to exist. Mr. Kealy said in part:

"Conditions are rapidly shifting. No one can predict to-day what six months will disclose. There must be that close co-operation between the public, the regulatory bodies and the public utilities which will admit of prompt action on the part of you gentlemen, backed by the active support of our local councils and the public.

"It is not a theory that confronts us. The utilities of Missouri are at this time facing bankruptcy. In all justice the men who have invested their money in this State should not be asked to pay for the privilege of serving the communities of Missouri with public service. Nor can they longer continue to do so."

Six-Cent Fare for Kansas City

Brief Review of Decision by Missouri Commission Allowing Flat Increase Over Fare Fixed in Model Franchise

The Public Service Commission of Missouri on June 22 granted a 6-cent fare in Kansas City, Mo., to the Kansas City Railways.

COMMISSION DIVIDED THREE TO TWO

The opinion was written by William G. Busby, chairman of the commission; and concurred in by Edward Flad, engineer, the member who had closely investigated the problems of the company, and by Noah W. Sumpson. Two members, E. J. Bean and David E. Blair, dissented. They held that the commission had no authority to handle such rate matters.

As noted briefly in the *ELECTRIC RAILWAY JOURNAL* of June 29, the 6-cent rate is to go into effect on July 15 for a year. At the end of the year the commission will continue the higher rate if still necessary or make other adjustment; intermediate adjustment may also be made.

CHILDREN'S TICKETS AND TRANSFERS UNDISTURBED

Under the decision, the company will continue to give universal transfers. The fare for children will continue at 2½ cents. The commission suggests that the company issue coupon books, or disks, for the convenience of the public. The company now has in circulation metal disks for half fares, and a small number of metal disks for full fare.

Pending the arrival of disks, the fare machines on the cars will be adjusted to receive pennies, though the machines will not count the pennies. The conductors will, possibly, be charged 6 cents for each nickle registered, so that they would be careful to see that the extra penny is deposited. Fares paid wholly in pennies would be registered on the overhead register.

INCREASE APPLIES ONLY IN MISSOURI

The fare increase applies only to Kansas City, Mo. The company has applied to the Kansas Utilities Commission for an increase for the business on the Kansas side. Pending action, an extra cent will be collected from 5-cent passengers boarding cars in Kansas City, Kan., for Kansas City, Mo., when the cars reach the State line. Passengers from Kansas City, Mo., will of course have paid 6 cents for their ride, whether intrastate or interstate.

Following the application before the Kansas commission, the city of Kansas City, Kan., secured from Judge E. L. Fischer in the district court of Wyandotte County a temporary injunction based on the contention that the commission had no jurisdiction. The commission's attorney is fighting the injunction. A hearing on whether the injunction will be dissolved or made permanent was set for June 29.

The company promised its employees that if the fare increase were granted,

wages would be raised not less than 5 cents an hour. The matter of wage adjustment is now being worked out. The new wages probably will be established about Aug. 17, the date of last year's readjustment. The employees are asking an increase in excess of 12 cents an hour. Probably all employees receiving less than \$1,800 a year will share in the advance.

CRITERION FOR OTHER CASES

The action of the Missouri commission is taken as a reflection of the present Missouri position with reference to utility properties—that the public has learned the lesson that it needs the service of utilities, and is willing to pay the reasonable cost. The definiteness of this public opinion may be credited to the efficient publicity by the utilities of the State. The Kansas City Railways and the Kansas City Light & Power Company have presented their situations openly and clearly to the public, through the newspapers of the section, and by direct advertising means. In this work *The Railwayman*, published by the Kansas City Railways for distribution among its patrons, was a potent factor.

APPLICATION PENDING SINCE FEBRUARY

The petition of the company to increase fares was filed with the commission on Feb. 14. The company said that the terms of its franchise with the city had been lived up to scrupulously for three years, but that on account of the conditions imposed by the war it would be impossible with a fare limited to 5 cents to give the city the full advantages of the franchise provisions, make additions and improvements and allow the company to earn interest upon the money invested. It said that after the return to anything like pre-war conditions it would again be possible to carry out the provisions of the franchise with the passenger revenue based upon the 5-cent fare. The relief sought was to continue only so long as the commission determined the increase to be necessary to meet the present abnormal situation. It appealed, therefore, to the commission "to make a reasonable increase in fare * * * to be applied solely to the payment of the increased expenses necessary to render first-class service."

HEARINGS BEGAN IN APRIL

The evidence was heard by the entire commission on April 29 and 30 and on May 9 and 10 at Kansas City and on May 27 at Jefferson City. The case was also briefed and argued by counsel for Kansas City and for the company.

The city contended that the Public Service Commission had no jurisdiction to regulate rates, the routing and the service of the railway and that the full power to regulate such rates, routings

and service was vested in the law-making authorities of Kansas City. It also contended that any attempt upon the part of the commission to change or modify the provisions of the franchise contract would be in excess of the power of the commission and would violate the constitution of the United States and the rights of Kansas City. In other words, the city contended that the State, by constitutional, statutory and charter provisions, surrendered its power and authorized the city and company to fix irrevocably such rates by the franchise agreement so that the power of the State could not be resumed and exercised without the consent of the city during the thirty-year period of the franchise.

In its decision the commission said it held in the case of the appeal of the United Railways, St. Louis, for an increase in fare that to construe the constitution authorizing the city by its ordinance to fix irrevocably the rates for the franchise period would be to construe that section as in conflict with the other provisions of the constitution which reserve the legislative and police powers to fix rates to the State and provide that the charters of the cities shall always be in harmony with and subject to the constitution and laws of the State. In this connection it said:

"That our construction of Sec. 20, Art. XII, was correct in the St. Louis case, *supra*, and the Knight case, *infra*, not only appears from the many decisions cited in our reports therein, but has since been demonstrated by two decisions of the Supreme Court of this State. *State ex rel. City of Sedalia v. Pub. Serv. Com.*, as yet unreported; *City of Fulton v. Publ. Serv. Com.*, as yet unreported. While Sec. 20 of Art. XII was not directly involved in these cases, yet we think that the reasoning of the court therein shows the correctness of our decision in the St. Louis case."

FIVE-CENT FARE INADEQUATE

In conclusion the commission said:

"We therefore conclude from the evidence before us that the maximum rate of 5 cents chargeable by the company for transporting adult intrastate passengers within the limits of Kansas City, Mo., is insufficient to yield reasonable compensation for the service rendered and is unjust and unreasonable; and, having due regard, among other things, to a reasonable average return upon the value of the company's property actually used in the public service, and to the necessity of making reservation out of income for surplus and contingencies, the company will be permitted hereafter to charge for the period fixed in the order, as just and reasonable maximum rates for the service performed, a fare of 6 cents for transporting adult intrastate passengers, and the present fare of 2½ cents for children in Kansas City, Mo.

"We estimate that an increase of the Missouri intrastate adult fare to 6 cents will increase the revenue \$841,190,

which amount added to \$680,057, shown above, will make the estimated net income \$1,521,248 on the Missouri intrastate business. This amounts to a 6 per cent return on about \$25,000,000 without allowance for contingencies or an increase in wages.

"The zone system of rates is considered by some to be more equitable than the flat rate, in that the fare in the former instance is approximately proportional to the distance traveled. However, taking the community as a whole, it is very doubtful if the zone system of fares would be desirable. It would entail considerable adjustment of real estate values, change in living conditions, congestion in the inner zone, and additional expense for the company.

"A charge for transfers will not raise sufficient revenue, and it is considered advisable to retain the universal free transfer privilege.

"The company will be required to issue coupon books or metal disks for the convenience of the public, without change of rate, to avoid delay and confusion arising from making change. The commission will require the company to submit monthly statements setting forth full information upon revenue and expense during the month, for the purpose of controlling the situation for the benefit of the public.

"The commission will reserve full jurisdiction of every phase of this case and will reserve the right to modify any order entered herein, including the rate of fare herein allowed, whenever changed conditions shall justify.

"An order will be entered in conformity with these views."

New Albany Fare Order Modified

The Public Service Commission of Indiana recently authorized the Louisville & Southern Indiana Traction Company, which operates the city lines in Jeffersonville and New Albany, to charge 5 cents straight for each passenger carried, instead of selling six tickets for a quarter. The commission also authorized the company to discontinue giving transfers to the city cars from the interurban cars coming into either city, although the city transfers were not discontinued, and permitted the company to charge a 10-cent single fare between New Albany and Jeffersonville, with commuters' tickets to be sold at 7 cents each, or twenty-five tickets for \$1.75.

C. L. Jewett, head of the New Albany city law department, sent a telegram to the commission, asserting that the ruling was oppressive and unfair to the residents. He recently received the following reply:

"On your motion we have suspended the abolishment of the Jeffersonville transfers. We also concur in your suggestion that the purchase of twenty-five tickets at one time is excessive and are issuing an order for the selling of twelve tickets for 84 cents. You have done us a favor by bringing these matters to our attention."

