

Electric Railway Journal

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Increased Fare Movement Is Widening

WITH the appointment of a special committee of the New York Electric Railway Association to consider ways and means of increasing the fares on street railways in New York State, and with the informal presentation of their case to both the First and Second District Commissions this week, the movement for a general increase in fares throughout the State has received a decided impetus. Nor is this the whole of our story this week. The Pennsylvania Street Railway Association has authorized the appointment of a committee of five to consider the desirability of concerted action on the subject of higher fares in that State. The tendency is encouraging. Of all industries in the country electric railways have probably needed additional revenue the longest and the most, but it is to be hoped that their condition will be bettered in the near future. Now is the time for real teamwork on the part of all electric railways.

A CHANCE TO IMPROVE OPERATING CONDITIONS Although there may be differences of opinion on the desirability of drastic retrenchment for the nation's industries as a means for meeting the burdens of war, there can be no doubt that anything that adds to real efficiency should be encouraged. For most industries this suggestion would, of course, be a particularly unnecessary platitude, but in the case of electric railways there are several opportunities to improve effectiveness of operation which are thoroughly understood but which generally have not been introduced because of the public's inertia or unreasoning opposition. Among them may be cited the skip stop plan, which, in any one of its various methods of application, permits faster schedules and thus increases the amount of service that may be provided with any given amount of equipment. There are also the use of light-weight, one-man cars for lines having thin traffic, the readjustment of factory closing hours to distribute the evening peak, and the free extension of the turn-back car principle to reduce light-load car-mileage. All of these have been demonstrated to be effective in improving efficiency and thus conserving the energies of both labor and capital—and any conservation of our national energy will give us just so much more strength for the gigantic task now facing us. The public is, to-day, beginning to realize this, and if it has not an open mind now it never will have one. The present, therefore, is the psychological moment to ask for public co-operation in regard to improved methods of operation, and should public attention be called again to the fact that means for increasing efficiency (such as those just mentioned) may be promptly introduced if only each com-

munity will withdraw its arbitrary opposition, we believe that public opinion will view the matter in a new and reasonable light.

HOW THE COMMISSIONS CAN HELP

The duty of commissions is to secure the most efficient operation of public utilities. This is as true in war times as in peace times, if not more so. Public utilities are of such vital importance to the nation that their services must be maintained, and if under war conditions added burdens of operation are imposed, there is all the more reason why public service commissions should handle their work in a constructive way. The nation needs to have its utilities operating in the fullness of their powers, and the commissions must be expected to do their bit in bringing this about. Can the commissions help in the present situation? They can, and in many ways besides that of treating in a broad-minded way the immediate need of electric railways for higher revenues, as discussed elsewhere. They can help to retain in service an adequate number of employees by presenting the needs of the railways to the military authorities. They can aid in securing proper recognition from the national fuel committee in regard to the movement of utility coal. They can co-operate with the utilities to make the public see the advisability of such economies as those noted in the previous paragraph. These are a few of the problems in the solution of which the commissions should now be actively engaged, looking toward the more efficient operation of the great national industrial machine which must be the backbone of any successful front presented against the enemy.

**WAGES,
FARES AND
DIVIDENDS**

An award like that of the Middlesex & Boston arbitration board, abstracted elsewhere in this issue,

which increases wages with full recognition that by such action the stockholders will be stripped of substantially all, if not quite all, of their returns from their investment at the present rate of fare, is a challenge which the public itself must heed in the near future. The question is in reality very simple. No one but the patrons of a street railway meets the cost of its transportation service, and that cost must include a fair return upon the investment if the service is to keep pace with the demands of the times. This is necessary because no equivalent for street railway service has yet been discovered, sporadic jitney competition to the contrary notwithstanding. The whole fare problem is merely a question in arithmetic. All costs must be met by the public, either in the form of adequate compensation to private management or as increased taxation under public ownership. Even under public ownership the expenses must be met, and it is "up to" the public to decide whether it will support initiative and ability as associated with private management under public regulation, or will turn its utilities over to the tender mercies of the professional politician and put up with that stagnation of progress which is the great blight upon governmental efforts to carry on industry.

**COAL PRICES
AND
POWER RATES**

For many years, previous to the great war, the unit costs of different kinds of coal, like the unit

costs of rail steel, were, as the laws of the Medes and Persians, fixed quantities or practically so. The variations in selling price were so small that they were neglected alike by power companies and public service commissions in matters of rate fixing and rate adjustment. But like about everything else this nice uniformity of price has been rudely upset by the war, for reasons only too obvious to the harassed purchasing agent. Since that portion of the cost of energy at the switchboard which is chargeable to fuel varies from 25 to 50 per cent, depending on size of plant, load factor, and location of plant with respect to source of fuel supply, the fuel question even in normal times is a most important one to those companies engaged in power generation. So far as the railway industry is concerned those companies engaged in power sales work are, of course, most directly affected by the fuel situation. A 50 per cent increase in fuel cost will, on the basis of the above figures, increase the cost of energy from 12 to 25 per cent; an increase sufficient to wipe out the margin of profit in most cases. The effect of high fuel cost on earnings has been forcefully pointed out in several recently issued annual reports of large power companies. As illustrative of the protective measures being used by some companies may be mentioned the power contracts of the New York Municipal Railway Corporation described in a recent issue of this paper. In these contracts the cost of power is made contingent on the cost of fuel. At present the outlook for a plentiful supply of cheap fuel is not very encouraging, and as rate increases and adjustments are both difficult and costly to secure, the

fixing of a rate upon a base price for fuel and the inclusion of a contingent fuel cost clause in power rate schedules and contracts are wise precautions.

THE FINANCIAL VALUE OF MASTER MECHANICS

In recent editorials entitled "Better Pay for the Master Mechanic" and "The Master Mechanic's Corner" we have pointed out in general terms how undervalued that functionary is. Not long ago we were wired to recommend a master mechanic for a twenty-five car road at the dazzling wage of \$100 a month. We used the mail to cool the fevered inquirer with the reply that \$100 a month was now being spurned by most anybody who could detect the difference between a lathe and a boring mill.

From generalities on this subject, we may now pass to actual figures which show what a particular master mechanic may be worth. A certain man has been in charge of a property since 1911, and this is how he compares with his predecessor: The former man spent \$28,650 per month to maintain cars which made 892,000 car-miles per month in 1910; the present man has successively lowered maintenance until it was only \$14,000 per month in 1916 for 1,030,000 car-miles. If the 1910 rate per car-mile prevailed, the maintenance in 1916 would have been \$19,063 more per month than it actually was—a tidy saving and all the more remarkable in view of the great increase in material costs from 1910 to 1916. Yet the cars look finer than ever, as indicated by an increase in painting (part of maintenance) from \$750 to \$1,625 a month.

Of course, this master mechanic has done more than save money on maintenance. He has reduced pull-ins to a minimum, thereby satisfying the riding public and giving his company 33 cents gross revenue for every extra car-mile due to uninterrupted service. Finally, in spite of extremely hilly conditions, he has produced a low-floor car that is promoting traffic and reducing platform accidents. We should say this master mechanic is worth about \$50,000 a year more than the man he replaced. If not, why not?

THE PROSPECT FOR ADVANCEMENT IN A JOB

Having proved by actual figures that a good master mechanic is cheap at any reasonable price, we wish to call attention to another phase of the matter, namely that here as in all occupations it is the future rather than the present which concerns the ambitious employee. Preparation for the future consists in growing in the present job so that it is sooner or later outgrown. Only thus can the best present work be done, for the man who is not advancing is going backward. There is no such thing as standing still. It is, therefore, the duty of the electric railway industry to place before the men in the mechanical department, as elsewhere, sufficient of future promise to furnish the incentive for the best effort. The question may be asked "Why single out the mechanical department for comment, when the same principles apply elsewhere?" The answer is that in our opinion the mechanical department is peculiarly subject to limitations in pay and opportunity for various reasons, but

whether this is so or not, it is obviously to the interest of every company first to get into the shops men who are capable of development, and then to furnish the stimulus for development.

But there is another side to this question. The mechanical department man who aspires to be a general manager must be thinking about transportation problems in a large way. The head of a technical department of an important electric railway system said recently to the writer: "I don't expect always to be only an engineer." He is presumably preparing himself for broader responsibilities by interesting himself in broader problems. So, in the shop, there are activities more important even than designing ingenious jigs for babbitting bearings or making pinion pullers from iron reclaimed from the scrap pile. The manager who is not delighted to see his equipment men show signs of administrative talent and broad-gage appreciation of the big problems of the industry is not the manager of the future. He and the head of his mechanical department should work hand-in-hand to solve these problems, and if they are so doing, the latter will not be looking for another job with more future in it.

DESTRUCTIVE POSTAGE TAXATION

One of the clauses in the pending war tax bill provides for a zone system of postage for second-class mail matter, with rates varying from 2 cents per pound for the first zone to 6 cents a pound for places in the eighth zone. The average rate for publications of general circulation, printed on the Atlantic seaboard, would be about 4 cents, as against 1 cent a pound at present.

We believe that all publications are anxious to pay their proportion of taxes to the government in the present emergency. This is certainly the attitude of the *ELECTRIC RAILWAY JOURNAL*. But the proposed rate is most objectionable from several points of view. In the first place it means so radical an increase in a very large item of publishing expense as seriously to affect the publishing industry, since all existing subscriptions and advertising rates are naturally based on the present charge. The net result will probably be periodicals so crippled that there would be little if any increase in gross or net postage income to the government, as most of the post-office department expenses would go on as heretofore. It would mean also that the government was reducing the best facilities at its disposal for instructing the various industries of the steps they should take to assist in the national defense.

A second objection to the plan as proposed is that it tends to sectionalize the country at a time when national unity in thought and action is most important. Moreover, in the case of technical and trade papers, it would penalize those subscribers most distant from the centers of publication by making it more expensive for them to keep in touch with the economic developments in their line of business. The increase in postage on a year's subscription to this paper in the eighth zone, for instance, would be approximately \$2.25, the eighth zone including all points 1800 miles or more from New York. The zone system for second-class postage has been sug-

gested before but always has been discarded, and it always should be discarded in the interests of nationality and also because it is based on the wrong theory that the largest item in the cost of the mail service is the railroad transportation instead of the terminal charges of sorting and distribution.

In the third place, the proposed increase runs counter to the plan that the expenses of the war should be paid for out of profits and not out of capital. Howard E. Coffin, of the Council of National Defense, recently said, and truly, "We must have successful industries, if successful tax levies are to be received." But a high tax on methods of production of trade and technical papers will not only prevent the publishers of those papers from having profits on which to be taxed, but, through the reduced service which they will be forced to render, will adversely affect the industries which they serve. Subscribers to this paper can well make their protest heard in Washington.

NEW ERA FOR ELECTRIC RAILWAY INDUSTRY

The electric railways of New York State have at last taken the plunge magnificent. They have determined to cast aside all minor misgivings and to present themselves unreservedly at the bar of public opinion. Some of the companies have been timid about this, others, acquiescent; others, hopeful; and others, confident. We ourselves are absolutely sure that the companies have done a wise thing and that the issue will justify their wisdom.

The profoundly sagacious feature of the proposed policy is to go first directly to the people. As was stated specifically by Mr. Shonts in his published statement to the people of New York this week, it is the purpose of the company to go formally before the Public Service Commission later on for consideration of the situation, but preliminary to that it is the company's purpose to "inform and consult public opinion." That is fine. Mr. Shonts addressed a letter to the presidents of the principal commercial and taxpayers' organizations in the city of New York inviting them to examine into the facts for themselves and report their conclusions to their own members, and through them to the public. This will make possible an organized and spontaneous development of public opinion in advance of definite consideration of the subject by the Public Service Commission itself.

The committees representing the electric railways of the State have had conferences with the Public Service Commissions in both districts of New York with a view to settling upon a procedure whereby the issue may be presented definitely and determined upon as speedily as possible. But we understand it is the purpose of all these companies to invite investigation and consideration by local organs of public opinion in order that the people themselves may determine whether or not relief for these companies is not justified, not alone from the point of view of fairness to investors but from the point of view of the interests of the public service itself.

The people must realize that they must provide their

street railways not only with sufficient money merely to keep alive but to enable them to keep up with the progress of the art. Street railways have gone through a process of evolution. First, there was the horse car, then, the cable lines, the overhead trolley and the underground trolley. The types of cars are undergoing evolution, always toward greater comfort and convenience for the public. This progress of the art must be paid for; it must be provided for out of the earnings of the company. That is true of companies which are not extending their service. Of course, those that are building new lines in new districts must have the new capital with which to do so. Otherwise the public is sure to suffer. These facts should be made clear in every community where electric railways operate.

As was stated by J. K. Choate, chairman of the committee of the New York Association on ways and means to increase revenues, the method of obtaining the additional money will have to be according to local needs. In New York City, for example, the network of lines makes the obvious solution of the problem a charge for transfers. The lines up-State, however, will probably have to get their relief, if they obtain any real relief at all, from a 6 or 7-cent fare. Buffalo very likely will have to deal with the problem much as New York does. But the essential need is to obtain more money, and the safe and only road toward doing that is through persuading the public as to the reasonableness of the policy proposed.

VALUATION DELAY DANGEROUS

Companies should make it clear to their constituencies that a solution of this reserve problem cannot be delayed while a process of "valuation" is gone through with the properties. Valuations are all very well, but the vital question now is whether or not the value of the service rendered is not greater than the cost of rendering service. In the steam railroad business it is a fundamental principle, justified by long years of experience, that the service should be paid for with some regard to its value. Perhaps the stock of some of the companies is "watered"; perhaps there have been unsound methods in their past finance. But this is the fact which the public faces now: *its present standard of service is threatened*. Will the danger to that service be averted now by a slight increase in fares or forcing the companies into receivers' hands, or so close to receiverships that the standard of service will necessarily suffer? That is the phase of the matter which should be presented to the public in a practical and very present form.

The new federal tariff bill expects to raise the rate on ordinary letter postage from 2 to 3 cents. Nothing could be more revolutionary than that. It is justified by the

expenses to which the government has been put under the necessities of war. The expenses of the government are directly related to the war. But the public should face the fact very clearly that the vastly increased expense to which street railways as well as other lines of business have been put is due just as much to the war as are the expenses of the government, the only difference being that the effect upon the street railways is indirect while that upon the government is direct. For example, the reason why the price of coal is so high is because there has been such an enormous demand for coal in Europe, because there has been such a great development of industry in this country to supply the needs of Europe for supplies of all kinds and because there is a shortage of labor in the coal mines. The price of coal has got beyond all bounds and affects the street railways very directly. When the electric railway companies, therefore, pay the very high price of coal they are, in a sense, paying the expenses of the war just as much as the government which directly buys munitions to ship to the front.