Pittsburgh Railways Files Fare Brief

Methods Of Collection—Objections to City's Plan—Results to Be Obtained from Proposed Plan

On June 17 the Pittsburgh (Pa.) Railways filed a brief in answer to the fare increase proposal made by the city of Pittsburgh, as mentioned in the issue of the *ELECTRIC RAILWAY JOURNAL* of June 15, page 1168. The brief begins by outlining the proposed methods of collection of fares, as described elsewhere in this issue, and continued in part as follows:

COMPANY PLAN WILL SECURE THE FOLLOWING RESULTS:

1. It will procure the revenue required to operate the cars.
2. It is simple and easily understood by the public.
3. It enables all doors to be used so that passengers may enter and leave the cars promptly.
4. It greatly simplifies the duties of the conductor.
5. It avoids delays in the congested parts of the city. Any necessary delays due to the collection of fares are transferred to the outer districts where traffic is light.
6. It makes possible the use of the fare box and registers—only one register being used at a time.
7. All doors being used, it more evenly distributes the passengers throughout the length of the car.

WHAT THE CITY PROPOSED

To collect 5 cents for a ride wholly in the 5-cent area; 5 cents for a ride wholly within the railway's 7-cent area and 7 cents for a ride across the line dividing the areas—that is, a ride which extends from one area into the other area.

The testimony indicates that the city has no definite idea how this plan is to be worked out, although Mr. Frank, on the stand, after considerable hesitation, suggested the following as a way in which he thought it might be accomplished.

OUTBOUND TRIPS

On outbound trips the collection of fares in the 5-cent area would be the same as that proposed by the company, namely, collect 5-cent fare from each passenger as he left the car. In the 7-cent area each entering passenger would be handed a metal or other type of check which would permit him to leave the car and pay 5 cents instead of 7 cents.

INBOUND TRIPS

On inbound trips in the 7-cent area, 7 cents would be collected from each passenger as he entered the car. If the passenger left the car, however, in the 7-cent area, the conductor would pay back 2 cents per passenger as he left the car. If the passenger left the car in the 5-cent area, no refund would be given the passenger. In the 5-cent area the conductor would collect 5 cents from each passenger as the passenger entered the car.

OBJECTIONS TO CITY'S PLAN

OUTBOUND TRIPS

(a) Passengers in the 7-cent area could not enter by the front door, for if they did go they could not get a check from the conductor. This would render useless the front door in the 7-cent area on outbound trips and would greatly delay the traffic.

(b) The duties of the conductor would be multiplied very much since he would have to deal with the passengers in the 7-cent area when they entered the car and again when they left the car. If there were ten passengers to leave the car and as many to board the car at a stop, the conductor would be required to give checks to the ten who were taking the car and at the same time collect the fares from the ten who were leaving the car, both lines of passengers passing the conductor at the same time.

(c) The conductor could give a check permitting the passenger to leave the car for 5 cents to any party he might desire to present such check. As a matter of fact, he could also report any 7-cent fare as a 5-cent fare by simply adding one of these metal checks to the fare.

(d) It would be necessary for him to have two registers for use in the 7-cent area and he could ring up any 7-cent fare on the

5-cent register without anyone being the wiser.

INBOUND TRIPS

(a) If the passenger got off in the 7-cent area, the conductor would have to pay the passenger 2 cents as he got off the car.

(b) A passenger in the 7-cent area would have to get off at the rear end of the car regardless of how full the car might be, resulting in delay and confusion.

(c) How would the 2 cents rebate be accounted for? Would it be rung up on a 2-cent register; that is, would we then have three registers on the car, a 2-cent register, a 5-cent register and a 7-cent register?

(d) What would prevent the conductor from selling these 2-cent rebates to himself at 2 cents cash?

(e) If an attempt were made to overcome this by requiring the passenger to drop his rebate check in the fare box as he left the car, what would prevent the conductor from dropping the rebate check in the fare box and charging up the company for 2 cents for a 7-cent passenger whose fare had gone into the box?

The testimony of the city was that there would be some decrease in revenue due to the 5 cents being collected in the 7-cent area. The testimony of Mr. Frank was that his estimate of the decrease was \$175,000 a year. We believe that the decrease in revenue would be very much more than this sum, and it would be multiplied many times if the short rider were to be charged 5 cents on other parts of the system where there would be just as much right for a variation from the 7-cent fare as there would be in the 7-cent Pittsburgh area.

The objections to the various schemes outlined above are operating difficulties which have not been overcome in any city in America. In no city has any such receipt method been adopted where large cars are used and many passengers handled.

All these schemes further have the disadvantage of rendering useless the fare boxes, since at least a part of the fares would either be collected from the passengers by the conductor or some token would be collected, permitting the passenger to ride for less than 7 cents, this token, after all, being the same as money.

If a 5-cent fare is to be allowed a short rider in the 7-cent area, the following inconsistencies will develop.

1. The fare from Wilkinsburg to East Liberty would be 5 cents; the fare from East Liberty to Oakland would be 7 cents, unless the 5-cent limit be moved to the city side of Oakland, when some other community then would have a discrepancy.

2. Moreover, if the short rider in the 7-cent area in Pittsburgh be allowed to ride for 5 cents, then the short rider in Braddock, Homestead, etc., should also have the 5-cent fare, which would very quickly mean that we would be back to the 5-cent fare everywhere excepting for the long rider in Pittsburgh, he being the only 7-cent rider, and instead of getting \$2,500,000 increase in our revenue we probably would not get more than \$1,000,000. After all, an analysis of the Hamilton Avenue line chart shows that a ride from Carnegie Library to the far side of Wilkinsburg would cost approximately 16 cents, and it is surely just as unfair to the short rider to charge only 7 cents for this long, expensive ride as it is to charge the short rider 7 cents for a 5-cent ride in the 7-cent area.

Seven-Cent Fare Allowed

The Public Service Commission of Massachusetts in a twenty-six page finding, dated June 29, has sanctioned a 7-cent minimum rate for the Middlesex & Boston Street Railway, with the abolition of 6-cent tickets, and has approved a 1-cent transfer charge between 7-cent and 8-cent lines, continuing the latter without change. In this decision the commission states that it is far from convinced that the company's proposed tariff plan is superior to the zone method of rate-making adhered to by many of the other large companies of the State. The decision will be reviewed in a later issue.

Buffalo Fares Before Court

Effort to Secure Six-Cent Rate in That City Now Moving Toward Settlement Through Courts

As the result of a decision handed down by Justice Herbert P. Bissell in the Supreme Court of Erie County, Buffalo, N. Y., on July 1, a referendum will be held by the voters of the city to determine whether or not the action of the City Council shall be repealed by which that body voted to suspend the operation of the franchise of the International Railway fixing a 5-cent fare and recommending to the Public Service Commission of the Second District that a 6-cent fare be fixed within the city.

APPEAL HEARD ON JULY 2

An immediate appeal was taken by the International Railway and arguments were heard in the Appellate Division at Rochester on July 2, the last day of the Appellate Court term for the summer. An early decision is expected. Henry W. Killen, of counsel for the International, says that if the Appellate Division affirms the judgment of the lower court, the case will be carried to the State Court of Appeals. This appeal would not act as a stay on the matter of a referendum.

The 6-cent fare question in Buffalo got into the courts as the result of a friendly action started by the International Railway against the city in which the company asked for a writ of mandamus to compel the corporation counsel of the city to execute a stipulation of discontinuance of a proceeding now pending in the Supreme Court of Erie County for a review of the company's special franchise assessment for 1916. The city, under the terms of an agreement with the company at the time the 6-cent question was left with the Public Service Commission for settlement, agreed to discontinue the action. The corporation counsel of the city refused to execute the stipulation until the expiration of thirty days after the adoption of the resolution by the Council. Under a provision of the new city charter, any resolution disposing of property rights of the city, shall not become operative until after the expiration of thirty days, and it shall be reconsidered and submitted to the electors for their approval.

NO PROPERTY RIGHTS DISPOSED OF

The International Railway maintained through its counsel, Thomas Penney, vice-president, and Henry W. Killen, of Penney, Killen & Nye, that no property rights of the city were disposed of in the resolution and that the thirty-day clause and referendum were not effective in the case. A citizens' committee was organized with fifteen members and five lawyers were engaged to co-operate with the municipal authorities in testing the legality of the matter.

The decision of Justice Bissell is based upon the action started by the railway. The court denied the writ of

mandamus asked by the company and incidentally upholds the legality of the action taken by the City Council; holds that the Council's resolution is subject to a referendum and also holds that property rights were disposed of by the city when the 6-cent fare action was taken.

Before a referendum can be held, however, petitions must be filed signed by voters, representing at least 5 per cent of the entire number of votes cast for all candidates for Mayor at the last preceding election. Petitions have been in circulation since the action was taken by the Council on June 18, and it is stated these petitions now bear more than 10,000 names, about three times the number required by law.

One important point in the court's ruling is the fact that a City Council has the right to agree by resolution to amend a franchise with a railway and can grant the Public Service Commission right and power to fix a higher rate of fare. Without this power, the court holds, the Public Service Commission is without authorization to act. The decision upholds the contention of the city law department and defeats the efforts of the International Railway to secure permission from the Public Service Commission for an order to charge a 6-cent fare immediately pending the commission's investigation and the final determination of what a just and reasonable fare should be.

PRESIDENT CONNETTE SEES POSSIBLE CHAOS

In a statement to the Mayor of Buffalo, E. G. Connette, president of the International Railway, said that if the decision of the Supreme Court of Erie County is upheld by the Appellate Division, it will warrant the directors of the International Railway in withdrawing the wage advance recently granted the company's employees until the final determination of the 6-cent fare controversy. Such action on the part of the company's directors will probably mean a strike of motormen and conductors. The situation would then revert back to the time when the Government sent a representative to Buffalo to bring the company and the City Council into agreement. Following the entrance of the Government into the matter previously the Council approved the resolution which waives the provision of the company's franchise which fixes a 5-cent fare and gives the question of determining a just and proper rate of fare to the Public Service Commission.

Arguing the appeal before the Appellate Division in Rochester on July 2, Henry W. Killen, of counsel for the International Railway, said that if the voters of Buffalo were allowed to vote on the question of affirming the action of the City Council, the 6-cent fare would be overwhelmingly defeated. He

declared that if the question was given to the voters and they decided adversely, war industry in Buffalo would be sorely crippled for a strike of the company's employees would be inevitable. Mr. Killen told the judges there were about 140 industrial plants in the city serving war ends and in these plants are 80,000 men and women who would be affected by a strike. Mr. Killen declared that the wage increase of 8 cents an hour would mean \$800,000 a year to the railway. If there is delay, such as would be occasioned by a referendum, the company could not afford to pay the \$2,000 a day that the raise in wages represents.

New York City Lines Appeal

Surface Lines Included in Old Metropolitan Street Railway System Ask Fare Increase

Frank Hedley, vice-president and general manager of the New York (N. Y.) Railways, on June 27 filed with Mayor Hylan a petition requesting, on behalf of the New York Railways, that for the period of the war and one year thereafter the Public Service Commission be permitted to determine rates of fare on lines of the New York Railways regardless of existing municipal agreements and franchises.

PETITION SHOWS FINANCIAL DEPLETION

The petition filed with Mayor Hylan says in part:

"Since the organization of the New York Railways to date no dividends have been paid upon its stock, and since June 30, 1916, no interest has been paid upon its 5 per cent adjustment bonds. Efficient regulation of public utilities must provide for a fair return to the investors and adequate service to the public.

"The New York Railways has been compelled to meet increases in taxes and increases in the cost of labor and material while its revenues have been decreasing. The period has now been reached where it cannot out of earnings meet its fixed charges prior to its adjustment bonds without any return upon its adjustment bonds or stock.

"Gross receipts have been diminishing, and, based upon the trend, the estimated deficit in the interest on the first mortgage 4 per cent bonds for the year ending June 30, 1918, will be \$67,254. The company, notwithstanding this deficit, will be able to pay the interest due on July 1 out of funds realized from the settlement of the former receivership of the properties. Such funds, however, will not be sufficient to pay the interest on the first mortgage bonds during the six months following June 30, 1918. The service cannot be efficiently maintained without an increase in revenue.

COMPANY AT END OF HOPE

"We are now almost at the end of our resources. The actual figures of our condition and the difficulties that confront us are open for inspection and confirmation, and we ask relief only adequate to meet our necessity."

County Clerk William F. Schneider, in a letter to Mayor Hylan and Theodore P. Shonts, president of the railway, bearing on the question of raising fares, brings up the point, that the subway loses money on the passenger who rides for a long distance, and says that under the zone system the burden would not fall upon the rest of the passengers. In the course of his letter William Schneider said:

"Everyone concedes that the wages of the railway employees must be increased, and it seems equally true that present fares will not permit such increases. It is also important to take into consideration the economic status of those who pay the employee namely, the users of the traction lines, and in justice to all approach this question with an angle of vision taking in both sides. With this in mind, I am suggesting that before deciding upon a general increase to 6 cents for all rides, would it not be advisable first to consider whether it is not feasible to work out a plan of zone charges, thereby bringing up the rides showing a loss to profit rides."

Transportation News Notes

Birmingham Fare Election on July 22.—The matter of a 6-cent fare for the Birmingham Railway, Light & Power Company, Birmingham, Ala., will be submitted to the voters at an election to be held on July 22.

Trainmen Help Auto Crusade.—C. B. Quinn, Commissioner of Fire and Police of Memphis, Tenn., is trying to enlist the co-operation of the employees of the Memphis Street Railway in an effort to stop violation of the auto law.

Would Increase Long Island City Fares.—The New York & Queens County Railway, Long Island City, N. Y., has filed with the Board of Estimate & Apportionment of New York a petition for permission to increase fares.

Wants Six-Cent Fare in Lockport.—The International Railway, Buffalo, N. Y., has filed a petition asking for the approval by the Public Service Commission for the Second District of a 6-cent fare in Lockport. The commission will grant a hearing upon the petition.

Preparing for Traffic Survey at Dayton.—Ross W. Harris, Madison, Wis., was in Dayton, Ohio, on June 28 in conference with City Manager Barlow and Director of Law W. S. McConaughy in regard to the survey he is to make in order to determine whether the electric railways there are entitled to a higher rate of fare.

Wheeling Hearings on July 8.—Hearings will be held at Charleston on July 8 before the Public Service Commission

of West Virginia on the application of the Wheeling Traction Company for permission to increase fares on the lines referred to in the item published in this paper for June 29, page 1256.

Fare Increases Suspended Pending Hearing.—The New Bedford & Onset Street Railway tariff, effective on June 30, and the East Taunton Street Railway tariff, effective on July 1, both proposing increased rates of fare, have been ordered suspended by the Public Service Commission of Massachusetts until Aug. 1, pending a hearing on July 10.

It Costs 5.55 cents for Each Montreal Passenger.—The Montreal (Que.) Tramways Commission has presented a series of statements in support of its conclusion that it will cost 5.55 cents to carry each passenger expected to ride on the lines of the Montreal Tramways in the next twelve months. The commission is expected to announce a new scale of fares shortly.

Wants to Adopt Steam Rates.—The Railway Commissioners held a hearing in Montreal, Que., on June 10 to consider the application of the Montreal & Southern Counties Railway for permission to advance the passenger and freight rates over the company's lines "in the same manner and to the same extent as has been permitted by the board in the case of steam railways."

Raleigh Would Charge Seven Cents.—The Carolina Power & Light Company, Raleigh, N. C., has filed with the Corporation Commission a petition for permission to increase cash fares in Raleigh to 7 cents with four tickets for 25 cents and half fare of 7 cents for the round trip for school children. The present fare is 5 cents with twenty-five tickets for 90 cents and round-trip school tickets for 5 cents.

Five-Cent Fare Again in Des Moines.—The Des Moines (Ia.) City Railway has won temporarily at least its fight for a straight 5-cent fare. After being compelled to restore the sale of tickets for one week the company received authority from the City Council to charge 5 cents and to refuse to sell tickets. The Council action was not unanimous, and the one dissenting member promises further action on fares.

Elmira Suburban Rates Suspended.—Public Service Commissioner Fennell gave a hearing in Elmira on June 24 upon complaint against the Elmira Water, Light & Railroad Company, Elmira, N. Y., over increased rates which the company proposes to make effective between Horseheads and Elmira and between Horseheads and Clark's Glen and Elmira Heights. The commission suspended operation of the rates until July 20 pending the investigation.

Women May Be Used in Quincy.—The Quincy (Ill.) Railway, controlled by the Illinois Traction System, contemplates using women in the train service because of its inability to secure sufficient men to fill the regular schedule. The company operates twenty-two motor cars. It is proposed to use women only

as conductors. A number of applications from women for these positions are now being considered. The same rate of wages will be paid to women as to the men.

Key Route Skip Stops on Survey Basis.—The San Francisco-Oakland Terminal Railways, Oakland, Cal., in introducing the skip stop on its city lines has done so in accordance with careful traffic surveys. Ordinarily this works out to a stop every other block or eight to the mile. The reason for the change and its coming was discussed in *Key System News* and by printed notices in cars. The public has made very little complaint. Various revisions in schedules are in prospect as the result of the skip stop.

Colorado Increase Allowed.—The Public Utilities Commission of Colorado has authorized the Denver & South Platte Railway, Denver, Col., to increase the fare between Englewood and Littleton from 5 cents to 10 cents. Englewood patrons may ride to Prescott, which is half-way between the towns, for 5 cents. Another 5-cent fare will be collected between Prescott and Littleton. Commutation fare books between Englewood and Littleton for twenty-five single fares for \$1.50, with a ninety-day limit, will be issued.

Strict Jitney Regulatory Measure.—Jitneys running on the same streets with electric railway cars must cover the same distance each trip as do the electric cars, according to the jitney ordinance read for a second time by the Council of Sioux City, Iowa, during the week ended June 8. Over the protest of Mayor Short, who claimed that the jitney owners' bond was to be fixed at \$3,000, the Council fixed the bond at \$5,000. The measure was to come up for final passage within a few days. The indications were that it would be passed.

Rate Advance at Byllesby Properties.—Since Sept. 1, 1917, increased rates for utility service have become effective at 297 communities served by the following properties managed by H. M. Byllesby & Company: Fort Smith Light & Traction Company, Mobile Electric Company, Northern States Power Company, Oklahoma Gas & Electric Company, Ottumwa Railway & Light Company, Puget Sound Gas Company, San Diego Consolidated Gas & Electric Company, Tacoma Gas Company and the Western States Gas & Electric Company.

Seeking a Middle Ground for the Jitneys.—The committee recently appointed by Mayor Hansen of Seattle, Wash., to devise a plan for municipal regulation of jitney transportation in Seattle has held its initial meeting. It is intimated by the committee that city regulation would not only result in solving the transportation problem of the city, but might so change conditions that the jitney business would be more profitable for its operators. It is expected that the amount required by casualty companies in payment for bonds may be reduced.