PUBLIC WANTS TO BE FAIR

This question of raising the basic fare, so long discussed and from which electric railway men have recoiled as from a threatening serpent, is now at last definitely before the people. We are more than delighted that it is to be presented to the people, and that the people themselves are to be requested to express their views for the purpose of guiding the action of the public service commissions. Obviously, if the people feel it to be right and wish to pay an increased fare to ride on their street railways, no public service commission in the world would attempt to deny them that privilege. On the other hand, public service commissions could not be expected to face the storm of public protest and criticism and award to companies the right to charge an increased fare, if the public itself felt that the increase was unreasonable and unwarranted.

We have the utmost confidence in the American people. We have never known any subject to be presented to them and fully discussed by them but, in the end, it was settled fairly and squarely. The people will not submit to be humbugged; they will not submit to have something put over them. But they do want to be fair and square, and we are certain they will be so in this case. The electric railway industry is to be congratulated and felicitated upon the way in which it has gone at this matter, and we have every confidence in predicting the result will be a triumphant vindication of the methods which are being pursued. The electric railway industry through this action of the companies in New York, has, we believe, entered upon a new era.

“THE manufacturer can raise his price to keep pace with his costs. It is what every private enterprise has been doing. Every item that enters into the cost of living is increasing. Street railway costs are mounting in a faster ratio than any other, yet our prices have been kept at the same level.”—J. K. CHOATE, *before the New York Public Service Commission, Second District, May 16, 1917.*

Interurban Cars with Off-Set Central Vestibules

The Jamestown, Westfield & Northwestern Railroad Has Placed in Service Some High-Speed Cars Having Central Entrance Vestibules to Separate Passenger and Smoking Compartments—Split-Field Motors and Multiple-Unit Control Are Used to Save Weight

FOUR high-speed interurban cars have been placed in service by the Jamestown, Westfield & Northwestern Railroad that possess several notable features, among which the most prominent is the provision of offset central vestibules 3 ft. wide without the use of drop-siding to support the steps. Primarily the centrally located entrances were adopted to separate definitely the smoking and main passenger compartments, thus avoiding any need for women passengers to go through the section occupied by smokers—an undesirable condition that of late is being given continually increasing recognition. Another feature appears in the facilities provided for giving passengers an unrestricted view of passing scenery by the installation of glass in all bulkheads and even at the rear of the motormen's cabs.

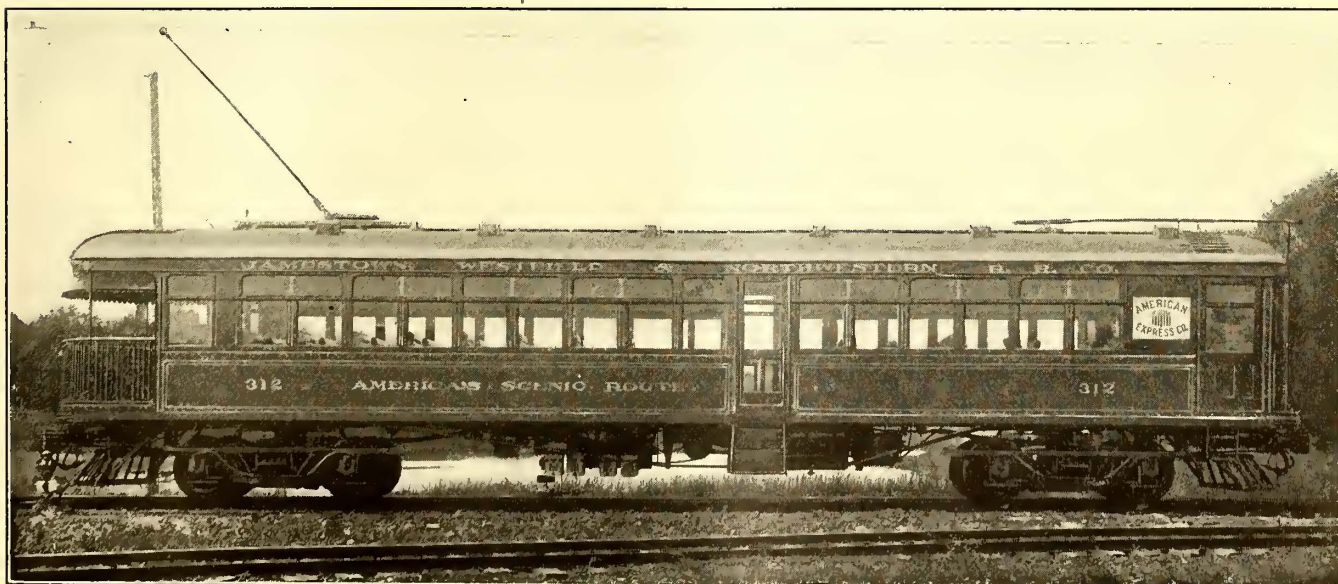
The traffic that is served by the cars is very largely made up of through travel from Jamestown, N. Y., to connect with the trunk line of the New York Central Railroad, the schedule time for limited runs over the 32-mile route being fifty-nine minutes while the local schedule calls for one hour and fourteen minutes. Relatively few stops are made, and hence the objectionable features of the single narrow vestibule, whereby complete unloading must take place before passengers can board the car, are minimized in effect. On the other hand, the design permits the seating capacity of the cars to be materially increased, and this feature is considered by G. L. Maltby, superintendent Jamestown, Westfield & Northwestern Railroad, who designed the cars, to be of utmost importance, since the major part of the company's traffic comes within a period of only three months and all equipment must be worked to the limit of its effectiveness. The gap in the car side

necessitated by the interior-type steps has been introduced without the need for drop siding by cutting out a section of the side sills and transferring the load normally carried by it to a pair of heavily reinforced intermediate sills.

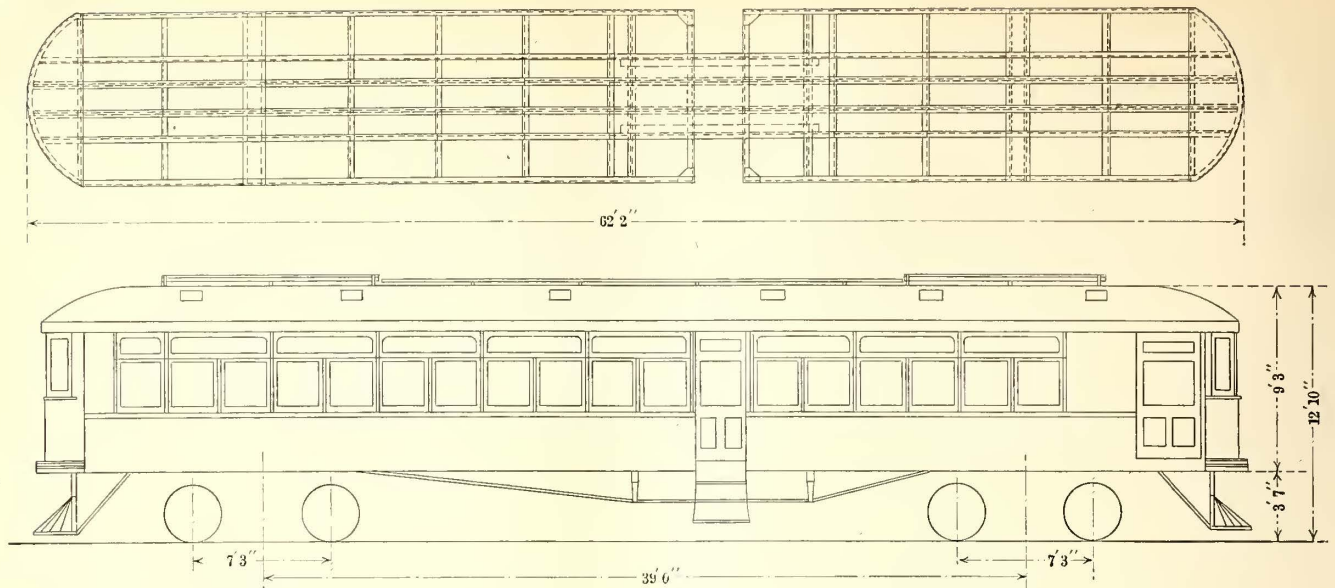
Another feature of the cars is the use of Westinghouse 547-A motors with "split" fields. This design was adopted in spite of the infrequent stops on the schedule with the idea of saving in motor size and weight, the motors actually installed having an hourly capacity of about 85 hp., whereas straight series motors to maintain the schedule over the rolling country served by the road would have had to be of about 105 hp. rating. At full speed on level track the motor equipment gives a speed of 50 m.p.h. and it will give greatly increased torque at a speed of 42 m.p.h. when operated on the next lower running point. Indirect control also was adopted to save weight and to keep all of the heavy current-breaking apparatus below the car floor.

One of the cars has been provided with an observation platform that can be paneled in during cold weather. This car was designed especially for a limited run that makes connection with a favorite train on the New York Central Railroad. Owing to the absence of readily accessible wyes at the terminals, and the necessity for operating this car single end, it is not used on other runs, and therefore has been provided with a more elaborate interior finish than the three other cars. Aside from this feature, however, all four cars are exactly alike, being provided with baggage compartments at one end, in addition to the main passenger and smoking compartments, to serve the needs of the many traveling salesmen who patronize the line.

The most interesting feature of the construction is



JAMESTOWN CARS—SIDE VIEW OF OBSERVATION CAR USED FOR SPECIAL RUNS



JAMESTOWN CARS—ELEVATION AND FLOOR-FRAMING PLAN OF INTERURBAN CAR

the framing arrangement at the gap in the side necessitated by the centrally located entrance. Strength at this point is provided by the use of intermediate sills made from 8-in., 11-lb. channels that are reinforced at the vestibule by having lengths of 8-in. channel riveted back to back with the intermediate sills and extending for the length between needle beams about 9 ft. In addition, the intermediate sills are trussed with $1\frac{3}{4}$ -in. truss rods having a 24-in. drop. The needle beams are of 8-in., 18-lb. channels, and they serve to distribute part of the load between the intermediate sills and the side sills, which are 6-in., 8-lb. channel with the flanges turned inward. Step sills at the sides of the vestibule also extend across the car, these being made from 8-in., 11-lb. channels. The center sills are made of 8-in., 18-lb. I-beams, and they have cover plates 54 in. wide extending in one length from one needle beam to the other, the thickness being $\frac{1}{8}$ in.

Aside from the construction at this point, the design is not unusual, following the general practice of the St. Louis Car Company, the builder of the car bodies. The side sheathing is made from 36-in. x $\frac{1}{8}$ -in. steel with a 3-in. x $\frac{3}{8}$ -in. belt rail at the top, over which is a belt-rail cover and sash rest of $\frac{1}{8}$ -in. pressing. The

side posts are made from 2-in. x 3-in. tees extending from side sill to side sill in one piece and forming the carlines. The end posts are $2\frac{1}{2}$ -in. x 3-in. tees, while the corner posts, baggage door posts, motorman's door post and vestibule door post are of ash. To serve in place of crown pieces, and to keep the sills from relative longitudinal movement, a steel plate $\frac{1}{8}$ in. thick is riveted to the flanges of the bumpers and sills and extends for 30 in. back from each end of the car, the bumpers being 8-in. channels with the flanges turned inward. The body bolster is of the built-up type, and there are bolster cross sills of 8-in. channel on either side of it. Plates of 3-in. x 2-in. x $\frac{1}{4}$ -in. angle are provided near the eaves, and there is a letterboard of No. 14 sheet steel. The interior finish is of wood, but there is a layer of insulating material composed of $\frac{1}{2}$ -in. flaxlinum cemented to the inside of the side sheathing.

The flooring rests upon cross sills of 5-in. channel spaced about 4 ft. 6 in. apart, and it is built up of a course of No. 16 sheet steel that covers the entire bottom, together with $\frac{3}{4}$ -in. fillers bolted to sills and floor sheets, one course of building paper, one course of 13/16-in. flat grain yellow pine tongued-and-grooved floor board, and one course of battleship linoleum. In



JAMESTOWN CARS—THREE-COMPARTMENT INTERURBAN CAR WITH OFFSET CENTRAL VESTIBULE

the baggage room the floor is made of 1/8-in. diamond-pattern steel riveted to the tops of the sills, an insulation of 1-in. mineral wool being provided between the floor plate and a No. 16 sheet steel subfloor, which is set 1 in. below the top of the sills.

The roof is covered with 7/16-in. narrow-width, tongued-and-grooved poplar that is fastened to furring strips on the carlines. This surface in turn is covered with No. 8 cotton duck fastened with molding at the eaves. Galvanized-iron gutters are installed on the roof over the center-entrance doors and over the motorman's door.

At the center doors the steps are of steel and the treads are installed so that there is an opening of 1 in. between the riser and the back edge of the tread, both step treads and edges of vestibule floor being fitted with Mason safety treads 6 in. wide. At the motorman's side door and at the baggage door on the opposite side of the car folding steps are installed to give access to the roof. The usual wrought-iron sill steps are installed at the baggage doors and at the motorman's cab door.

The general dimensions and weights for the car are as follows:

Length over bumpers.....	62 ft. 2 in.
Length of baggage compartment.....	9 ft.
Length of smoking compartment.....	15 ft. 11 in.
Length of main passenger compartment.....	33 ft. 5 in.
Length of central vestibule.....	3 ft.
Side post centers.....	2 ft. 8 in.
Extreme width.....	9 ft.
Length between truck centers.....	39 ft.
Truck wheelbase.....	7 ft. 3 in.
Weight of car body.....	43,420 lb.
Weight of trucks.....	28,000 lb.
Weight of electrical equipment.....	14,625 lb.
Weight of air brakes.....	2,355 lb.
Total weight complete.....	88,400 lb.

INTERIOR ARRANGEMENT AND EQUIPMENT

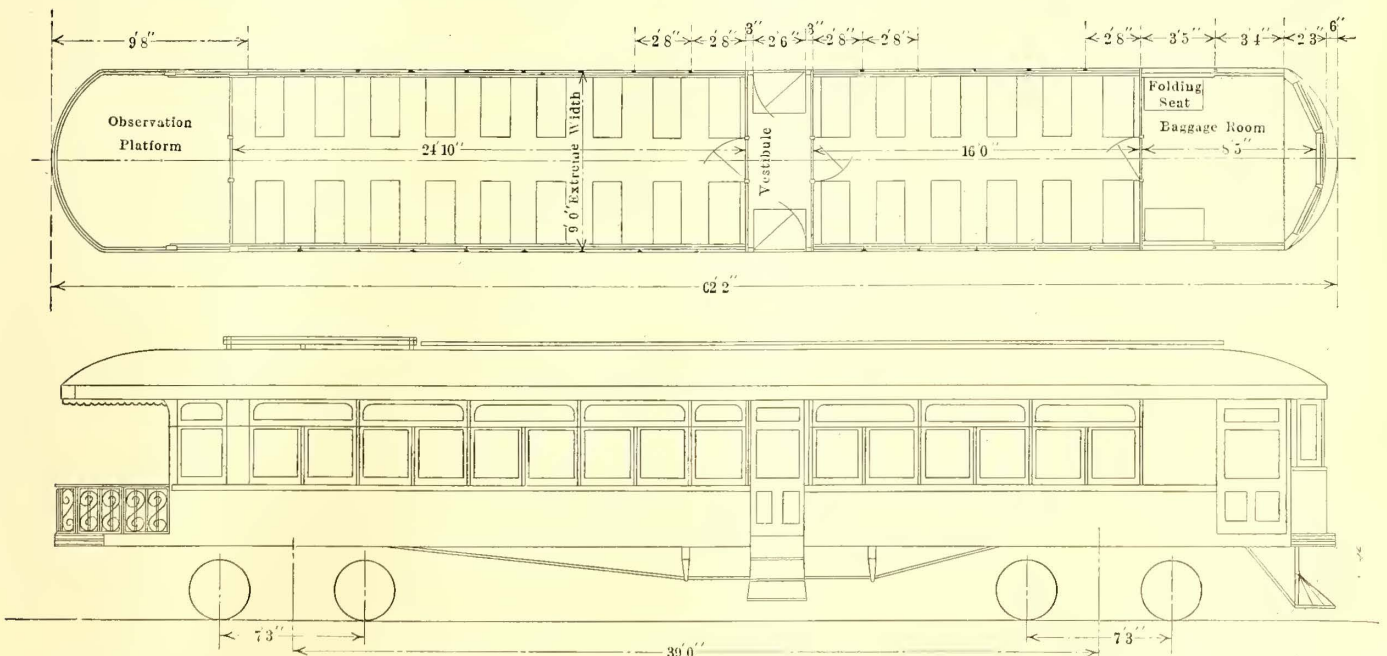
An unusually broad seat is provided, since the width of aisle is 22 in. and the over-all width of the car 9 ft. The seats are of the reversible type in both the standard type cars and the observation car, excepting, of course, the stationary seats at the ends of both compartments and two folding seats that are located in the baggage compartment. The latter compartment serves to separate the motorman from the body of the car and no cab is provided at that end. On the three



JAMESTOWN CARS—INTERIOR VIEW OF PASSENGER COMPARTMENT, SHOWING FULLY GLAZED MOTORMAN'S COMPARTMENT IN RIGHT-HAND CORNER

standard type cars, however, a cab is installed at the opposite end of the car in the main passenger compartment, since these three cars normally operate in both directions. The cab, it may be said, is provided with glazed doors, giving entrance into the passenger compartment and also to the outside of the car, and it has a large stationary sash in the back wall, permitting a full view ahead by passengers in the compartment behind the cab.

As before mentioned, the vestibule is 3 ft. in length and extends across the entire width of the car, being provided with trapdoors and steps at both sides. The bulkheads on either side of the vestibule are made of mahogany 1 1/8 in. thick, with flush panels, and they are provided with single swinging doors and with glazed stationary sash on either side of the swinging doors. The same provision for observation in every direction



JAMESTOWN CARS—ELEVATION AND SEATING PLAN OF OBSERVATION CAR

by passengers appears in the use of glazed sash in the bulkhead for the baggage compartment.

Including the folding seats in the baggage room, the interurban car seats seventy-two passengers, while the observation car seats sixty-four. However, the latter figure does not include any allowance for space on the observation platform, upon which folding chairs are used.

Features of the interior equipment include the use of electric heaters with Consolidated Car Heating Company's thermostat control, one heater being installed under each cross seat. Ventilation is provided through twelve Peerless ventilators installed on the roof of the car and equipped with round brass registers in the headlining, which is $\frac{1}{4}$ -in. Neva-Split.

A mahogany interior finish is used in the passenger, smoking and vestibule compartments, including all sash, doors, moldings, sash rests, frieze boards, etc. In the baggage compartment the finish is of natural ash. The seat coverings are of black leather on the standard cars and green leather on the observation car, all curtains being made of Pantasote. For the wainscoting a finish of $\frac{1}{4}$ -in. Neva-Split extends from the seat-rest angle to the sash rest. Below the seat-rest angle, the finish is of No. 16 steel, and a 3-in. radius sanitary cove is provided at the floor line.

ELECTRICAL AND MECHANICAL EQUIPMENT

Each car, as mentioned before, is equipped with a quadruple equipment of Westinghouse No. 547-A, 600-volt, field-control motors and standard Westinghouse HL-type control. The motors have a nominal or one-hour rating of 118 amp. at 600 volts, approximating 85 hp., the continuous rating being 72 amp. at 600 volts. This motor was designed to meet the previously outlined service requirements of sustained speed over rolling country with relatively few stops, such as exist on the Jamestown, Westfield & Northwestern Railroad, and the weight of the motor complete is only 3100 lb.

The main field coils are wound in accordance with what the manufacturer terms the "split-field" arrangement. In effect this provides for two field windings per pole, both of which are connected in series during acceleration. As a result there is provided the highest possible tractive effort and low-current consumption at low speed, with a consequent economy in operation and freedom from high peaks in the load. When a portion of the field winding is cut out, the characteristics of the motor are modified just as if the gear ratio had been instantaneously changed.

The use of an indirect type of control was practically inevitable, because of the fact that the present-day forms of such apparatus have demonstrated themselves to be of far greater reliability and of very nearly equal simplicity to controllers of the platform type. In addition, the removal of apparatus carrying heavy currents from the platform, as well as the possibility of train operation, made its use of decided importance for the installation under discussion.

Westinghouse air brakes of the AMM type have been installed, this design providing for quick-service application, graduated release and high pressure in emergency, with the addition of the independent use of the straight-air feature for single-car operation. The control, however, is contained wholly within one brake valve and the car is ready at all times for either single-car or train service. The body brakes are designed to give a braking power of 90 per cent of the light weight of the car.

Other equipment that is installed includes Tomlinson M.C.B. couplers as well as the railway company's standard portable drawbars. The headlights are of

the Crouse-Hinds luminous-arc type, arranged for removal from one end of the car to the other. A switchboard is located in a small steel switch cabinet in the baggage room, this being of such size that it accommodates all switches except those for the headlights and air compressor. The latter switches are located on the ceiling in a position convenient to the motorman. The fare register is of the International double-faced round type, designed for recording cash and ticket fares.

The cars are mounted on Baldwin high-speed interurban trucks with a wheelbase of 87 in. and a carrying capacity of 35,000 lb. on each center plate. They are of the equalized, pedestal type, with forged side frames, angle-iron end frames and channel transoms that are reinforced with substantial corner gussets, the latter acting at the transom as guides for the brake levers. The objectionable nosing so often found in high-speed service has been reduced to a minimum by a special arrangement of short and long swing links recently developed by the builders. Throughout the foundation brake rigging on the trucks has been bushed with case-hardened bushings and fitted with case-hardened bolts, spring washers and castellated nuts, making the brake practically noiseless in operation and providing means for economical replacement of parts that have been affected by wear. The trucks are provided with 36-in. wheels, 5-in. x 9-in. journals, cast-steel bolsters, and inside-hung motors and brakes.

P. S. R. A. Discusses War Problems and Increased Fares

Spring Meeting Was Devoted to Informal Talks—Important Resolutions and an Amendment to the Constitution to Provide for Holding but One Meeting Annually Were Passed

ABOUT sixty members attended the spring meeting of the Pennsylvania Street Railway Association held at the Harrisburg (Pa.) Club on May 11. On account of the present national crisis the usual set program with prepared papers was replaced by an informal discussion covering the two general subjects: first, war-time duties of electric railways including the economies and precautions which are advisable, and, second, increased fares. The war subject formed the morning topic of discussion, luncheon was served at 2 p. m., and then after talking over war-time economies and labor problems the question of increased fares was discussed until the meeting adjourned at 5.30 p. m.

E. B. Burritt, representing the American Association, was present at the meeting. He included in his remarks a brief description of the way in which the American Association was co-operating with the national government by collecting data regarding electric railways and maps of their lines.

RESOLUTIONS PASSED BY THE ASSOCIATION

The association took formal action on several matters. The amendment to the constitution presented at the Philadelphia meeting was carried. This provides that the regular meeting of the association shall be held annually during the month of May or June at such time and place as may be determined by the executive committee. The action taken at the last meeting of the executive committee, offering the services of the Pennsylvania Street Railway Association in co-operating with the Council of National Defense in the present national crisis was approved. It was voted to send telegrams to the Pennsylvania congressmen and senators in the national Legislature, and to the members of the ways and means committee of the House and the finance com-

mittee of the Senate, urging that motor trucks and buses doing a passenger or freight business be included in the same schedule of taxation as the steam and electric lines. In connection with the subject of increased fares a motion was made and carried that a committee of five be appointed to take up the question of increased fares on the street railway lines of Pennsylvania. It was understood that this committee would investigate the desirability of the railways taking united action before the Public Service Commission on this subject. Letters will probably be sent out by the secretary of the association to member companies asking their opinion on this subject, and when the committee has crystallized the ideas of the railways a special meeting of the executives of the member companies may be called to authorize further action.

WAR NECESSITATES GUARDING OF PROPERTY

On the subject of the special war-time precautions different members told of what their railways had done. The precautions consisted chiefly in guarding the company's property by special constables and deputy sheriffs; placing barbed wire fencing around the power houses, carhouses and shops, and reducing the number of entrances to such property; screening of power-house and shop windows; using additional tie lines between power stations, and in other ways providing for an emergency source of power. The companies operating through several counties told of the difficulty encountered because of the fact that the deputy sheriffs and constables could have jurisdiction only in one county. Another disadvantage of having this class of guards was that they were sworn in by the sheriff, who was responsible for any overt act which they might commit. When the guards were used on railways the sheriff held the railway responsible. The law provides that the guards cannot use their guns except in cases where their life is in danger or where the trespasser is detected in committing a felony. It was pointed out that it was therefore necessary to give careful instructions to the guards as to the handling of their firearms. The use of shotguns instead of rifles was recommended because of the fact that the bullets do not carry as far and the danger in hitting innocent persons is not so great. The companies reported that the government was not furnishing the electric railways with any guards. This left it up to the railways to furnish their own men for this duty. It was pointed out that Germany has not yet recognized a state of war with the United States, and when she does so the number of acts against the public utilities may be greatly increased. The railways should, therefore, be continually on their guard and not be careless because no acts against their property have been committed so far.

PAY FOR EMPLOYEES IN MILITARY SERVICE

It was reported that the United States Chamber of Commerce had investigated the subject as to whether or not the employers should pay the wages of the men who enlisted and take care of the dependents at home. The decision was that the government and not the employers should bear this burden. Instances were cited in which the railways were paying full wages of the men and promising to give them their jobs when they return. One of the embarrassments of the latter promise was that several men might hold the same position successively before leaving for the front. The question of who should receive the position at the end of the war would be a difficult one to solve.

One railway man read the following announcement as a tentative definition of the company's war-time policy: "The folly of crippling local transportation facilities

of the country by general and indiscriminate enlistment of employees engaged in this service is recognized by the government and the public.

"The company will discourage no man who feels it his duty to enlist, but it is believed that unless and until the need for their enlistment becomes greater than the importance of maintaining adequate street car service in the community, its employees, especially married men with dependents, will best serve the needs of the hour by continuing in their present employment and assisting in maintaining the best possible street car transportation. Under an order of the military authorities married men with dependents are not at this time subject to government service.

"No man will lose his seniority standing because of his enlistment, and so far as it is possible to do so, men who enlist will upon their discharge from government service be reinstated in the company's employ at the rate of pay and in the position as nearly equal to that held by them when they enlist as conditions at the time of their return will permit.

"Members of the co-operative beneficial association who enlist and continue the payment of their dues while in the government service will be entitled to the death benefit of \$150 payable to their beneficiaries and to the prescribed sick benefits, providing they are not drawing their government pay during disability.

"Men who enlist will not thereby forfeit any right they may have at the time of their enlistment to benefits under and subject to the terms of the company's insurance and pension plan."

EMPLOYMENT OF WOMEN CONDUCTORS PRACTICABLE

The use of women conductors was generally considered to be practicable but not necessary for some time to come. One company reported it had fourteen applications on file from women who wanted such jobs. It was thought that the motormen would favor rather than object to the use of women conductors on their cars, and it was pointed out that extensive additional comfort facilities would have to be provided for them in the carhouses and employees' quarters.

In connection with the shortage of men in both the transportation and mechanical departments, it was believed the raising of wages was no longer an adequate means of holding the men, and that the government would soon have to take a hand in the labor problem and regulate it in some way.

INCREASED FARES ADVOCATED

The question of fare increases was the last one to be taken up. A rising vote showed that the majority of the members were interested in fare increases as a practical proposition on their own railways. Raising interurban fares to 2 cents per mile, reducing transfer privileges, charging for transfers and cutting out reduced-rate tickets were suggested as steps to be taken before asking for a 6-cent fare. It was generally believed that this was the most opportune time to obtain a fare increase, and as already reported it was decided to have a committee of five investigate this subject further in order that the railways could take united action on it.

According to John P. Dohoney, investigator of accidents for the Public Service Commission of Pennsylvania, 187 persons were killed in 1916 on the street railways of that State, as compared with 173 in 1915, and 3295 injured in 1916, as compared with 2495 in 1915. There was an increase of 32 per cent in the number of accidents on the street railways, the total number for 1916 being 2580 and in 1915, 2062.

N. E. L. A. Committees Summarize Technical Progress

The Reports Which Were Presented by Title at the New York Meeting of the National Electric Light Association Last Week Contain the Results of Investigations in Power Generation and Distribution—They Show Considerable Activity in 1916

AS was reported briefly in the issue of the *ELECTRIC RAILWAY JOURNAL* for May 12, the annual meeting of the National Electric Light Association was held in New York City on May 9 and 10. Among the reports presented by title but not discussed were several relating to power plant and line matters which are abstracted below.

A TREATISE ON PRIME MOVERS

The report of the committee on prime movers was contained in a 164-page pamphlet. It covered all phases of the subject and contained summaries and opinions from manufacturers and engineers on their respective specialties.

It appears that 1916 was a big year in steam turbine business. The Westinghouse Electric & Manufacturing Company sold one 70,000-kw. unit for 300 lb. per square inch pressure and 150 to 200 deg. superheat. This company is supplying other machines for equally high pressure and 200 to 250 deg. superheat. It sees no objections, from the standpoint of the turbine designer, to initial temperatures up to 650 or 700 deg. At present 76 per cent of the energy theoretically obtainable from steam expansion can be realized at the switchboard and further progress must come from the use of higher pressure. During the year the General Electric Company took orders for three times as much turbine business as was secured in any previous year. The average size of the machines was about 50 per cent greater than heretofore.