Wants to Increase Suburban Fares.—The Alabama City, Gadsden & Attalla Railway, Gadsden, Ala., has filed a petition with the Public Service Commission of Alabama for authority to increase its rate between Gadsden and Attalla from 10 cents to 15 cents. The petition also asks authority to increase the rate between Gadsden and Alabama City from 5 cents to 7½ cents. The company is not asking at this time for an increase of its rates within the city limits of the three towns, but directs attention to the fact that the increase of 5-cent fares to 6 cents is becoming general.

North Carolina Fare Increase Allowed.—The Corporation Commission of North Carolina has granted the request of the Tide Water Power Company, Wilmington, N. C., to increase fares. The city fares have been increased from 5 cents to 7 cents. The gas rate has been increased from \$1.35 to \$1.65 net per 1000 cu.ft. The round-trip fare from Wilmington to Wrightsville Beach has been increased from 35 cents to 40 cents. The application of the company was noted in this paper for June 1, page 1074.

State-Wide Campaign in South Carolina.—The principal electric railway companies of South Carolina have undertaken a joint campaign of information on the need for increased revenue and modification of franchise restrictions as a result of the increased operating costs. The regulation of fares in South Carolina is a municipal function. The campaign is under the direction of Glenn Marston, New York. It is planned to ask for a joint conference between city officials and public utility executives for the discussion of utility problems and their remedies.

Rate Raise for California Company.—The Central California Traction Company, San Francisco, Cal., has been authorized by the Railroad Commission of California to raise its rates to a level with those ordered for the government-operated carriers. This amounts to 10 per cent on passenger fares and 25 per cent on freight rates. The company was the first of the interurbans in the State of California to apply for rate equality with the government railroads. The San Francisco-Oakland Terminal Railways applied for higher fares before the government rate policy was announced.

West Virginia Interurban Would Increase Fares.—The Charleston, (W. Va.) Interurban Railway has filed application with the State Public Service Commission, in which the company asks to be allowed to increase rates on the Cabin Creek and St. Albans lines. On the Cabin Creek branch, from Charleston to Dana, the company wants to increase rates from 5 cents to 10 cents; on the line running from Charleston to Cabin Creek Junction, from 30 cents to 35 cents. The company wants to increase rates on the St. Albans line, from Charleston to Stop 9, from 5 cents to 10 cents, and from Charleston to St. Albans from 20 cents to 25 cents.

Mayor Takes Broad Attitude on Fares.—Mayor George S. Karb of Columbus, Ohio, is not in sympathy with members of the Council who are opposing a temporary increase in the rate of the fare in order to tide the Columbus Railway, Power & Light Company over until some kind of a new contract is agreed upon for the future. In a letter written to that body, for consideration at its meeting on June 28, the Mayor took the broad view that nothing should be allowed to restrict activities at this time and that special thought should be given to the convenience of workmen in reaching the shops, so that production of war essentials shall not suffer.

Boston & Worcester Presents Its Case.—Pleading that recent increases in expenses, including wages, have made absolutely necessary further increases in fares, officials of the Boston & Worcester Street Railway appeared before the Commission of Massachusetts on June 25 and asked that body to approve a new fare schedule making the basis of fare 2½ cents a mile, an increase of 25 per cent over present fares. It is intended, however, to retain the present fare of 6 cents for single-fare limits. One of the reasons advanced by the company for immediate action is that its employees have asked for an increase in wages, to make their pay equal to that of employees of the Worcester and Springfield systems, recently established by Henry B. Endicott as noted in the *ELECTRIC RAILWAY JOURNAL* for June 22, page 1202.

One-Man Cars for Sheboygan.—The Railroad Commission of Wisconsin has authorized the Eastern Wisconsin Electric Company to operate the cars of the city lines at Sheboygan, Wis., with one man. The hearing of the application of the company was held on May 17. Testimony was presented showing that the net earnings of the city lines had fallen off 54 per cent in the last year. The equipment to be used for the one-man operation is the regular equipment of the company, which is suitable because of the light riding. In discussing the question of steam railroad crossings, the commission stated that a good view of approaching trains could be had by the motorman at all crossings except one if the car was stopped at a reasonable distance from the tracks. The one exception is at the crossing immediately north of the passenger station. The company signified its intention of employing a crossing flagman at this point.

Another Move in Jersey Regulation Case.—Chancellor Walker of the Court of Errors and Appeals of New Jersey has allowed an application made by Arthur F. Egnor for a writ of error, carrying the recent decision of the Court of Errors and Appeals in the Atlantic Coast Electric Railway and Bradley Beach case to the United States Supreme Court. The writ was then filed in the United States Court. This is the case in which the Errors Court up-

held the power of the Board of Public Utility Commissioners to abrogate franchise contracts. It involved an order requiring transfers to be issued by the railway. The company contended that was in effect a reduction of fares. The State Supreme Court upheld the inviolability of the franchise contract, but the ruling was reversed by the Court of Errors and Appeals. The case was referred to in the *ELECTRIC RAILWAY JOURNAL* for June 22, page 1208.

Public Willing to Pay the Price.—Mayor Hylan and Comptroller Craig of New York City and Borough President Connolly of Queens discussed the case of the New York & North Shore Traction Company for two hours recently before a crowd that packed the court room in Flushing, Long Island. The company has asked the city to allow it to charge 7 cents instead of 5 cents on its cars between Flushing and Whitestone and Flushing, Bayside and Little Neck. The purpose of the meeting in Flushing was to hear whether the public was willing to pay 7 cents or preferred to have the line abandoned. At the close of the meeting, Mayor Hylan put the question to a vote, and those present voted unanimously to increase the fare to 7 cents. Mr. Connolly explained that the reason the application of the company was before the Board of Estimate was that the Court of Appeals in the so-called Rochester case had ruled that the Public Service Commission had no right to grant an increase of fare and that an increase could only be obtained by a modification of a franchise by the Board of Estimate.

Joint I. T. S.-New York Central Rates.—Establishment of joint rates from the Illinois Traction System to all points on the New York Central Lines is practically certain to follow a temporary report issued by the examiner for the Interstate Commerce Commission who has been hearing the merits of the case. Should the commission's final order follow the recommendations of its examiner the Illinois Traction System will be in position to quote through rates to any point on the New York Central Lines. This will mean that elevators located on the Illinois Traction System and the many other industries in the company's territory will be given an outlet to the Eastern trade territory which they have not hitherto enjoyed, via Illinois Traction and the Big Four Railway. The merits of the case were largely based upon the suit instituted against the Big Four Railway jointly by the Illinois Traction System and the Lourie Manufacturing Company, Springfield, Ill., whose factory is located at Fetzter, Ill., a suburb of Springfield. The order of the Interstate Commerce Commission favored the establishment of joint rates in this particular case and efforts were then made by the Illinois Traction System, with the assistance of the Chamber of Commerce of Springfield, to broaden the order to include joint rates from all points.

Boston Elevated Trustees Organize

Careers of Men Who Have Taken Over Boston Elevated Railway Reviewed Briefly

The trustees appointed by Governor McCall of Massachusetts to manage the Boston (Mass.) Elevated Railway under the recent state control act assembled on July 1 at the company's offices for organization and at once took over the administration of the road's affairs. Former Lieut.-Gov. Louis A. Frothingham was elected chairman of the board and Stanley R. Miller was elected secretary. The other members of the board are William M. Butler, John F. Stevens and Galen M. Stone. The trustees voted to continue in office for the present all the officers and employees of the company, including President M. C. Brush.

The trustees were in session about two hours and a half. It is understood that much of their time was devoted to

in 1911 he served as Lieutenant-Governor, and in the last year ran for Governor, but was defeated. He is an overseer of Harvard College and is president of the Blackstone Savings Bank.

Galen L. Stone is a member of the banking firm of Hayden, Stone & Company, Boston. He is a director of the Boston Elevated Railway, a member of the executive committee of the Massachusetts Electric Companies, and is a director of numerous steamship, coal, textile and industrial-chemical companies.

William Morgan Butler is president of the Boston & Worcester Street Railway. He was educated at Boston University Law School. He served in the Massachusetts House of Representa-

strike prevention work in Massachusetts during the last fifteen months.

Stanley R. Miller was private secretary to Governor McCall, and previously his law partner. He was graduated from the Harvard Law School in 1906. For a time he was in the law office of Fish, Richardson, Herrick & Neave. Mr. Miller was active in the final shaping of the Boston Elevated act in conjunction with the Attorney-General of Massachusetts.

Governor McCall made this statement relative to his selections:

"The making up of this board has been difficult not so much from the number of applicants to select from as from the difficulty of securing the men I wished. I believe the outcome is a good board.

"Mr. Frothingham is a man who will command general respect for his fairness and purpose to do just the right thing. Mr. Stone and Mr. Butler are excellent business men, the one an eminent financier and the other a practical street railway man.

"Mr. Stevens is a representative of labor. It seems to me that when the Commonwealth was appointing a board to operate a great public utility, there should be a man who could take the viewpoint of the men who do the work. I know they will appreciate and recognize him in the work of direction. Of course, Mr. Stevens goes on as a trustee representing all interests under the law. He has done excellent work upon the public safety committee.

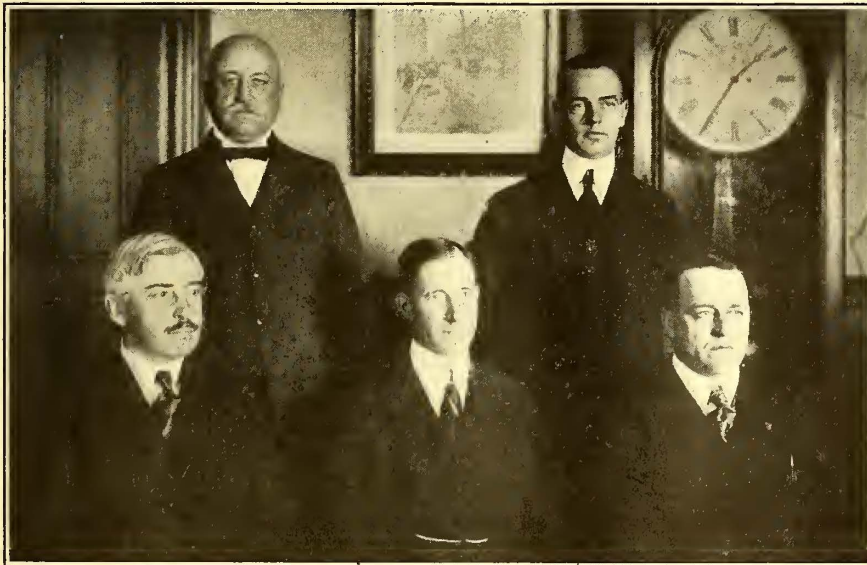
"Mr. Miller has been my secretary for three years. He has had much to do in connection with the Attorney-General in the final shaping of the legislation. Methodical and conscientious in the transaction of business, I do not know his superior, and he will be of great use to the board."

Henry B. Endicott said in a statement which he made public:

"May I offer a word of caution to the public? I have had occasion to study this situation. These men are not going to have an easy job—I am sure they realize it—and the public must have patience. There are not going to be any more seats in the cars next month just because these men have been appointed, nor will there be any more seats next winter. There will be just as many straphangers. It is impossible to place orders to-day that will add sufficiently to the equipment so that the public will notice any material benefit for a long time to come. It is just as well for the public to realize that at this time and to prepare to be patient.

"There isn't the slightest doubt, from my investigations, but that fares will have to be raised, and raised very materially.

"There is one thing I am sure these men will do—they will keep the public informed at all times of the exact situation. When the public realizes the situation and the necessity for the different moves I feel sure they will not criticize. It is everybody's duty to give these men all the help possible because they have a hard task ahead of them."



BOSTON ELEVATED TRUSTEES

Front row, seated, left to right—William M. Butler, L. A. Frothingham (chairman), John F. Stevens

Back row, standing, left to right—Galen L. Stone, Stanley R. Miller

matters requiring immediate attention, such as the preparation of the new fare schedule which must be promulgated within sixty days and various labor matters which are to be adjusted with the employees.

The personnel of the board is of much interest. Chairman Frothingham, former Lieutenant-Governor of Massachusetts, is a lawyer by profession. He is a native of Jamaica Plain, forty-six years of age, and was educated at Harvard College and Harvard Law School, graduating from the latter in 1896. For a short time he was private secretary to Congressman W. C. Lovering, and in 1898 was assistant attorney for the Metropolitan Park Commission. In 1901 he was elected to the Massachusetts House of Representatives, and he served four years, the last two of which he was speaker. He was the Republican candidate for Mayor of Boston in 1905. From 1908

tives in 1890 and 1891 and in the State Senate from 1892 to 1895, being president of the latter for the last two years. Mr. Butler is a trustee of the Massachusetts Lighting Companies and is a member of the law firm of Butler, Cox, Murchie & Bacon, Boston. He is president of the Boston & Worcester Electric Companies, a trustee of Boston University, and a director of various insurance, textile and banking organizations.

John F. Stevens is president of the Boston Central Labor Union, a member of the executive committee of the Massachusetts Committee on Public Safety, business agent and president of the Stone Cutters' Union, president of the Building Trades Union, a member of the War Efficiency Committee, and member of the Exemption Board in the Roxbury district of Boston. As an executive member of the Public Safety Committee he has been influential in

Personal Mention

Mr. Weatherwax Elected

Vice-President United Traction Company, Albany, Made President New York Association

H. B. Weatherwax, who was elected president of the New York Electric Railway Association at the Bluff Point convention at its June 22 meeting, entered the electric railway field from the steam railroad side, like a number of other prominent electric railway executives. He is still actively connected with many of the subsidiary corporations of the Delaware & Hudson Company outside of its electric railway enterprises, and although only thirty-six years old is vice-president and director of some seventeen of these companies. Among them are: United Traction Company of Albany and Troy,



H. B. WEATHERWAX

Hudson Valley Railway, Troy & New England Railroad, Plattsburg Traction Company, Chateaugay Ore & Iron Company, Champlain Transportation Company, Lake George Steamboat Company and the Fort William Henry Hotel Company. Mr. Weatherwax was born in Van Etten, N. Y., but spent his early life at Cortlandt, N. Y. His first railroad service was with the New Jersey Central Railroad in its traffic department. He left that company on June 1, 1908, to enter the traffic department of the Delaware & Hudson Company at Albany, first as special agent and then as chief clerk. In June, 1913, he was made industrial agent and a year later became vice-president of several of the subsidiary companies of the Delaware & Hudson Company. Since his entry into electric railway work Mr. Weatherwax has taken an active part in the work of the New York Electric Railway Association, and during this past year has been first vice-president of the association as well as a member of its important committee of ten on ways and means to obtain additional revenue.

A. G. Smith, formerly of the General Electric Company, has been appointed electrical engineer of the Boston & Albany Railroad, with headquarters at Boston, Mass.

Riece Ridgely has been appointed superintendent of the Arkansas Valley Railway, Light & Power Company at Ordway, Col., succeeding H. H. Lyons, who has entered the government service.

Jacob E. Burkley, who was master mechanic of the West Virginia Traction & Electric Company, Wheeling, W. Va., for a number of years, has resigned to engage in work not connected with the railway industry.

F. M. Hamilton, formerly superintendent of the department of accident investigation of the Puget Sound Traction, Light & Power Company, Seattle, Wash., has been appointed assistant to the general superintendent of railways.

E. A. MacMillan, superintendent of the Stroudsburg, (Pa.) Traction Company, has enlisted in the Royal Engineers of the British Expeditionary Force and will proceed to England shortly to enter the officers training corps.

W. H. McAloney, Halifax, N. S., formerly superintendent of rolling stock of the Denver (Col.) Tramway, has been appointed superintendent of rolling stock of the Winnipeg (Man.) Electric Railway to succeed George Garrett, resigned.

James Robinson has been promoted to master mechanic of the West Virginia Traction & Electric Company, Wheeling, W. Va., succeeding Jacob E. Burkley. Mr. Robinson received his training in the Wheeling shops and prior to his promotion was shop foreman.

Obituary

Wilford Phillips, for seventeen years manager of the Winnipeg (Man.) Electric Railway, is dead. In March, 1890, Mr. Phillips accepted a position with the Metropolitan Railway, North Toronto, and remained with the company until July, 1892. He then accepted the position of engineer and superintendent of North Toronto Waterworks & Electric Light Company. In March, 1893, he became engineer of the Niagara Falls, Park & River Railway, and in 1896 was appointed manager of that company. In June, 1900, he resigned, and in August, 1900, he accepted the position of manager of the Winnipeg Electric Railway.

Peter E. Hurley, general manager and purchasing agent of the Trenton & Mercer County Traction Corporation, Trenton, N. J., died on June 26. Mr. Hurley was born in Monmouth County, N. J., fifty-two years ago. He worked on his father's farm for some time and then decided to strike out for himself. He went along the Jersey coast and engaged in the hack business. Later he drove a stage in the city of Trenton on what was known as Wayman's Line, carrying passengers between the City Hall and Riverview Cemetery. He next became a driver on the old horse car line, then the only one in the city, operating between the Clinton Street station and Prospect Street. When the Center Street railway was built many years ago, Mr. Hurley was promoted to the position of superintendent and later was advanced to general manager. When the present interests took charge of the Trenton & Mercer County Traction Corporation Mr. Hurley continued with the company for several months, but resigned owing to ill health. He next entered the contracting business, but two years later returned to the company as general manager. All Trenton knew him as "Pete" Hurley.

Charles B. Fairchild, who from 1889 to 1895 was one of the editors of the STREET RAILWAY JOURNAL and later was a frequent contributor to its columns on technical subjects, died on June 28 at his home in Williamstown, Mass. Mr. Fairchild was born in Berkshire County, Mass., in 1842, and served throughout the Civil War, first for two years in the Twenty-seventh Regiment, New York Infantry, and then in the First New York Veteran Cavalry as first lieutenant. During the first battle of Bull Run he was captured and later spent eleven months in Confederate prisons at Richmond, New Orleans and Salisbury, N. C. After the war he entered and graduated from the State Normal School at Brockport, N. Y., and later became a member of the faculty. He also received the degree of A. M. from Amherst College. Later, for several years, he taught in the public schools of New York City. Mr. Fairchild became interested in railway matters through the invention of a cable railway system which was installed on Asylum Hill, Binghamton, N. Y. While with the STREET RAILWAY JOURNAL he wrote "Street Railways: Their Construction, Operation and Maintenance," for many years the standard treatise on the subject. He was also the author of the "History of the Twenty-seventh Regiment, New York Volunteers," a work of 335 octavo pages. After leaving the STREET RAILWAY JOURNAL, Mr. Fairchild was for a short time connected with the Chicago, (Ill.) City Railway in an advisory capacity. He also invented and developed an emergency brake for electric cars which was put on the market by the Standard Air Brake Company. His son, C. B. Fairchild, Jr., is executive assistant of the Philadelphia Rapid Transit Company.