CONDENSER SIZES INCREASING ALSO

The Westinghouse Company also noted a demand for increased condensing surface in a single unit from 56,000 sq. ft., in one designed to serve a 35,000-kw. turbine, to 100,000 sq. ft. in one to operate in connection with a 60,000 to 70,000-kw., three-element turbine. The jet condenser record, made last year in an order for a 45,000-kw. turbine, has not since been broken, but there has been a considerable demand for jet condensers to serve turbines of about one-half this capacity. This company's aggregate business in surface condensers increased almost 450 per cent over the preceding year, the average large condensing equipment was 65 per cent bigger, and the average weight of condenser shells which the foundry and shop were called upon to handle increased by 55 per cent.

From this company's experience barometric condensers are gradually losing favor, not more than 5 per cent of jet condenser jobs recently having demanded this type. The low-level jet condenser almost invariably works out to be most economical except when water-level conditions are such that no circulating pump would be required for the barometric condenser, or in a few cases where the water available for cooling purposes is exceedingly bad. A most significant feature in the report of the Wheeler Condenser & Engineering Company was the increasing demand for the turbo air pump as compared with dry vacuum pumps. Dry vacuum pumps are preferred by many engineers but

meet with objection very often on account of the space required. The turbo air pump is admirably suited for large capacity with small space occupied. In a number of instances a single large-capacity air pump has been used with a large condenser, and designs are now available for as high as 50,000-kw. capacity in one pump.

The Wheeler Company also noted a constant increase in the number of condensing plants using artificially re-cooled water, having built during the year 1916 what is probably the largest single tower in existence, one having a capacity of approximately 7500 gal. per minute. It also reported that many aspects of the problems connected with the corrosion of condenser tubes continue to baffle the ablest engineers and metallurgists, and the matter is subject to world-wide investigation.

GEARED AUXILIARIES BECOMING POPULAR

The Westinghouse Company reported increasing success in geared turbo exciters which are now built in units of capacity up to 1000 kw. Large machines like these supply not only excitation requirements but also direct-current loads in the vicinity of the power house. The prediction was made that the next few years will see the elimination of direct-connected turbine-driven pumps, blowers and generators, due to the prestige which the geared turbine enjoys. Even now orders entered for geared and direct-connected turbines are in the ratio of three to one in favor of gears.

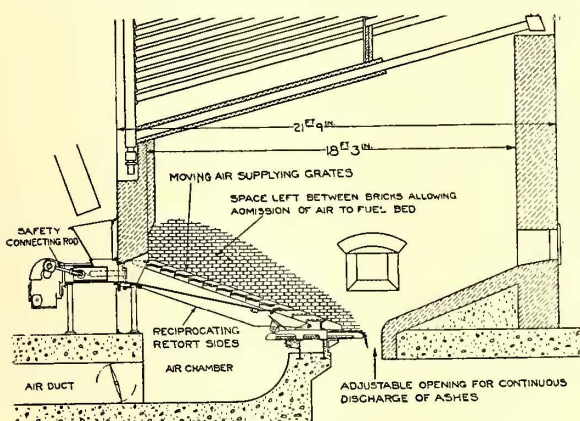
STOKERS AND FURNACES

The section of the report on stokers showed that this feature of the power plant is developing rapidly. The American Engineering Company, which makes the Taylor underfeed stokers, stated that the power-operated dump grate is largely employed on all types of its stokers, the latest type of stoker being one which employs these dumps and large retorts with triple pushers. In very large power houses stokers equipped with the automatic rotary ash discharge are being installed. Tests made with different types of this company's stokers on a 625-hp. B. & W. boiler showed all to give to a maximum furnace efficiency of about 80 per cent with from 350 to 450 lb. of coal burned per retort per hour. At heavier loads the triple-pusher stoker with the power-operated dump is the best. The large stokers operate at the same rate of fuel burning as the smaller with a much lower air pressure and consequently a smaller amount of power is required in the auxiliaries.

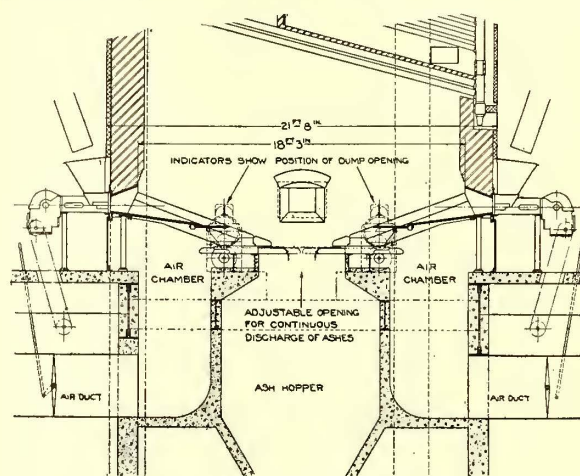
In comparing the rotary ash discharge with the power dump, it was noted that the former is designed to handle cold ashes, hence it is not always possible to provide the large amount of space necessary for cooling the brick wall and ashes. Where it can be used, however, it produces high efficiency which can be maintained for many consecutive hours when once a correct operating condition has been obtained. There is also less combustible in the ash. The power dump is preferable in power houses in which the boilers are banked for long periods, hence dead ashes and refuse must be cleaned out quickly.

The development work which had been done by the Westinghouse company during 1916 was mainly in adapting the underfeed stoker to high-ash Middle Western coals and lignite. To take care of the large amount of refuse with such coals the double-dump grate has been used with a complete success. Air can be admitted on both the front and rear dumps, and unconsumed carbon deposited thereon with the ash can be burned out before dumping. The rear dump alone can be used for dumping refuse, or both dumps can be used at the same time. This company reported a tendency especially in large plants to increase the size of individual boiler units, stating that boilers of 1000 hp. and more are rapidly becoming standard. These are characterized by simplicity of boiler setting, tending to eliminate brickwork troubles.

The Sanford-Riley Stoker Company called attention to the operating difficulties which have been experienced during 1916 on account of the scarcity of reliable labor. This company humorously remarked: "We have learned of a few new ways to neglect and abuse stokers, but the favorite abuse still remains in the ash pit." The best protection against such abuse is said to be a large easily cleaned ash pit. This company directed



STOKER WITH EXTRA LARGE RETORTS



DUPLEX STOKER SETTING

attention to an increase in combustion efficiency to be obtained by feeding fuel slowly through the retorts and by providing for large volumes of coal in the furnace. This may be accomplished by installing stokers back to back in a duplex setting, or by making the retorts extra large. In one plant installed by this company each 1140-hp. boiler was equipped with two 15-retort stokers set back to back, giving a total grate area of 417.8 sq. ft., and a ratio between grate area and water-heating surface of 1 to 27.3. There are about twenty tons of coal and coke in the furnace at all times.

Another important development pointed out by the Riley company was in the use of ventilated side-wall construction, such as that developed at the South Boston plant of the Boston Elevated Railway. The admission of air along the side walls by one means or another preserves the brickwork and prevents the adherence of clinkers. The combustion seems to be induced on the surface exposed to the fuel, while the brickwork is cooled by the air, the combustion at this point resulting in ashes rather than clinkers. The temperature is kept high so that there is no adherence of clinkers to the brick, and no objectionable effect is noted in the fuel beds.

BETTER FURNACE LININGS ARE NEEDED

In summarizing the situation regarding refractory material the committee pointed out that the use of large boilers, with large combustion chambers and furnaces, has resulted in more frequent failures in the

arches and side walls. This is due to the increase in firebrick surfaces and the expansion and contraction strains caused by the higher temperatures. Experiments in bracing the flat walls have not been very successful.

Further development is also needed in the refractory firebrick used for furnace lining. Variation of the composition of the clay, the method of manufacture and the heat treatment of the brick all have their effect on the final product, and it is necessary to select the brick with great care. A test is being made at present at the Fifty-ninth Street station of the Interborough Rapid Transit Company of New York City on a type of brick known as "Metalkase," designed to eliminate the adhesion and penetration of slag or clinker. A run completed last November was said to have shown satisfactory results. In general, it can be stated that the firebrick used should be high-temperature brick for arches and walls where overfeed stokers with chain grates are employed, with temperatures running up to 2800 deg. Fahr.; but with underfeed stokers the temperatures would not run much above 2400 deg., operating at a 200 per cent rating, if proper firing is used,

and a high-heat resisting brick is not as essential as one of mechanical strength and resistance to abrasion by slag.

The committee also reported a design of side walls for boiler settings in use at present by one company, built up with a 9-in. wall of firebrick, a 4½ to 9-in. wall of Armstrong cork "nonpareil" brick or "sil-o-cel" brick, and a 4½-in. wall of common red brick upon which is put an airtight coating of "armorcote" roofing cement. The mechanical bond between the walls is obtained by the usual header construction.

STORING AND HANDLING COAL

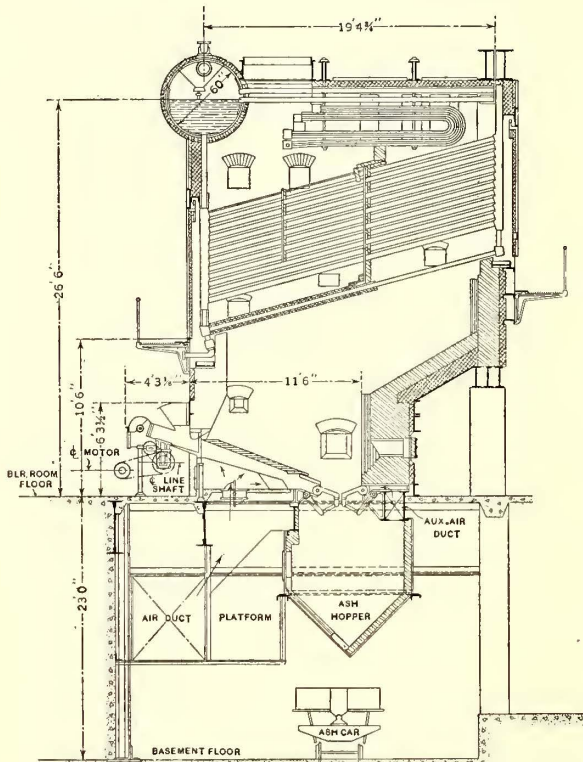
In view of the great interest in coal storage at present the committee devoted considerable space to coal-handling apparatus and to the weathering and oxidation of coal. A large number of diagrams and pictures of storage and handling arrangements were given in the report. From data available it appears that the loss in calorific value by weathering in the open is not serious generally, but under certain conditions may be so. For complete protection from spontaneous heating the only sure method is storage under water. The objections to this method are the moisture contained in the reclaimed coal and the liability of freezing in some localities.

It is very difficult to arrive at a definite conclusion regarding the qualities and characteristics of coal that can be stored without danger of spontaneous heating. A fair assumption is that coal which has such character-

istics as to enable it to resist atmospheric influences resulting in air slacking is better suited for storage than coal of opposite characteristics. Moisture in small quantities without doubt accelerates the absorption of oxygen and increases chemical activity. Among other methods suggested for reducing the danger of oxidation are the avoidance of external sources of heat, elimination of coal dust and the maintenance of dryness.

ARE HIGHER PRESSURES DESIRABLE?

In view of the interest in the subject of higher boiler and turbine pressures, the committee made a considerable investigation of this subject, calling attention to the fact that recently a number of stations have been designed for pressures from 275 to 300 lb. per square inch with superheats of 200 to 250 deg. Fahr. The



LATE TYPE OF SETTING FOR LARGE BOILER

design of the boiler presents the principal problems in connection with higher pressures. The consensus of opinion seemed to be that while it is feasible to use pressures higher than 300 lb., the practicability of doing so is still open to question. As one company put it: "The only question of any real importance is, How much money will be saved by doing it?" In commenting on the matter Frederick Sargent, of Sargent & Lundy, Chicago, Ill., stated that the Commonwealth Edison Company has been planning to raise boiler pressures in the Northwest Station in Chicago but found that considerable changes in boiler design would be necessary. He pointed out that along with the raising of initial temperatures it is important to raise the average temperature in the turbine, which can be done by superheating the exhaust from the high-pressure end of the turbine before it enters the low-pressure end. If this is done and efficiencies are maintained all along the line, it will be possible to produce a kilowatt-hour at the switchboard for one pound of high-grade coal.

Summing up the matter, the committee comes to the conclusion that a steam pressure of 300 lb., with 200 deg. superheat, or an equivalent total temperature, is about the practical limit until the manufacturers of

prime movers and auxiliaries have developed new designs to meet the new temperature conditions.

OTHER MEANS FOR PRODUCING POWER PLANT ECONOMY

Along with the discussion of design characteristics of prime movers the committee investigated the methods of operation which would maintain or improve operating economy. One of the most important things is to keep the condensers clean. This cleaning may be divided into three stages: Clearing out the tubes without taking the prime movers out of service, cleaning during the night when the unit is out of service, and more general and thorough cleaning, which is done in certain cases only once or twice a year. Among the methods used for this cleaning are washing the tube sheets and tubes with a stream of water under high pressure, shooting leather disks through the tubes by means of compressed air, forcing bristle brushes through the tubes with the aid of water pressure, and baking by allowing steam to enter the condenser through the prime mover or from special lines connected to the bottom of the condenser. Where condensers need be cleaned only once or twice a year, sand blasting is used with success in removing scale.

Attention should also be given in power plants to the matter of keeping down pressure reductions in pipings and fittings. Where formerly steam velocities of 2000 to 3000 ft. per minute were commonly met with, values as high as 7500 ft. are now found, and certain authorities are advocating velocities above 10,000 ft. per minute. High velocities mean increased pressure drops, and, while there are certain advantages in their use, the fact remains that not enough consideration has been given to the subject of pressure drop in installing steam-generating equipment, piping and valves.

Pressure loss is an important factor for the reason that the capacity of most machines decreases materially when the pressure decreases as the loss of pressure does not take place wholly within the piping itself. Among the sources of pressure drop may be mentioned the dry pipe at the boiler, the superheater, the boiler valve, the boiler feed line, the separator and the steam strainer.

Another matter is the use of boiler-room instruments. Pressure and draft gages, thermometers, steam, air and water meters, coal-weighing devices and apparatus for gas analysis are all available. This year the committee made its first report on the subject of boiler-room instruments, comparing the several types available for each type of measurement. Among other novelties attention is directed to the air meter for use in the boiler room. This, in connection with the steam flow meter, gives an excellent indication of the carbon dioxide in the flue gases. Among water meters those of the V-notch type seem to be most popular, as they are easy to clean and calibrate and are particularly adapted to cases in which a gravity fall through the meter is permissible.