Construction News

Construction News Notes are classified under each heading alphabetically by States. An asterisk (*) indicates a project not previously reported.

Recent Incorporation

***Sacramento Northern Railroad, Sacramento, Cal.**—Articles of incorporation have been filed in San Francisco by the Sacramento Northern Railroad, which is to take over the Northern Electric Railroad and its subsidiary lines. Capital stock, \$5,200,000. Among the directors are E. D. Sullivan, F. M. McAuliffe, E. K. Pedler and G. S. Sahlender. The company will build 5 miles of standard-gage track from the M Street bridge over the Sacramento River to a point in Yolo County.

Franchises

Sault Ste. Marie, Mich.—A special election will be held in Sault Ste. Marie on July 22 to vote on the granting of a thirty-year franchise to the St. Mary's Traction Company.

Roanoke, Va.—The Virginia Railway & Power Company has received a franchise from the City Council of Roanoke to construct a line on York Street, between Boush and Granby Streets.

Track and Roadway

Anniston & Camp McClellan Transportation Company, Anniston, Ala.—Definite plans have been made for the construction of this company's proposed line from Anniston to Camp McClellan and it is expected that operation of the line will begin about Nov. 1. L. L. Crump, Anniston, secretary. [June 8, '18.]

Municipal Railway of San Francisco, San Francisco, Cal.—The construction of the proposed extension of the Municipal Railway from Church Street to the new government dry dock at Hunter's Point will cost approximately \$613,618, according to figures compiled by M. M. O'Shaughnessy, city engineer, at the request of the public utilities committee of the Board of Supervisors. Only a tentative outline for the construction of this extension is at present before the committee. It contemplates the use of certain United Railroad tracks and the construction of private municipal line tracks from Revere and Hawes Streets to Alvord and Fairfax Streets.

Savannah (Ga.) Electric Company.—The right-of-way has been secured for the entire length of the proposed 5-mile

extension to be built by the Savannah Electric Company to Port Wentworth, and it is expected that the line will be in operation some time in August.

Caldwell (Idaho) Traction Company.—Electrification of the Wilder line from Caldwell to Wilder, a distance of 12 miles, will be completed within six weeks by the Caldwell Traction Company. The work will cost about \$40,000. The line was leased from the Oregon Short Line Railroad.

Gary (Ind.) Street Railway.—The Gary Street Railway has under consideration the construction of an extension on Buchanan Street from Fifth Avenue to the bridge connecting with the tracks already installed by the American Sheet & Tin Plate Company to its plant. The cost to the Gary Street Railway is estimated at \$125,000.

Des Moines (Ia.) City Railway.—Patrons of the Des Moines City Railway have petitioned for the abandonment of the double track on West Nineteenth Street and running cars one way on Nineteenth Street and the construction of new track on Twentieth Street for the return trip.

***Columbus, Kan.**—Members of the commercial clubs of Pittsburg, Miami, Picher, Treece and Columbus recently met at Columbus and revived the subject of an interurban line to connect with the Joplin & Pittsburg Railway in Columbus and to extend through the principal mining towns of the Kansas-Oklahoma lead and zinc field and to Miami. A committee was appointed to go over the possibilities of building a line and ascertain the probable cost of the project and also to learn about how much money would be subscribed to stock of the company by each of the towns which would be tapped by the proposed line.

***Indian Head, Md.**—A project is now under way to connect Indian Head, Md., with Washington, D. C., by an electric railway. This will either be built all the way from Washington to Indian Head or from White Plains, Md., to Indian Head, using the Pennsylvania Railroad from Washington to White Plains. Civil Engineer Smith, bureau of yards and docks, Navy Department, 1319 F. Street, N. W., Washington, D. C., has charge of the plans being drawn and they are now waiting an appropriation from Congress to build this road.

Bay State Street Railway, Boston, Mass.—Judge Dodge in the United States District Court recently authorized Receiver Donham of the Bay State Street Railway to borrow \$82,000 from the United States Shipping Board Emergency Fleet Corporation, to be used to provide necessary extensions and improvements for the transporta-

tion of employees engaged at the Fore River Shipbuilding plant.

Southwest Missouri Railroad, Webb City, Mo.—An 18-mile extension will be built by the Southwest Missouri Railroad from Picher to Miami, to cost about \$150,000.

Interborough Rapid Transit Company, New York, N. Y.—Operation was begun on July 1 by the Interborough Rapid Transit Company on its Seventh Avenue subway line from Times Square south to the Battery on the main line and by shuttle from Chambers Street to Wall and William Streets. Operation on the Lexington Avenue line will be begun in about a month. The opening of the Seventh Avenue line is referred to elsewhere in this issue.

Philadelphia, Pa.—Mayor Smith has signed a resolution recently passed by the City Councils, authorizing the cancellation of four subway contracts in Broad, Arch and Locust Streets, which are held by the Keystone State Construction Company. The Mayor, city solicitor and Director of City Transit will make the financial arrangement with the company for reimbursing the contractors for their expense in preparing for completion.

Levis County Railway, Levis, Que.—It is reported that the Levis County Railway has awarded a contract for 200 tons of 60-lb. steel rails and is in the market for 16,000 ties, 70 kegs of track bolts, 300 kegs of track spikes and 2500 continuous rail joints.

Power Houses and Substations

St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo.—Work has been begun by the St. Joseph Railway, Light, Heat & Power Company on the construction of a new substation on Felix Street, between Second and Main Streets, to cost about \$4,000.

Interborough Rapid Transit Company, New York, N. Y.—The proposed extensions and improvements to be made by the Interborough Rapid Transit Company, to provide for which a bond issue for \$37,700,000 is being arranged, include extensions in the power plants, electric substations, and transmission lines of the company, also improvements in existing electrical apparatus, to cost about \$2,391,000; improvements in electric interlocking and other signal apparatus, \$3,371,000; electrical machinery and equipment for substations, equipment for electric transmission and distributing systems, \$7,886,000.

Southern Pennsylvania Traction Company, Chester, Pa.—The contract for constructing a second track on the Chester Pike from Darby to Eddystone, awarded to MacArthur Brothers, New York, by the United States Shipping Board, includes the erection of a new power house.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS

FOR THE MANUFACTURER, SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES • MARKET QUOTATIONS • BUSINESS ANNOUNCEMENTS

Production of Rails in the United States During 1917

Consumption by Electric Lines 200,000 Tons—Supply Expected to Be Reduced This Year

An analysis of the statistics of rail production in 1917, made by the American Steel & Iron Institute, and embodied in its special statistical bulletin No. 2, bearing date of June 10, indicates that the supply of rails for replacement purposes during the year was above normal. The total production reported was 2,944,161 gross tons or the largest amount since 1913. Of the total, 308,258 tons were light rails, under 50 lb. a yard, while 91,674 tons were girders and high T-rails. Exports were a trifle in excess of 500,000 tons.

The consumption by electric lines, including girder rails, etc., was in the neighborhood of 200,000 tons. The appended tables furnish the details:

in addition to new rails rolled during the year, rails rerolled from defective rails and from old rails. In 1917 the open hearth and Bessemer rails of this description totaled 9007 tons, rolled from old rails, 118,639 tons, making a total of 127,646 tons.

Effect of Steel Order on Stock Accumulation

Necessity of Shoving Orders of War Nature Ahead Affords No Opportunity for Replacing Goods

Now that it is impossible to obtain steel except where the goods are to be used for war work of some nature, a number of problems are arising that require a quick answer. According to a strict interpretation of the ruling, a manufacturer must show a bona fide war order before he can obtain a priority for steel shipment. Priority orders, however, constitute 100 per cent

Price Increases on Railway Accessories and Supplies

Cost of Production and Scarcity of Material and Freight Advance the Primary Causes

Prices in very many lines of electric railway equipment and accessories continue to be revised on higher levels. Material, freight and greater production costs are the primary causes of the new quotations. The manufacturer of a self-lubricating trolley wheel, who has been advancing his prices from time to time, says another increase of at least 10 per cent is almost a certainty in a short while. This manufacturer finds something of a difference between the buying cost of copper and brass and the figures usually quoted for publication; it is much higher. Of course, there is a conceded difference—marked at times—between a casual inquiry for a quotation and when the metals must be had. Nearly every bona-fide buyer has the same experience in a seller's market. On an inquiry for a price on some material it was stated a quotation could not be made before the goods were secured. This now is general practice.

Fabrikoid, extensively used for railway car upholstery—seatings, curtains, etc.—was marked up 10 per cent on June 10. Another 10 per cent advance is expected almost any time by the manufacturers' representatives in this field. A prominent manufacturer of plush for car seatings is now revising his prices on a higher plane, which will be announced shortly. On all other material for seatings and curtains produced by this manufacturer, all prices were withdrawn last week.

An increase of 10 per cent is due to arrive on one well-known make of brushholders in the near future, owing largely to frequent increases in manufacturing material.

Car ventilators of a certain type, which have had the selling price revised but little in the past year, are about due for a raise. The manufacturer has retained his old list up to the present time because the last production had not been exhausted when the jump in prices on almost everything in the electric railway line came along. He has been notified already that the cost of one part of the device will be from 40 to 50 per cent higher than before and as a matter of fact it has been estimated that the next production will exceed the former lot in cost by fully 40 per cent. As this increase cannot be wholly absorbed the price must of necessity advance. This advance is expected to be 10 to 15 per cent.

TABLE I—PRODUCTION OF RAILS, SHOWING INCREASE BY PROCESSES, 1916-1917

Kinds	1916	Per Cent.	1917	Per Cent.	Increase	Per Cent.
Open-hearth.....	2,269,600	79.51	2,292,197	77.86	22,597	9.95
Bessemer.....	440,092	15.42	533,325	18.11	93,233	21.18
All other.....	144,826	5.07	118,639	4.03	*26,187	*18.08
Total.....	2,854,518	100.00	2,944,161	100.00	89,643	3.14

* Decrease.

TABLE II—PRODUCTION OF RAILS BY WEIGHT PER YARD, 1902-1917

Years	Under 45 Lb.	45 and Less than 85	85 and Less than 100	100 Pounds and Over	Total Gross Tons
1902.....	261,887	2,040,884		645,162	2,947,933
1903.....	221,262	1,603,088		1,168,127	2,992,477
1904.....	291,883	1,320,677		672,151	2,284,711
1905.....	228,252	1,601,624		1,546,053	3,375,929
1906.....	284,612	1,749,650		1,943,625	3,977,887
1907.....	295,838	1,569,985		1,767,831	3,633,654
1908.....	183,869	687,632		1,049,514	1,921,015
1909.....	255,726	1,024,856		1,743,263	3,023,845
1910.....	260,709	1,275,339		2,099,983	3,636,031
1911.....	218,758	1,067,696		1,536,336	2,822,790
1912.....	248,672	1,118,592		1,960,651	3,327,915
1913.....	*270,405	†967,313		2,265,062	3,502,780
1914.....	*238,423	†309,865	868,104	528,703	1,945,095
1915.....	*254,101	†518,291	742,816	688,995	2,204,203
1916.....	*295,535	†566,791	1,225,341	766,851	2,854,518
1917.....	*308,258	†882,673	989,704	763,526	2,944,161

* Includes rails under 50 lb. † Includes 50 lb. and less than 85 lb.

TABLE III—PRODUCTION OF ALLOY-TREATED STEEL RAILS, 1917

Alloys	Total Production	Open-Hearth Process	Production by 50 Lb. to 84 Lb.	Production by 85 Lb. to 99 Lb.	Production by 100 Lb. and Over
Titanium....	15,273	15,273	335	6,671	8,267
Manganese..	1,262	1,262	1,262
Total....	16,535	16,535	335	6,671	9,529

Girder and high T-rails for electric and street railways are included in the figures given in Table I. For recent years the tonnage was as follows: 1912, 174,004; 1913, 195,659; 1914, 136,889; 1915, 133,965; 1916, 127,410; 1917, 91,674 gross tons. The total production of rails as given in Table I includes,

of steel production. Steel will not be shipped, therefore, for the manufacture of stock parts.

To carry this one step further, a manufacturer buying from a fabricator of parts cannot buy parts except for war work. If such be the condition, the manufacture for stock of goods involving steel is forbidden automatically. Such a condition would, of course, defeat the purpose of the government in many instances. In these cases business men have suggested that a remedy will soon be found and applied. Generally speaking, however, factories are filled up ahead of capacity and consequently will be able to place orders for steel coincidentally with receipt of order for finished products.

An inquiry last week for a lot of No. 516 double-cotton magnet wire, listed at 39 cents a pound, was answered by a manufacturer this week with a quotation of 45.30 cents a pound, an advance of about 15 cents a pound over list.

Transmission cable, on account of the rising cost of lead, will be marked up from 5 to 10 per cent, going into effect immediately. About a 5 per cent advance was made on rubber-covered wire on June 22 on sizes from No. 14 up to No. 0000. An increase of 3 per cent on crossarms went into effect on June 25.

With the government's restrictive order on the importation of asphalt from Trinidad and Venezuela, no increase in price has occurred, but deliveries are later. Turpentine, used in paints, has been steadily rising in price for several weeks. It is now quoted at 75 cents a gallon, a jump of more than 30 cents in three months.

Reports from Chicago are to the effect that an increase in price on pole-line hardware can be expected shortly although no estimate was made as to the extent of this advance.

Railway Market Still Restricted

Purchasing Agents of Prominent Road Are Directed to Suspend Buying During Summer Months

Electric railways have not been placing orders for needed rolling stock, equipment or accessories in any but a restricted sense for some time. At present they have refrained from buying for their fall requirements beyond the absolute maintenance of their systems or the necessary replacements. Various reasons are ascribed for this curtailment, chief of which, of course, is lack of income and inability to market their securities in order to obtain sufficient working capital.

As a concrete instance of this condition it may be stated that a large Eastern traction system, operating several interurban lines of importance, notified its local purchasing agents that under no circumstances is any material or equipment to be bought for the next sixty days. This period covers the months of July and August. Just why this order was made has not been explained.

Traction Companies Running Behind on Accounts

Supply Concerns Say Bills Are Not Met Promptly—Settlements Deferred—Credits Weakened

A few weeks ago the credit standing and buying power of traction roads were referred to favorably by the *ELECTRIC RAILWAY JOURNAL*. The information was authentic and obtained from the most conservative concerns in the equipment and supply field. For one reason or another, rather difficult to explain, a change has occurred since then. The accounts of electric railways are now reported as not be-

ing settled so promptly. Normally bills were discounted, 2 off ten days, and rarely were more than thirty days required. In many instances accounts are allowed to run sixty and ninety days and sometimes even six months at the present time.

Firms in the supply lines not heavily capitalized are feeling the pinch more keenly than the stronger financed companies, though complaints of deferred payments of bills are general. Concerns which formerly seldom sent out a dozen letters a year asking for remittances to cover current bills, are now obliged to forward reminders monthly. The returns are said to be far from satisfactory.

Where concerns are running behind in their collections additional capital is needed to finance their business, with credits being sharply curtailed besides. One company in this position is of the opinion that with the advance of material and the slow payment of bills there is but one course to pursue. The additional cost cannot be entirely absorbed, but the burden must eventually fall on the purchaser. In other words, the buyer of equipment, supplies, etc., it is stated, will have the charges increased by the sellers in self-defense to make up the deficit, and selling terms will be promptly enforced.

Rolling Stock

Wilmington (Del.) City Railway has ordered twenty-two new double-truck passenger cars from the J. G. Brill Company, Philadelphia, Pa.

Empire State Railway Corporation, Syracuse, N. Y., has purchased a No. 3 snowplow from the Russell Snow Plow Company, via Wendell & MacDuffie, for fall delivery.

International Railway, Buffalo, N. Y., has ordered four snow broom sweeper equipments from the Russell Snow Plow Company, through Wendell & MacDuffie, to be attached to its passenger cars.

United Railways & Electric Company, Baltimore, Md., which is in the market for fifty new double-truck cars of the standard type, has specified that all bids must be placed on file July 5 (yes-terday) at noon.

Pacific Electric Railway, Los Angeles, Cal., has placed an order for fifteen additional one-man cars with the American Car Company, St. Louis, Mo. This company had previously bought twenty cars of the same type, as mentioned in the *ELECTRIC RAILWAY JOURNAL* of June 15, making thirty-five in all.

Tampa (Fla.) Electric Company is reported to have received eight new Birney-type cars built by the St. Louis Car Company. Before being placed in operation on the company's Ybor City—West Tampa line they will be equipped with a compressed air device which registers transfers independent

Price of Copper Raised by War Industries Board

Advance to 26 Cents a Pound Granted—Became Effective July 2—Producers' Data Convincing

Contrary to expectation, a new price of 26 cents a pound for copper was fixed by the War Industries Board on Tuesday, taking effect immediately and to remain in force until Aug. 15. This is an advance of 2½ cents a pound from the former price of 23½ cents a pound. An increase of 5 cents a pound was asked by the producers to meet the extra costs of labor, freight and every phase of production where increased expenses due to war conditions have made themselves felt.

An impression prevailed that if a new price were decided upon by the board it would not take effect before the time for a revision of prices, Aug. 1. But the producers were permitted to receive the benefit of the increase by putting the new schedule into effect at once. When Aug. 1 arrives the prices as determined upon on Tuesday again will be taken up for consideration, to ascertain whether the compromise in price is higher than is reasonable or too low to meet expenses and include a fair profit.

of hand power on the part of the motor-man.