Summing up the report of the committee on prime movers, it would seem that most rapid development is being made at present in the furnace end of the steam boiler, while the hope for the future in increasing boiler output is in the use of higher temperature involving both higher pressure and greater superheat. From the operating side progress is being made in maintaining equipment with high efficiency as an aid to which the intelligent use of instruments is essential.

PROGRESS IN ELECTRICAL APPARATUS

While less extensive than the report on prime movers that of the committee on electrical apparatus, with the related reports on underground construction, overhead lines, etc., was also quite comprehensive. The standard-

ization of electrical apparatus and methods of operation was considered of very great importance and during 1916 substantial work was done in the revision and extension of standards for transformers. In synchronous converters, sizes have increased steadily although slowly, the largest converter built to date having a continuous rating of 6825 kw., and the largest 60-cycle converter having a capacity of 5800 kw. Experience and improvement in the design of synchronous converters have made possible the elimination of the second starting tap, and it is now general practice to use on partial starting voltage a tap requiring one three-pole, double-throw switch (for 6-phase converters).

In order to prevent undue rise of potential in the shunt field winding of the converter, due to transformer action, it has been customary to use a field break-up switch, but one manufacturer is now using a three-pole, double-throw switch with discharge resistance mounted on the starting panel adjacent to the starting switch.

The committee on electrical apparatus also gave considerable attention to the outdoor substation and to the automatic substation both for low-tension commercial work and for use on railway circuits. Attention was called to the fact that these automatic substations have a particularly useful application in view of the present high price of copper. Progress is being made in the standardization of outdoor substations for commercial service, and outdoor current transformers and other suitable equipment have been developed. The committee stated that large users of transformers, oil circuit breakers, electrolytic arresters and feeder regulators are becoming more and more convinced of the necessity for periodically inspecting and testing insulating oil, and of dehydrating and purifying oil that has absorbed moisture. It was recommended that all companies adopt systems of oil inspection, and to this end the committee gave full instructions for testing oils.

PROGRESS IN THRUST BEARING LUBRICATION

Attention was also directed to the problem of furnishing adequate lubrication for bearings of hydroelectric generators. A new plan for this purpose consists of the use of an oil pump mounted in a casing supported from the lower guide bearing of the machine. The pump so placed in the reservoir or casing pumps oil through a filter mounted immediately alongside of the machine. After being filtered the oil returns by gravity through a separate chamber to the reservoir, where another pump, geared directly to the main shaft, forces it into the chamber that supports the thrust bearing. It flows then by gravity to an upper and lower guide bearing back to the lower reservoir. Along this same general line it is of interest to note that many spring-thrust bearings are now in successful operation, the largest carrying 225,000 lb. at a speed of 514 r.p.m. The stationary ring in this bearing is supported on a cushion of coiled springs. This ring, like the rotating ring, is grooved radially to permit circulation of oil.

The committee on underground construction and electrolysis reported on current capacity of cables; cable specifications for various classes of service; use of split-conductor cable; new design of three-conductor cable,

and special devices and methods. It appears that much progress is being made on the first-named topic, and the conditions which determine the safe current capacity are being formulated. Split-conductor cables are coming into use, their purpose being to permit the use of protective devices to cut cables out of service automatically in case of trouble, without recourse to separate pilot wires. A plan involving the use of pilot wires consists in tripping the circuit breakers on the ends of the line through the medium of a balanced relay connected to the two ends. When the current entering and leaving the cable is the same the relay does not act, but if there is a short-circuit between the ends the relay field is unbalanced and the relay trips the breakers.

OVERHEAD LINE MATTERS

The committee on overhead lines and inductive interference reported that it had not undertaken to give attention to the details of overhead line construction to any considerable extent but had accumulated certain test data on the strength of standard 1½-in. locust pins, and was keeping in touch with the experience of companies using medium hard-drawn wire. It also recommended that the companies co-operate in gathering data relative to the effect of the application to actual construction of the line sections of the National Safety Code. The committee discussion of inductive interference related entirely to non-railway circuits but is of interest to railways which are doing a power business in suburban communities. The interference cases are mostly due to the necessary use of highways for power transmission lines. In this connection an appendix to this report, by John B. Taylor, is valuable in stating in an elementary way the causes and principles of prevention of inductive interference.

On the subject of power transmission and distribution, a paper by J. O. Hardin of the Georgia Railway and Power Company, on "Methods for Working on Live High-Voltage Lines," was to have been read at the convention. This contains an account of the practices of the company in eliminating interruptions to service due to cutting off power for repairs on the line. By the use of simple special tools and easily understood rules it is possible to make repairs on almost any kind of high-voltage lines without interrupting service. Mr. Hardin tells exactly how this can be done and his paper is elaborately illustrated.

Electric Tramways in Australia

The following table is taken from official statistics relating to electric tramways in the commonwealth of Australia, published in a recent issue of *The Electrician*. Compared with 1915, there was an increase of 39.5 route-miles of line opened and in the number of cars employed. Of the 386.56 miles operated, 311 are standard gage, 71 are 3-ft. 6-in. gage, and the remainder 5-ft. 3-in. gage.

The various tramway services, including electric, steam, cable and horse, are controlled as follows: Government, 296¼ miles; municipal, 123½ miles; private, 142¾ miles.

STATISTICS ON ELECTRIC RAILWAYS IN AUSTRALIA

State	Mileage (Route Open)	Capital Cost	Energy Generated (Kw.-Hr.)	Tram-Miles Run	Gross Revenue	Working Expenses	Passengers Carried	Number of Cars
New South Wales.....	150.04	£7,349,866	81,689,000	25,407,000	£1,834,023	£1,469,226	269,634,000	1,430
Victoria	70.57	1,061,067	7,500,000	4,436,000	204,671	151,543	30,676,000	193
Queensland	38.20	1,437,550	10,002,000	4,112,000	347,437	193,367	48,162,000	154
South Australia	57.00	1,517,148	11,584,000	4,914,000	309,915	191,070	42,287,000	170
Western Australia	50.75	1,092,285	4,984,000	2,782,000	181,340	129,422	17,501,000	121
Tasmania	20.00	336,214	1,368,000	925,000	62,317	43,514	7,183,000	52
Total for Commonwealth..	386.56	£12,794,130	117,127,000	42,576,000	£2,939,703	£2,178,142	415,443,000	2,120

Higher Revenues Asked in New York

Special Electric Railway Committee Informally Shows to First and Second District Commissions the Need of Financial Relief—Six-Cent Fare Suggested Up-State, and Two-Cent Transfer Charge in New York City—Formal Hearings to Be Held Soon

THE last week has seen marked progress in the movement to secure increased revenues for electric railways in the State of New York. Informal conferences have been held between a special committee of the New York Electric Railway Association and the Public Service Commissions for the First and Second Districts, to show to the regulatory bodies the urgent need of the companies for higher fares.

As a result of these conferences it is probable that formal applications for relief will be made to the two commissions in the very near future, and public hearings will then be held. The general sort of relief desired in the First District, or New York City, appears to be a 2-cent charge for transfers, while the up-State lines in the main prefer an advance in the unit rate of fare.

SPECIAL COMMITTEE APPOINTED

The first step in the general movement was made on May 11, when the New York Electric Railway Association, at a special meeting in New York City, authorized the appointment of a committee of ten to consider ways and means for obtaining additional revenues. This committee was instructed to take the matter up with the commissions and to secure, if possible, the general consent of the companies to some plan of action.

In view of the possibility that the railways in the Metropolitan district might desire a form of fare increase different from that favored in the remainder of the State, it was decided that the committee of ten, while acting as a whole on matters of policy, should be divided into groups of five members for each regulatory district. Each group could then take up the specific needs of the railways in its territory.

As a result of this action by the association, President J. P. Barnes appointed as members from the First District the following: T. P. Shonts, president New York Railways; T. S. Williams, president Brooklyn Rapid Transit Company; E. A. Maher, Sr., president Third Avenue Railway; W. O. Wood, president New York & Queens County Traction Co., and A. E. Kalbach, receiver Second Avenue Railroad. For the Second District President Barnes appointed the following: L. S. Storrs, vice-president Westchester Street Railroad; H. E. Andrews, president New York State Railways; H. B. Weatherwax, vice-president United Traction Company; C. Loomis Allen, receiver Empire United Railways, Inc., and Joseph K. Choate, vice-president J. G. White Management Corporation. Mr. Choate was made chairman of the committee.

PRESIDENT SHONTS ISSUES STATEMENT

While this special committee was laying its plans and arranging to present its case informally to the Public Service Commissions, the New York Railways took several steps to inform the public about the general situation confronting the company. On May 14 President Shonts issued an explanatory statement in part as follows:

"This company has for sometime past been confronted with a very grave increase in the cost of operation. That tendency has recently become alarming. During the last year we have increased the wages of our men

to enable them to take care of the high cost of living. We are paying very much higher prices for the materials we use. The number of people traveling on the surface lines of the city of New York has not increased substantially in the last ten years. Any increase of electric railway travel in this city of recent years has been almost entirely on the elevated and subway lines. That increase, of course, does not benefit the surface lines. The subway and elevated lines are prospering, but the surface lines are threatened with bankruptcy unless present tendencies are arrested.

"It is absolutely necessary that the New York Railways improve their revenues. Though the stock of the New York Railways is owned by the Interborough Consolidated Company, that stock pays no dividends and it is not conceivable that under any conditions which can now be foreseen in the near future, any payment on such stock would be possible. We are not now concerned with attempting to earn dividends on that stock. Our concern is to save the green car lines from receivership, for toward receivership these lines are moving with a steadily accelerating pace.

"A good many years ago all the surface lines in New York were consolidated into one system. That system went into bankruptcy, and the result was a disintegration of the formerly unified system. That disintegration separated the Third Avenue and the Second Avenue lines from the old system, disturbing the transfer arrangements which had previously existed. If the New York Railways is forced into a receivership, a further disintegration of the system is likely, with disturbance of the present arrangements between the different units of the system. In case of such disintegration, the separate companies, then restored to their managements, would, of course, have the right to charge independent fares for each passenger. The people of New York City pay a nominal 5-cent fare for a ride on their street railways. The subway and elevated lines obtain a full 5-cent fare for each passenger. Owing to the transfer arrangements the result to the New York Railways is only about 3½ cents for each trip.

"We expect shortly to bring the matter formally to the attention of the Public Service Commission to obtain, we hope, its advice and assistance in increasing our revenues. Before doing so, however, we wish the whole subject to be brought to public attention, in order that the public may be both informed and consulted as to what steps shall be taken before these steps are definitely attempted.

"We shall expect to lay all the facts before the people of New York, for we realize that the good-will of the public is a supremely important factor in this, as in other matters. Our purpose is to protect our service to the people of this city, and to that end we earnestly seek the co-operation of every citizen. We feel confident that the public sense of what is fair and right will, upon consideration of the facts, realize that our needs are real and that to satisfy them will be in the public interest."

ASKING THE CO-OPERATION OF BUSINESS MEN

In line with his policy of informing the public, President Shonts on the same day sent letters to the presi-

dents of the Chamber of Commerce, the Merchants' Association and other leading commercial and taxpayers' organizations, offering to show them the company's books and inviting them to examine the facts. After explaining the serious situation in which the company finds itself, President Shonts said:

"I am writing to you and to various other representative organizations of business men and taxpayers to request that you refer this matter to an appropriate committee of your organization with a suggestion that we should be glad to place before such committee full data in support of what we believe to be the merits of our position. We shall place ourselves at the service of such committee to enable it to arrive at a conclusion entirely satisfactory to itself.

"We earnestly hope to solve this problem in a way which will commend itself to the public opinion of New York. We shall shortly bring the matter formally before the Public Service Commission. In the meantime we are earnestly hoping that the people of New York, through such representative bodies as those mentioned, will inquire into the situation for themselves."

ANNOUNCING ITS 2-CENT TRANSFER PLAN

On May 15 President Shonts placed the need of a 2-cent transfer charge before the public in a statement in part as follows:

"It is not the purpose of the New York Railways to ask the Public Service Commission for permission to charge a 6-cent fare. We hope to be able to adhere to the present basic rate. We shall ask permission to charge 2 cents for transfers; in other words, to carry people as far as they want to go on a continuous ride for 5 cents, but to ask those who take additional rides to pay something for them.

"The cost of labor and materials is increasing at a greater rate than the present earning power of the New York Railways can stand. Taxation has each year taken more than \$1,500,000 on the average for the last five years, or more than 11 per cent of our gross revenue from railway operations. Greater tax burdens must be met in the immediate future. After paying interest on its bonds, and with no payment on its stock, the New York Railways in 1916 had \$2.70 left from its earnings for the year. The company paid out for wages \$5,297,000 in the year ended June 30, 1916; it will pay during the current fiscal year, \$6,336,000, an increase of \$1,839,000. Part of this increase is due to extra allowances to the men to maintain the service during the strike, but the present scale of wages, even upon a comparative basis, is more than \$600,000 in excess of that for 1916.

"There were 257,028,563 passengers who paid a 5-cent fare on our lines last year. About 92,000,000 of these used transfers, leaving about 165,000,000 who paid 5-cent fares and took no transfers. Before increasing the fare charged to those who took no transfers, it would seem only fair to ask those who used two or three to pay for the privilege. We estimate that a charge of 2 cents for transfers will add about \$900,000 to our gross income. This sum added to our earnings will not enable us to pay dividends on stocks; it will simply protect the company from bankruptcy."

The New York Railways also placed on all its employee bulletin boards a placard, as shown in the accompanying illustration, calling attention to the revenue-increase movement and asking employees to inform themselves concerning the situation and tell their friends.

VALUATION NOT NEEDED

In regard to the necessity of a valuation of the New York Railways property, President Shonts issued a statement to the effect that a valuation was made while

the property was in the hands of receivers. Both the reorganization committee and the engineers of the Public Service Commission made careful appraisals, he said, and the lowest figure found by the commission was, as of Oct. 1, 1910, \$85,801,000. On account of capital expenditures the minimum valuation is now \$89,066,000 for property actually in public service.

The aggregate amount of stocks and bonds in the hands of the public (including underlying bonds of merged companies and including the stocks and bonds of leased companies) in 1916 was \$99,454,978. The entire return actually received by the holders of these securities was \$3,455,610, or 3.5 per cent upon the total amount of securities issued. This money paid to the holders of securities represented 3.9 per cent upon the minimum valuation.

A charge of 2 cents for a transfer, bringing in about \$900,000, would permit a return representing only 4 per

NEW YORK RAILWAYS COMPANY.

TO THE EMPLOYEES OF THE
NEW YORK RAILWAYS COMPANY

This Company is bringing to public attention the absolute necessity for increasing its revenues. We are doing this not to be able to pay dividends on our stock, but in order to protect the Company from bankruptcy.