Charleston Consolidated Railway & Lighting Company, Charleston, S. C., furnishes the appended specifications for sixteen double-truck center entrance cars, ordered from the Cincinnati Car Company for delivery in August and referred to in last week's *ELECTRIC RAILWAY JOURNAL*:

Number of cars ordered.....	16
Date of delivery.....	August
Builder of car body.....	Cincinnati Car Co.
Type of car.....	Double-truck, center-entrance
Seating capacity.....	56
Weight (total).....	56,000 lb.
Bolster centers, length.....	23 ft. 10 in.
Length over bumpers.....	41 ft.
Width over all.....	8 ft. 3 in.
Body.....	All steel
Interior trim.....	Cherry
Headlining.....	Carline finish
Roof.....	Arch
Air brakes.....	Westinghouse A. M. M.
Axles.....	Laclede Steel Co.
Bumpers.....	Rico anti-climber
Conduits and junction boxes.....	Dura-duct
Control, type.....	H. L. D.
Couplers.....	Tomlinson, air and electric
Curtain fixtures.....	Curtain Supply Co.
	No. 88 ring
Curtain material.....	Pantasote
Designation signs.....	Keystone
Door operating mechanism.....	National
	Pneumatic
Fenders or wheelguards.....	Company's standard
Gears and pinions.....	Nuttall
Hand brakes.....	Cincinnati drop handles
Heaters.....	Consolidated
Headlights.....	Crouse-Hinds S. D. P.
Journal boxes.....	Symington
Lightning arresters.....	Westinghouse
Motors, type and number.....	Four West. 514, inside hung
Paint, varnish or enamel.....	Flood & Conklin
Registers.....	International
Sanders.....	Ohio Brass
Sash fixtures.....	Cincinnati
Seats, style.....	Hale & Kilburn
Seating material.....	Rattan
Step treads.....	Feralun
Trolley catchers or retrievers.....	O. B. retrievers
Trolley base.....	U. S. No. 14 on motors, O. B. on trailers
Trolley wheels or shoes.....	U. S.
Trucks, type.....	Cincinnati
Ventilators.....	Automatic
Wheels (type and size).....	C 1-24 in.

Trade Notes

R. P. Dryer, assistant sales manager of the Canadian Allis-Chalmers Company, Ltd., Toronto, Can., has resigned to take a position in the Pittsburgh (Pa.) office of the Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

J. R. Palmer, who had charge of the line material sales of the Ohio Brass Company, Mansfield, Ohio, for a number of years, is now in Philadelphia, Pa., where he will be engaged in naval airplane productive work.

Railway Improvement Company, New York, N. Y., advises that it has received an order for six Rico coasting recorders from W. R. Grace & Company, New York, for use by the Electric Companies Association, Lima, Peru.

Public Service Railway, Newark, N. J., has placed H-B life guards of the Consolidated Car Fender Company, through Wendell & MacDuffie, its sales representatives, on the thirty-three new cars now under construction by the Cincinnati Car Company.

Perley A. Thomas, manufacturer of cars and car materials, High Point, N. C., writes that he did not take over the car manufacturing plant of the Southern Car Company, as mentioned in a recent note in these columns, but conducts only the Perley A. Thomas Car Works.

Consolidated Car Fender Company, Providence, R. I., through Wendell & MacDuffie, general sales agents, New

York, N. Y., filled an order for twenty-five H-B life guards to be installed in the equipment, now in service, of the Norfolk lines of the Virginia Railway & Power Company, Richmond, Va.

Joseph Leidenger, for many years Eastern sales manager of the Dayton Manufacturing Company, manufacturers of car trimmings at Dayton, was elected vice-president of the company at its last annual meeting. The other officers elected were: John Kirby, Jr., president; Nelson Emmons, Jr., vice-president, and H. D. Hendrick, secretary and treasurer. Mr. Leidenger is a veteran in the car trimming business, having started with Mr. Kirby in the firm of Post & Company in Cincinnati in 1882, and continuing with him when he became associated with the Dayton Manufacturing Company in 1888.

Dwight P. Robinson and John W. Hallowell have retired from the firm of Stone & Webster, as of July 1, and the business will be continued by the remaining partners, Charles A. Stone, Edwin S. Webster, Russell Robb and Henry G. Bradlee. Dwight P. Robinson has been with Stone & Webster since 1893. In 1908, he was elected president of the Stone & Webster Engineering Corporation, and he has been a member of the firm since 1912. John W. Hallowell has been with Stone & Webster since 1901 and a member of the firm since 1912. Since May, 1917, he has been in Washington with Mr. Hoover as a member of the United States Food Administration and expects to continue in that work for the duration of the war.

New Advertising Literature

Sprague Electric Works of the General Electric Company, New York, N. Y.: Circular describing the Sprague type SS flexible-steel conductors.

Ingersoll-Rand Company, New York, N. Y.: The following new publications are being distributed:—Form 4039, eight-page bulletin on Leyner shank and bit punch for punching out holes in bits and shanks of hollow drill steel. Form 901, four-page flyer showing the complete line of "Little David" pneumatic tools. Tables of sizes and capacities are given and illustrations show all the tools and their applications. Form 9028, eighteen-page catalog illustrating and describing equipment for sugar factory and refinery service. A separate Spanish edition of this catalog is also available for those who desire it. Form 9010, four-page catalog on the "Sergeant" ticket-canceling box. Form 901-1, single-page flyer on "Little David" caulking machine. Form 888, four-page flyer on "Little David" evaporator tube, cleaning and other labor-saving pneumatic tools. Form 876, single-page flyer on Ingersoll-Rand barometric condensing plants. Form 883A, single-page flyer on Class "FP" steam engines, horizontal center crank type with piston valves. Form 3015-1, four-page bulletin on "ER-1" portable mine car air compressors. Copies of the publications will be sent free on request.

NEW YORK METAL MARKET PRICES

	June 26	July 3
Copper, ingots, cents per lb.	23½	26
Copper wirebase, cents per lb.	26½	28½
Lead, cents per lb.	8	8
Nickel, cents per lb.	40	40
Spelter, cents per lb.	8.62½	8.87½
Tin, Chinese*, cents per lb.	92	92
Aluminum, 98 to 99 per cent., cents per lb.	†33.00	†33.00

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

OLD METAL PRICES—NEW YORK

	June 26	July 3
Heavy copper, cents per lb.	22	22
Light copper, cents per lb.	19½	19½
Red brass, cents per lb.	19	19
Yellow brass, cents per lb.	13	13
Lead, heavy, cents per lb.	6½	6½
Zinc, cents per lb.	5½	5½
Steel car axles, Chicago, per net ton.	\$41.52	\$41.52
Old carwheels, Chicago, per gross ton.	\$29.00	\$29.00
Steel rails (scrap), Chicago, per gross ton.	\$34.00	\$34.00
Steel rails (relaying), Chicago, gross ton.	\$60.00	\$60.00
Machine shop turnings, Chicago, net ton.	\$16.25	\$16.25

ELECTRIC RAILWAY MATERIAL PRICES

	June 26	July 3
Rubber-covered wire base, New York, cents per lb.	27 to 30	27 to 30
Weatherproof wire (100 lb. lots), cents per lb., New York.	32.25 to 37.10	34
Weatherproof wire (100 lb. lots), cents per lb., Chicago.	35 to 35.42	35.00 to 35.42
T rails (A. S. C. E. standard), per gross ton.	\$70.00 to \$80.00	\$70.00 to \$80.00
T rails (A. S. C. E. standard), 100 to 500 ton lots, per gross ton.	\$67.50	\$67.50
T rails (A. S. C. E. standard), 500 ton lots, per gross tons.	\$62.50	\$62.50
T rail, high (Shanghai), cents per lb.	4½	4½
Rails, girder (grooved), cents per lb.	4½	4½
Wire nails, Pittsburgh, cents per lb.	3½	3½
Railroad spikes, drive, Pittsburgh base, cents per lb.	4½	4½
Railroad spikes, screw, Pittsburgh base, cents per lb.	8	8
Tie plates (flat type), cents per lb.	*3½	*3½
Tie plates (brace type), cents per lb.	*3½	*3½
Tie rods, Pittsburgh base, cents per lb.	7	7
Fish plates, cents per lb.	*3½	*3½
Angle plates, cents per lb.	*3½	*3½
Angle bars, cents per lb.	*3½	*3½
Rail bolts and nuts, Pittsburgh base, cents per lb.	4.90	4.90
Steel bars, Pittsburgh, cents per lb.	5	5
Sheet iron, black (24 gage), Pittsburgh, cents per lb.	4.90	4.90
Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb.	5.80	5.80
Galvanized barbed wire, Pittsburgh, cents per lb.	4.35	4.35

	June 26	July 3
Galvanized wire, ordinary, Pittsburgh, cents per lb.	3.95	3.95
Car window glass (single strength), first three brackets, A quality, New York, discount.	80%	80%
Car window glass (single strength, first three bracket, B quality), New York, discount.	80%	80%
Car window glass (double strength, all sizes AA quality), New York discount.	82 & 3%	82 & 3%
Waste, wool (according to grade), cents per lb.	11½ to 22	11½ to 22
Waste, cotton (100 lb. bale), cents per lb.	13 to 13½	13 to 13½
Asphalt, hot (150 tons minimum), per ton delivered.	\$38.50	\$38.50
Asphalt, cold (150 tons minimum, pkgs. weighed in, F. O. B. plant, Maurer, N. J.), per ton.	\$42.50	\$42.50
Asphalt filler, per ton.	\$45.00	\$45.00
Cement (carload lots), New York, per bbl.	\$3.20	\$3.20
Cement (carload lots), Chicago, per bbl.	\$3.34	\$3.34
Cement (carload lots), Seattle, per bbl.	\$3.68	\$3.68
Linsed oil (raw, 5 bbl. lots), New York, per gal.	\$1.60	\$1.62
Linsed oil (boiled, 5 bbl. lots), New York, per gal.	\$1.60	\$1.63
White lead (100 lb. keg), New York, cents per lb.	10½	10½
Turpentine (bbl. lots), New York, cents per gal.	70	75

* Government price.