All costs have gone up, particularly wages, with which you are familiar. You know that this increase in wages was warranted by the increased cost of living which confronted You. The high cost of street railway living confronts Us.

You will hear this subject talked about a good deal among your friends. It is in your interest, as well as in the interest of the public at large, that our Company be protected from bankruptcy and that its service be maintained at its present high standard.

We want, therefore, to ask you to inform yourself concerning the situation and to tell your friends of the problems which confront us. We will give you details in pamphlet or leaflet form which you can use in your own way.

This is a time to stand together, not arbitrarily, not to extort something from the public, but simply to show the people that it is in their interests, as well as our own, that our service be protected in the present emergency.

FRANK HEDLEY,
Vice-President and General Manager.

Approved.

THEODORE P. SHONTS,
President.

PLACARD ASKING CO-OPERATION OF EMPLOYEES IN MOVEMENT FOR INCREASE IN FARES

cent upon the total capitalization and 4.9 per cent upon the minimum valuation. The stockholders, President Shonts said, have never received a dividend, and the holders of the adjustment income 5 per cent bonds have never received the full interest. For the last ten months of the current year, exclusive of strike expenses, the company has not even earned the interest on its 4 per cent bonds.

CONFERENCE WITH FIRST-DISTRICT COMMISSION

On May 16 Messrs. Shonts, Williams, Kalbach, Wood and Maher, Sr., representing the special committee of the State association, held an informal public conference with the members of the Public Service Commission for the First District. At the close of the conference Mr. Maher announced that the committee would be ready to proceed with formal hearings by the next week. No date was set by the commission. However, Chairman Straus announced that a date would be set after a formal application had been made, in connection with which there would be a conference, between railroad

and commission counsel, with reference to the form or forms that the application should take. It was practically decided, the commission stated, that each company or system should make a separate application for relief.

The first speaker at the conference was Mr. Maher, who stated that he hoped the commission would do something quickly to help the companies out of a situation that was momentarily growing worse. The commission, he believed, could grant relief.

Mr. Shonts stated that in the last thirteen years the surface-line traffic in Manhattan had decreased one-tenth of 1 per cent. There had been some increases, but these had been more than absorbed by decreases incident to the opening of the rapid transit lines. The surface-line traffic, therefore, is practically stationary. The only seeming relief available is a 2-cent charge for transfers—something that would not affect the great bulk of the traffic, would leave the company probably \$2,000,000 short of an 8 per cent return, but might be sufficient to tide it over until a decrease should come in the cost of materials, labor and other essentials of electric railway operation.

Mr. Williams, who followed Mr. Shonts, stated that the situation was somewhat different in respect of his company. He referred to the commission's order of three years ago which vastly increased the number of transfer points and the number of transfers issued on the Brooklyn lines. "That order has been obeyed," said President Williams, "but its effects have been increasingly bad from the standpoint of providing less revenue for us. It seems to us that our natural, easiest way of relief is by having that order changed. We have no thought of depriving a passenger of a continuous ride upon one line or possibly two lines, but the system of granting transfers to many lines has grown into an abuse. Hence it is likely that we shall make a formal application for a modification of the commission's transfer order so that while the passenger will still have a 5-cent fare from the residence sections of Brooklyn to the business section of Brooklyn and Manhattan, we shall be allowed to make a charge of 2 cents for transfers except as to transfers to and from what are commonly termed 'feeder' or 'continuing-trip' lines. It is not a question of receivership with us. It is a question of progressing. We believe that we are a progressive company, but we must have sufficient earnings to justify the construction of new lines as they are needed if we are to serve Brooklyn properly. The company must have a sufficient margin of credit."

Mr. Kalbach stated that what his company needs is additional transfer privileges at 2 cents, that line having practically no transfers except to a separate cross-town line. Mr. Wood said that he would only ask that something be done sufficient to permit his company to meet its operating expenses and fixed charges.

QUESTION OF POWER

Considerable discussion was carried on during the conference in regard to the provision of law upon which the committee expects to base its request for an increase in rates. J. L. Quackenbush, general attorney New York Railways, contended that under the present law the commission has plenary power to fix rates. According to Mr. Quackenbush, the Ulster & Delaware and North Shore Traction Company decisions clearly point out that the commission has, until the Legislature decides otherwise, the unrestricted power of the Legislature in rate regulation. Moreover, the commission can fix the terms and conditions of transfers, extend their use or abolish them altogether. Mr. Quackenbush said that the city companies wanted to charge for only the first transfer. Other transfers would be negligible

as far as any advantage the companies might gain by making passengers pay for them.

HEARING BEFORE SECOND DISTRICT COMMISSION

Simultaneously with the conference in New York City a meeting was being held in Albany between the other half of the special committee and the commissioners for the Second District. The electric railway men in attendance were Messrs. Choate, Storrs, Andrews, Weatherwax and Allen, as well as T. C. Cherry, general manager Empire United Railways, Inc.; C. K. Addison, Long Island Railroad, and President Barnes.

Mr. Choate was the spokesman for the railway men. Many of the companies in the State, Mr. Choate urged, face a condition already bordering upon bankruptcy. He presented figures to show that the cost of materials for street railways has mounted from 40 to more than 100 per cent during the last three years; that wages have gone up, and that only the city fares of the companies have remained stationary. He said that severe pressure was being brought upon the companies to grant further wage increases on account of the great increase in ordinary living expenses. As a means of obtaining partial relief, Mr. Choate asked that the street railways be permitted to petition the commission for a uniform advance of fares from 5 to 6 cents.

"The manufacturer," said Mr. Choate, "can raise his price to keep pace with his costs. It is what every private enterprise has been doing. Every item that enters into the cost of living is increasing. Street railway costs are mounting on a faster ratio than any other, yet our prices have been kept at the same level."

Mr. Choate called attention to the facts shown in the commission's latest annual report, indicating that while gross earnings of street railways outside of New York City have increased within the last ten years, particularly during the increased industrial activity during the last year and a half, net earnings have shown a steady decline.

After the conference the commission stated that the street railways of every city in the State outside of New York City would probably file applications for additional revenue through increased fares, charges for transfers or other means. In view of the urgent nature of the case presented by the railways, the commission will commence hearings on these applications as a group at an early date. After the presentation of the case of the railways as a whole, the different conditions affecting each company will be taken up and passed upon by the commission.

War Revenue Tax Hearing

Electric Railways Ask Senate Committee to Tax Long-Haul Automobile as Well as Rail and Water Transportation

AT a hearing before the Senate finance committee on May 12 the electric railway industry presented its comments upon the war revenue tax bill, which is designed to produce \$1,800,000,000. The main suggestion made was that the same tax be placed on automobile lines engaged in long-haul passenger and freight transportation as is imposed upon electric interurban railways.

Section 500 of the bill, as far as electric railways are concerned, provides for the following: A tax of 3 per cent of the amount paid for transportation of freight by rail or water; a tax of 10 per cent for transportation of property by express; a tax of 10 per cent of the amount paid for transportation of persons by rail or water, not including the amount paid for commutation or season tickets for trips less than 30 miles or fares

less than 25 cents. These taxes are stated in broad terms. The following sections deal with modifications, exceptions and technicalities which will undoubtedly be revised by the Senate committee before the bill is reported.

In seeking a hearing on the foregoing provisions, the electric railway industry did not endeavor to use any more time than was granted to other industries. Indeed, not so much time was used as in some instances. The attitude of the industry was explained to the Senate committee at a brief hearing by Arthur W. Brady, president Union Traction Company of Indiana, Anderson, Ind. Mr. Brady represented the American Electric Railway Association and also, with others present, the New York Electric Railway Association, the Pennsylvania Street Railway Association, the Central Electric Railway Association and the California Electric Railway Association.

Mr. Brady explained that he was speaking especially in behalf of the interurban lines, because the 25-cent limitation for the tax basis would cut out the ordinary street railway fare. The interurban lines, he said, had since the advent of the automobile been confronted with active competition in certain parts of the country on an extensive scale. Regular automobile lines had been established, for instance, between San Francisco and Los Angeles, Cal., a distance of practically 500 miles, and between San Diego and Los Angeles. For several years property and persons have been carried by automobile between those points over the regularly established lines, and the same way between Los Angeles and Bakersfield. In Minnesota, lines are in active operation for a distance of 30 or 40 miles out of St. Paul and Minneapolis. In Indiana and the Central West there are lines of from 10 to 35 miles already in existence, and with the improvement of roads in the progress of the good-roads movement and the building of the hard-surface, bricked or concreted roads, that phase of competition is developing very rapidly. Continuing, Mr. Brady said:

"The result of imposing the 10 per cent tax upon the electric interurban business and leaving the automobile business exempt would be simply to place the interurban railroads at a very great disadvantage in the conduct of that business. There is no one of the utility businesses of the present day that is conducted upon a closer margin than the electric railway business, whether it be the street railway business or the interurban business. Therefore, as a matter of mere fairness, it is the belief of the electric railways that this same tax which is imposed upon the electric railways should be imposed also upon motor transportation between specified points. It is not meant that it should cover the taxicabs and other vehicles which make special or occasional trips."

To meet the situation Mr. Brady proposed an amendment to the effect that the tax should cover transportation "by automobiles operated as common carriers of persons or property between specified points." The 25-cent fare clause in the bill would eliminate all but the long hauls.

Mr. Brady was questioned, during his statement, by the various Senators. In replying to a query regarding the comparative costs of automobile and electric railway operation, he said:

"It was thought a few years ago by the electric railway people that the automobile could not stay in the game. But it has proved that it can. You cannot run a Packard automobile in competition with the ordinary electric railway. But you can run a Ford, and a number of the other lighter and cheaper cars. With good roads and highways supplied by the public, with no expense except that of gasoline and tires and ordinary maintenance, we fear very much that these cars can compete

with our lines to an appreciable extent in carrying freight. We know that they actually are trying to do it."

Another amendment proposed by Mr. Brady covered the handling of fractions of a cent in imposing the tax upon the passenger or shipper. In order to make it clear that a full cent might be added to the fare or freight in such a case, the following amendment was proposed: "Whenever the addition thus made to any fare or other charge shall include a fractional part of a cent, 1 cent may be added by the carrier for and including such fraction." The especial importance of this amendment to electric railways, Mr. Brady stated, is found in the fact that their fares are in a very large number of cases, approximating probably one-half, paid upon the cars in cash to the conductors. This is true even in the case of the longer interurban rides. It is highly important, therefore, that opportunity for controversy be eliminated and the convenience of calculation be facilitated as far as possible. The slight addition to the charge thus provided for would not begin to compensate the carrier for the expense of accounting which the imposition of the tax would cause.

War-Time Economies

Plan for Trainmen to Help Farmers—Women Now Being Considered for Front-Platform Duty

DURING the past week reports from electric railways that are considering the use of women employees continue in evidence. The movement to increase agricultural production has also progressed, and at the present time a large percentage of the railway companies have under cultivation most of the unused land that they hold. A new phase of the movement appears in the recent action of the Beaver Valley Traction Company, New Brighton, Pa., where plans are being laid to have employees co-operate with farmers during harvest time.

The proposed arrangement is outlined in the following abstract of a bulletin to train men published by W. H. Boyce, superintendent Beaver Valley Traction Company: "How many of you would be willing to aid the State and nation by co-operating with such of the larger farmers as might need your services at planting or harvesting time? For possibly two or three days a week, half of our force could go to the country, and of course on these two or three days the other half of the force would have to work double time. This won't be nearly so much of a hardship as some of our boys are going to go through in France. No doubt the farmer would be willing to pay for your services, and the man who stays on the job and works an eighteen-hour turn, together with the man for whom he is working and who has gone to the farm, can pool and divide equally the wages for that day. I am afraid that the gravity of the situation has not been fully appreciated. If we do our duty as American citizens we are going to have work, and plenty of it, cut out for us before another year rolls around. Will you co-operate?"

On the New York, Westchester & Boston Railway, an unusually elaborate plan for truck gardening has been introduced owing to the large amount of unused land held by the company. Early in April all of the employees were notified that the use of such property would be available for gardening purposes, and about 25 per cent of them took advantage of the offer. The plots averaged from one-sixth of an acre to a full acre, each man being given as much property as he desired after he assured the company he would be able to cultivate it. At the present time all of the plots have been

plowed and harrowed, and some planting has been done. Each employee has been furnished with pamphlets of instructions regarding this work, issued by the New York City Commission and by the United States Government, as well as copies of the book of instructions of the Bureau of Agriculture, on the raising of vegetables on a small scale. Last week arrangements were made with a well-informed gardener and farmer to



WAR-TIME ECONOMIES—UNUSED LAND OF THE NEW YORK, WESTCHESTER & BOSTON RAILWAY UNDER CULTIVATION

deliver a lecture to the men so that they could learn how to plant properly and how to store the vegetables which they raise, so that these may be kept during the ensuing winter. With each plot there has been issued a permit providing space for a sketch map of the plot in question, as well as the rules governing the use of the land. The latter require the property to be used for garden purposes only, and the lessee must use reasonable diligence in its cultivation and remove all incumbrances at the conclusion of the lease. The permit, including a report of the crop that is harvested, is to be returned to the company at the expiration of the lease.

EMPLOYMENT OF WOMEN

The employment of women as conductors is still being considered as a possibility by a number of electric railway companies. One feature of this movement is the report that thirty young women of Flushing, N. Y., members of the National Association for Women Service, have volunteered their services as conductors to W. O. Wood, president New York & Queens County Railway. The ostensible reason put forward for this flattering offer is that there is expected to be a shortage of men because of the war.

From England comes a report that the general use of women as motormen is being given serious consideration. This is put forward as the only alternative to a severe curtailment of the tramway service, or even in some cases its entire suspension, owing to the increasing demands for more men by the military authorities. Statements are made that where women have been tried as motormen they have been generally successful. At Glasgow, where they have been used for more than six months, their duties have been performed satisfactorily, and in general they have displayed resourcefulness in the emergencies which have arisen from time to time in connection with the operation of cars. The service in Glasgow is relatively fast, and the vehicular traffic very heavy, so that there is believed to be no insuperable difficulty in finding women able to cope with the conditions elsewhere in the United Kingdom, with the possible exception of a few streets in the metropolitan districts of London.

On the East St. Louis & Suburban Railway the possibility of using women conductors in the event of war emergencies was recently placed before the platform men, who eventually waived all objections on patriotic grounds. On the lines of the Puget Sound Traction, Light & Power Company the possibility of using women operators on one-man cars is being seriously considered as an eventual possibility. In an order of the local Public Service Commission permitting the traction company to put on a number of these light cars in Seattle, the equipment is specifically described as being of a type handled by one "operator," the use of the term "man" being intentionally avoided. These cars, it is said, will be used on short runs, and under these circumstances women are expected readily to qualify for their operation.

Employees of all of the public service corporations of Greater New York are being mobilized through the co-operative action of the various companies and the Public Service Commission, and a number of committees have been appointed to centralize control of the resources and facilities of all of the organizations so that they may work together as a unit during the present emergency. On May 17 a meeting was held to consider means for avoidance of the crippling of service through enlistments of employees who are vitally needed in their present positions, and it was decided that the executive committee of the co-operative organization should act on this matter. One of the plans suggested was for the committee to take up with the exemption boards, which will be appointed subsequent to registration for universal military service, the need for exempting certain specially trained public utility employees, whose services were vitally necessary to the public welfare.

Co-operation Between Railways and N. S. C.

The accompanying reproduction of a recent National Safety Council electric railway poster shows how individual railways can co-operate with the council in the national movement. This can be done by preparing suitable material for local use which can later be brought to the attention of the industry through the council bulletin service. In the present case the source of information is *Safety First Topics*, which is published monthly by the Memphis Street Railway.

An account of the first issue of this publication appeared in the *ELECTRIC RAILWAY JOURNAL*, Aug. 12, 1916, page 294. Its purposes are to keep the employees thoroughly informed of all activities of the company in the safety-first movement and to publish comment and discussion from them.

Electric Railway Service No. 244

Bulletins Are Read by 2,500,000 Workmen Each Week

NATIONAL SAFETY COUNCIL, CHICAGO, ILL.

Most of Our Accidents

Are Caused by Selfishness and Envy

We are continually thinking of our own rights to the exclusion of the other fellow's. We approach a street crossing with the idea that we should have preference over all comers.

Somebody comes along the intersecting street possessed with the same notion of his rights that we have of ours. Each of us attempts to maintain his own rights by "beating the other fellow to it." Each of us is actuated by a "feeling of resentment at what he considers an encroachment on the part of the other. An accident occurs.

Each blames the other and both are right; also, we are enemies. Each thinks the other lacks something of being a perfect gentleman, and again both are right.

Now, had we been willing to concede the other fellow's right, even at the sacrifice of our own, there would have been no accident. Mutual confidence and respect would have resulted. We would have felt the satisfaction that always follows a generous impulse instead of the sting of malice, and incidentally our record would have been clearer.

Courtesy of "Safety First Topics"
Memphis Street Railway Company

Prepared by and issued under the auspices of the Electric Railway Section

RECENT N. S. C. POSTER ON ACCIDENT-PREVENTING COURTESY

COMMUNICATIONS

Practical Trials Suggested for Equalizer-Bar Trucks

THE J. G. BRILL COMPANY
PHILADELPHIA, PA., May 16, 1917.

To the Editors:

It would be probably a beneficial happening if the interest in truck design, manifested in the communications in your May 5 issue by F. M. Brinkerhoff and W. F. Keisel, Jr., would become more general. Doubtless both the operating railroad man and the truck-designing engineers would welcome a condition which would make your columns the medium for a free and open discussion of this much-discussed yet never-settled question of truck equalization.

Mr. Brinkerhoff's article bears the caption "Equalizer Bars Not Necessary," and with this statement I register in the affirmative, because equalizer bars are not necessary, though desirable. S. A. Bullock, however, prefaces his original article on the subject in your April 21 issue—I think very properly—with the remark, "It is desirable that all trucks be equalized," and one must confess that the two statements are widely different.

When Mr. Bullock's arguments are analyzed, it will be seen that his suggestion is to distribute equally the center-pin load on all points of track bearing; *i.e.*, the wheels. Mr. Brinkerhoff agrees with him in the general idea (and I think almost everyone will) but differs in the method of accomplishment. Mr. Bullock favors the equalizer bar, with which we are all familiar and which is adequately described by him, whereas Mr. Brinkerhoff leans toward a flexible side frame for the truck, contending that it gives the same result.

In an equalizer-bar type of truck, the movement of the said equalizer bar is restrained by springs which distribute the load, and if the stability of the truck would permit, these springs (theoretically to produce the best result) should be located at the longitudinal center of the truck, leaving the ends of the equalizer bar free to raise and lower as the track conditions demanded. The need for stability in the truck prevents this central point of bearing. By the very design, however, the nearer the center the more thorough the equalization, with relatively the same degree or uniformity of vertical stress. With the flexible frame design, in my judgment, there is no attempt whatever at equalization, and the stresses consequently vary according to the degree of flexibility, no mechanical means being introduced to equalize or distribute the weight on each of the several track-bearing points or wheels.

In passenger service I personally do not know of any cases where the arch-bar truck has proved satisfactory in comparison with an equalizer-bar truck. I think I can safely say that there have been a great many cases wherein arch-bar trucks were installed under electric motor car bodies and where their failure was most palpable. Furthermore, it is only fair to say that this was with not one make of arch-bar truck alone. Practically all the truck builders who have tried it have met with exactly the same result.

Mr. Bullock and Mr. Kiesel have disagreed with regard to the requisite spring base to produce equalization, but I rather gather they are both talking about a different item, Mr. Bullock referring to the spring base of the equalizing bars of the truck in equalized trucks, which is generally the spring base, and Mr. Kiesel referring to the spring base of the truck. In my opinion the spring base of the equalizing bar should unquestionably be less than the wheelbase of the truck. Perfect equalization would require a centrally-located spring or point for carrying the load, and as a consequence the nearest approach to this longitudinal center that will be permitted by the required stability gives the most efficient system of equalization. I contend that perfect equalization would be obtained from practically a knife edge supporting the weight on the center of the equalizing bar at the longitudinal center of the truck.

tionably be less than the wheelbase of the truck. Perfect equalization would require a centrally-located spring or point for carrying the load, and as a consequence the nearest approach to this longitudinal center that will be permitted by the required stability gives the most efficient system of equalization. I contend that perfect equalization would be obtained from practically a knife edge supporting the weight on the center of the equalizing bar at the longitudinal center of the truck.

After all, a trial may be conclusive, and I recommend the following, realizing fully that while the comparison is between six-wheeled trucks and four-wheeled trucks, it is also between equalized versus non-equalized trucks: Ride on one of the most excellently appointed trains on the Pennsylvania Railroad between Philadelphia and New York, try the Pullman equalized truck and then try a Pennsylvania coach which, I claim, is mounted on a non-equalized truck. To go further, try the two types of truck, the Baldwin equalized design and the non-equalized design operating on the excellently-built road for which Mr. Brinkerhoff is largely responsible—the Hudson and Manhattan Railroad. If the difference in the riding qualities appears to others as it has to me (and I have heard it frequently referred to by laymen), and if the destructiveness to the roadbed is in proportion to the ease of riding qualities, or in anywhere near a similar proportion, the operating heads of electric lines, urban and interurban, will look with more favor on the fully-equalized type of construction which, I think, is championed by most of the truck builders.

It is undeniably true that the equalizer-bar type of truck is an "old timer," but it is equally true that it involves one of the very few principles of railroad vehicular construction that has stood the test of time.

W. H. HEULINGS, JR., Vice-President.

Higher Fares Are Necessary

THE WILKES-BARRE RAILWAY COMPANY
WILKES-BARRE, PA., May 14, 1917.

To the Editors:

I have noticed with interest the editorials in the *ELECTRIC RAILWAY JOURNAL* in regard to higher fares. We have remarked in our community that steps must be taken to increase the unit of fare or decrease expenses. The demand will be greater for taxes, cost of materials and cost of labor, with a probable decrease in riding. Therefore, to maintain street railway properties we must let the physical condition fall below a desirable standard or let the service become less frequent in order to make the ledger balance, let alone not making any profit. It does not take very far vision to observe the increase of labor cost and the cost of material within the past two or three years, with the end not yet in sight, and it is the duty of the railways to show the public that they must get away from the old idea that the 5-cent fare must prevail, although very few companies do receive a full 5-cent fare, it being reduced by tickets in some form or another or by a tremendous number of transfers.

There has been no definite decision on the part of this company as to what procedure it will take. Its policy has been, with a considerable degree of frankness, to tell its patrons what it is facing.

We do not think that the trolley interests of Pennsylvania will become hysterical, but they are all facing the same condition in a greater or less degree. Practically every other line of business has advanced its prices, but public utility companies must secure the assent of commissions before they can do that, and we take it that most commissions are composed of business men who can see this situation.

T. A. WRIGHT, Manager.

Practical and Economical Solutions of Problems in EQUIPMENT AND ITS MAINTENANCE

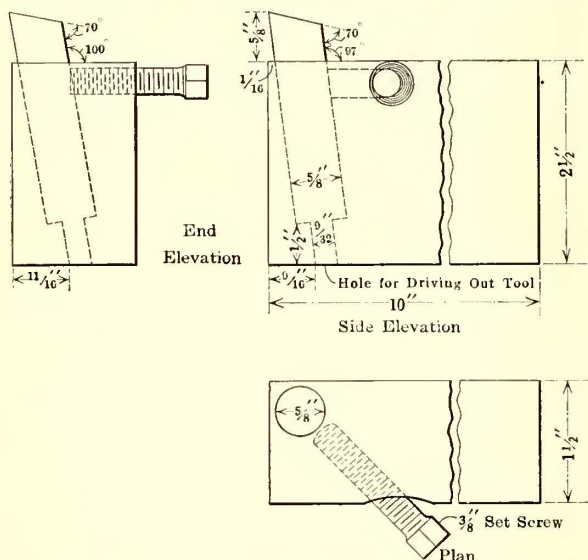
Every live shop, track, line and power plant man is doing something that others would like to know about. Such men have a splendid opportunity to assist the industry by notifying the editors of this paper of new things that have been done. Information may be sent in the form of rough notes or short articles, and special rates will be paid for all accepted material.

Tool Holder for Economical Use of Cutting Steel

BY WALTER S. TITUS

Machinist Auburn & Syracuse Electric Railroad, Auburn, N. Y.

With the present price of high-speed tool steel, economy in the use of it is highly essential. For wheel-turning purposes the writer has designed a tool holder by the use of which a piece of high-speed steel can be worn down to a very short length. The holder is particularly well adapted for use in turning wheels having hard flats, as instead of holding the tool at right angles to the wheel, which allows the tool to spring more or less when entering the hard spots, this tool is held firmly in place in a nearly vertical position. In



TOOL HOLDER FOR USING UP SMALL PIECES OF HIGH-SPEED STEEL

this way it cuts through the hard spots as easily as through any other part of the tread.

The points of superiority of this tool holder over the old kind which holds the tool at right angles to the work are as follows: Economy in the use of high-speed steel, economy in grinding away high-speed tool steel, use of the tool steel with its original factory hardening treatment, ability to provide the proper top clearance to the tool, ability to use scrap pieces of high-speed tool steel by forging them to the proper size, and as the tool holder is less expensive, several of them can be made using holes of different depths. This allows one always to have a sharp tool ready, and increases the efficiency and output of the lathe.

It is the practice in many shops to weld pieces of tool steel onto machine steel shanks in order to use up the small pieces, but in using the type of holder described the original cutting tool can be worn down to a very short length and the labor and expense of welding is avoided.

Filing System for Tracings

A Cabinet, Metal Tubes and a Loose-Leaf Record Book Are Used in This Simple Scheme

BY F. J. FOOTE

Master Mechanic Ohio Electric Railway, Columbus, Ohio

The satisfactory filing of tracings, especially in case there is no filing system being used, and where no money is in sight for an elaborate system, is a subject of great importance to any one who has many tracings in current use. The tube system described below is recommended by the writer as one which has proved adequate and satisfactory under these conditions in the office of the master mechanic of the Ohio Electric Railway. This system is somewhat similar to the one described in the ELECTRIC RAILWAY JOURNAL of March 10, page 449, but differs in several essential points.

Two essential parts compose the system—the filing case and the record book. The photograph shows the filing case (home made) with the tubes containing the tracings in place. There are fifty tubes, each 36 in. long and 3 in. in diameter, and provided with a dustproof cap. Both tube and cap are made of heavy galvanized iron. Each tube is numbered, both on the cap and tube proper. The tracings to be filed are grouped according to any desired classification; each group is then rolled up, fastened with a string or rubber band, and placed in its proper tube. The filing case is 70 in. high, 35 in. deep and 22 in. wide, and the tubes fit loosely in their respective pigeonholes. The tracings are given serial numbers, this numbering having been begun some time before the present filing system was installed.

For the record book, an ordinary loose-leaf record is used. This is divided into three parts, as follows: Part 1, giving a list of classifications of the tracings accord-



CABINET AND METAL TUBES FOR FILING TRACINGS

PART NO. 1	Page #1.
Classification.	Tube No.
Axles and Armature Shafts,----- 1 Bearings: Armature, Motor Axle & Centre, Etc.,----- 2	

RECORD BOOK HEADINGS, SUBJECT CLASSIFICATION

ing to subjects; Part 2, giving a list of all tracings in numerical order, and showing the number of the tube in which each may be found; and Part 3, giving a complete list of tracings to be found in each tube. The advantage of this last part is that by reference to it one

PART NO. 2		Page #1.
Dwg. No.	Tube No.	Title
5001	30	Barney & Smith Truck: Outside Hung Brake Rigging.
5002	30	Barney & Smith Truck: Outside Hung Brake Rigging.

RECORD BOOK HEADINGS, LIST OF TRACINGS ARRANGED SERIALLY

can tell at once if a tracing of a particular part exists, and also the tracing number for it.

A facsimile of a portion of the first page of each part is shown. It will be noticed that each new tracing filed must be recorded in both Part 2 and Part 3. On

TUBE NO. 1	PART NO. 3	Page #1.
Dwg. No.	Title	
5029	Axle for Standard Truck.	
5064	Axle for B & S Type J Truck for C. E. #73 Motors.	

RECORD BOOK HEADINGS, LIST OF TUBE CONTENTS

the side of the filing case is posted for convenience a classification list which is a duplicate of Part 1 of the record book.

The only objection to the system that is of any consequence is that the rolling up and unrolling of the tracings is some little bother. This small disadvantage, however, is more than offset by the low cost, small space occupied, and accessibility of the system.

The Kansas City Western Railway, Leavenworth, Kan., has installed all one-man cars. The city has withdrawn its contest against the reduction in the number of employees, which had been made on the ground that such reduction meant poorer service.

Waste From Coal Mines Used in Seattle, Wash.

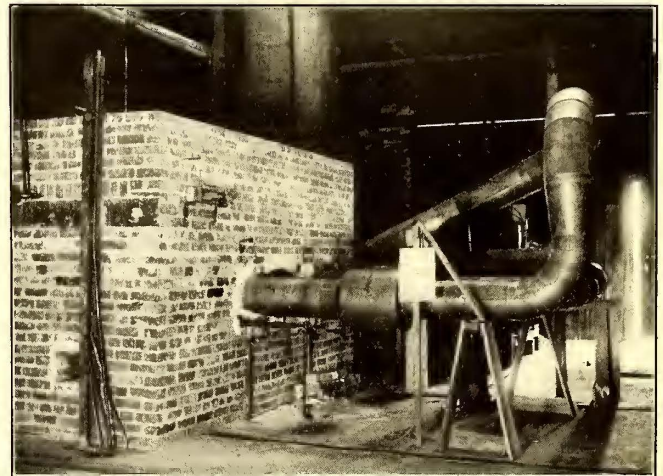
From Experiments Made It Is Practically Assured That Powdered Coal Can Be Readily Burned

BY HENRY HULL

Superintendent Steam Heat Division Puget Sound Traction Light & Power Company, Seattle, Wash.

This company has been experimenting with powdered coal, as there are within a hundred miles of Seattle numerous coal mines with thousands of tons of fine coal piled up which at present is unmarketable and which should be available at slightly above the cost of transportation.

This coal is a lignite variety particularly adapted to use in powdered form due to the high volatile constituent and the very high fusing point of the ash. These characteristics are important inasmuch as a high carbon coal requires fine pulverization and a carefully designed furnace to maintain the high temperature until



TEMPORARY ARRANGEMENT FOR BURNING POWDERED COAL UNDER 300-HP. BOILER. SHEET IRON BURNERS AND EXTENDED OVEN ARE SHOWN

ignition is complete. And a low fusing ash will, when carried in suspension, cling to the tubes of the boilers, close up the flame space and make its operation impossible.

To prepare this coal for burning it must first be thoroughly dried and the moisture content reduced to approximately 1 per cent before it can be properly pulverized. It must then be pulverized to powder form, where approximately 85 per cent will pass through a 200 mesh screen and 95 per cent through a 100 mesh screen if the best results are to be obtained. It should then be fed directly to the furnace, or if transportation or storage is necessary it should be kept air tight so far as possible to prevent absorption of moisture. The danger from explosion when handling this material is eliminated, if it is kept in bulk and not allowed to become suspended in a mixture of air. In the latter case a highly explosive atmosphere may be found which will readily ignite if brought in contact with a flame.

The method of experiment and results of test made by the Puget Sound Traction, Light & Power Company are as follows:

The coal is dried and pulverized by the Pacific Coast Coal Company at its briquetting plant, near Renton, which is equipped with a Raymond pulverizing plant. It is then loaded in a special car equipped for the purpose, which consists of a box car in which is constructed a metal-lined hopper. The car is

spotted at the steam plant over a chute which is connected to the car by a flexible hose and which feeds a small conveyor encased in a metal housing. The coal is elevated and dumped into a bunker, adjoining the power plant, from the bottom of which it is fed by means of two motor-driven screws into the supply pipe. The coal is then blown through the pipe a distance of 30 ft. to the front of the furnace, where it feeds into specially constructed burners, made of sheet iron, as shown in the accompanying photograph. The air supply to each burner is furnished by a motor driven blower with dampers installed to control the

the company finds that (assuming pea coal at \$1.60 per gross ton) the relative prices of the fuels at which it would have equivalent heating values are as follows:

Pea coal on chain grates, at \$1.60 per gross ton, delivered.
 Fuel oil, at 56 cents per barrel, delivered.
 Powdered coal, at \$2.20 per gross ton, delivered.

That the powdered coal can be burned without physical difficulty is practically assured, and the company hopes that within a few months the success of its efforts will have been finally demonstrated.

Novel Truck for City Service

This Design, Which Is Being Tried Out by the Twin City Rapid Transit Company, Has Inside Journals and Band Brakes

A novel form of truck for city service has been developed by W. J. Smith, master mechanic Twin City Rapid Transit Company, and has been placed in service on the new light-weight cars that are being tried out on that company's lines. The major features of the construction are inside journal boxes and band brakes, the principal object of the new design being to obtain lighter weight than is practicable where the journals and truck frames are outside of the wheels. By placing the frames be-

RESULTS OF TEST

Duration of test.....	12.8 hrs.
Average boiler hp. developed.....	357
Total water evaporated.....	143,231 lb.
Average temperature of feed water.....	185 deg. F.
Average steam pressure.....	106.5 lb. gauge
Average temperature of steam.....	399 deg. F.
Average flue gas temperature.....	528 deg. F.
Average draft at uptake.....	0.17 in. water
Average flue gas analysis.....	CO ₂ 17 per cent; oxygen, 3 per cent; CO, 0 per cent
Total coal burned.....	18,389 lb.
Actual evaporation per lb. of coal.....	7.8 lb.
Equivalent evaporation from and at 212 deg.....	8.6 lb.
Boiler efficiency.....	71 per cent

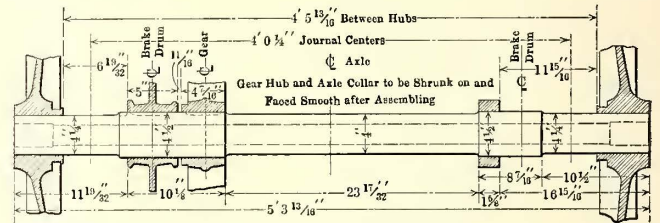
supply. The boiler has been equipped with an extended oven, as shown in picture, in order to furnish sufficient space for the proper ignition and combustion of the fuel.

Above is given a record of a test on the equipment run continuously for 12.8 hours, the duration of the test being determined by the limited facilities for storage and handling of the fuel. The coal was weighed in the car as delivered to the plant and the net weight determined by a subsequent weighing of the car after unloading. The test was run until all coal was consumed. The water was measured by a Venturi water meter installed in an individual feed line to the boiler and all instruments were checked for accuracy before starting. The test was made on a 300-hp. B. & W. boiler on March 23, 1917. The coal analysis is as follows: Moisture, 5.4; volatile, 37.2; fixed carb., 47; ash, 10.4; sulph., 0.56; B.t.u., 11,760.

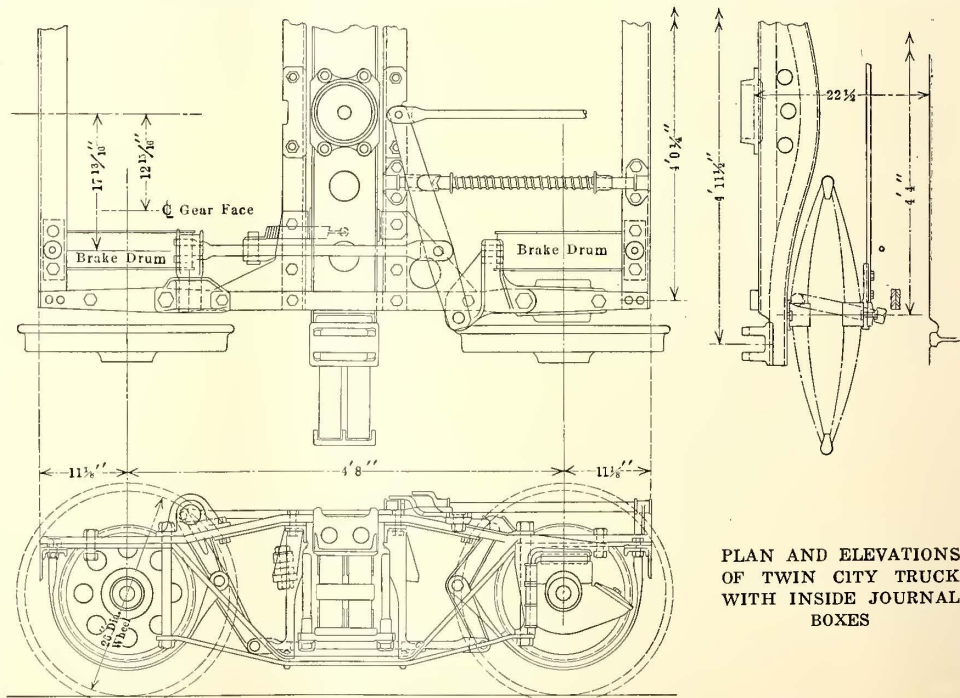
The ash analysis is as follows: SiO₂, 44; FeO, 10.45; Al₂O₃, 32.88; CaO, 7.75; MgO, 2.40. The screen test gave 5.8 per cent on 100 mesh; 34.6 per cent through 100 on 200, and 59.6 per cent through 200.

It was noted during the test that the boiler could be forced to 200 per cent of rating without any apparent damage to brick setting or tubes. The stack was perfectly clear under these conditions, and there was no fusing of the ash. About one-third of the latter was found deposited in the second and third passes of the boiler. The results of the experiment tend to refute most of the adverse criticism of this method of burning coal. There was no formation of slag in the furnace or on the tubes; there was no shower of cinders and ashes emitted from the smoke stack and there was no damage done the boiler from heavy overload under these conditions.

From its experiments in burning these different fuels



DETAIL OF AXLE FOR TWIN CITY TRUCK WITH INSIDE JOURNALS



PLAN AND ELEVATIONS OF TWIN CITY TRUCK WITH INSIDE JOURNAL BOXES

tween the wheels it becomes possible to use lighter axles, and in addition some of the cross members of the truck can be made shorter and of correspondingly decreased weight.

An idea of the construction may be obtained from the accompanying illustrations, of which one shows views of the assembled truck and the other a detailed drawing of the axle. From the former it will be observed that

the single pedestal casting at each wheel interlocks with one side of the journal box casting. The idea of this construction is to leave one side of the journal box free from bolts and to give access for packing the journal box, whose oil cellar is accessible from the end of the truck and not from the side, as is customary. To provide for movement between the truck frame and the journal box a small amount of play between the interlocked members is permitted. There is a rubber pad on top of the journal box, and this, when compressed, permits the box to slide upward slightly along the pedestal casting, along one side of which it is interlocked.

From experience with the trucks under actual operating conditions Mr. Smith states that this design and location for the journal box appear to be satisfactory in every way. The elliptic springs, which are hung by relatively long links from the transoms and which furnish the sole support for the truck bolsters, are 32 in. long, the length being easily attained by extending the springs out between the wheels. Naturally, the riding qualities of the truck are good.

Band brakes instead of the customary brakeshoes are provided at either side just inside of each wheel, making eight brakes in all. These give a total contact surface of about 800 sq. in. In practice this brake has been found to be efficient, smooth and noiseless.

Complete with wheels and axles the weight of one truck is 3200 lb. The weight of one truck together with two motors and the necessary gear case, oil, grease, etc., to make it ready for operation is 5200 lb. The trucks, it may be said, are being operated under cars that are 9 ft. wide and 46 ft. long.

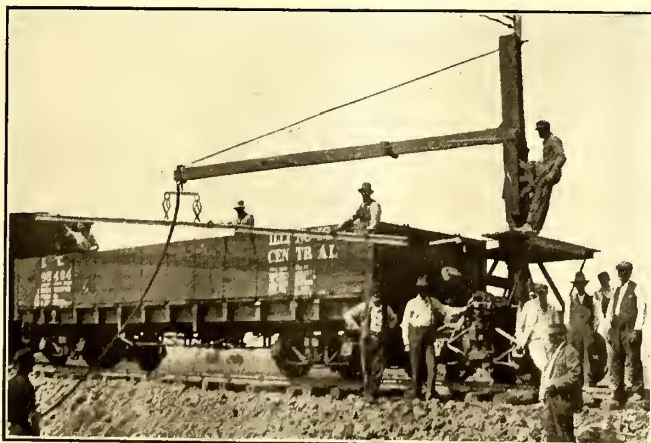
Twenty Men Lay 3/4 Mile of Rail Per Day

BY T. W. SHELTON

General Superintendent, Kankakee & Urbana Traction Company, Urbana, Ill.

During the 1916 construction season the Kankakee & Urbana Traction Company built 6 miles of line between Ludlow and Paxton, the grading for which was done during the preceding fall. In this construction a rail-laying machine, designed by the writer, was employed. With this it was possible to unload rail from the car and lay it at the rate of 3/4 mile a day with twenty men.

The machine consists of a gib crane mounted on an ordinary steam railroad freight car truck, braced in the manner shown in the accompanying illustration. The crane is hand operated from a platform placed high enough to permit the operator to see all details of the operation plainly. A drawbar and coupler mounted on



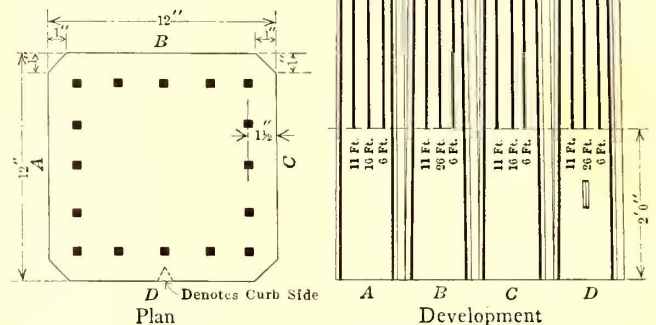
RAIL-LAYING PORTABLE CRANE USED ON KANKAKEE & URBANA TRACTION LINE

the crane pillar provide for connecting the crane car to the rail car. The writer has been granted a patent on this machine.

Home-Made Reinforced Concrete Poles at Richmond

During 1915, the Virginia Railway & Power Company began to manufacture reinforced concrete poles for situations where both permanence and a good-looking line are desirable. These poles are made in 30-ft. and 35-ft. sizes. They are used in place of Albemarle County chestnut which average twelve years of life (eight years minimum to twenty years maximum) and which cost \$6 each for 8-in. tops. The first 35-ft. concrete poles measuring 12 in. x 12 in. at the base and 6 in. x 8 in. at the top, cost \$17 each, which amount, however, included investment charges. In time the cost of this pole will be lowered to \$12, which is not an unreasonable price for a permanent structure.

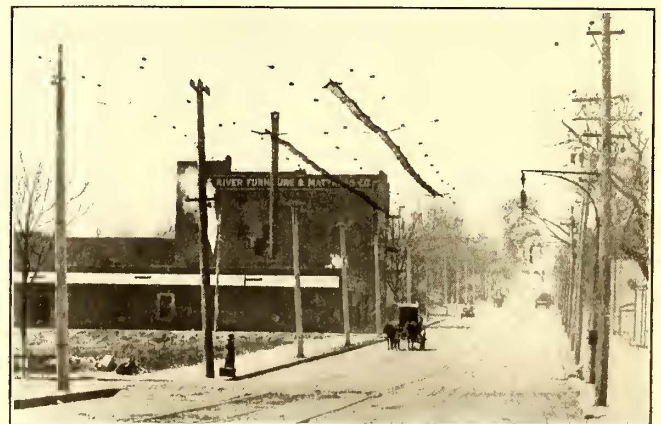
As shown in the accompanying drawing, the poles are reinforced with



DETAILS OF CONCRETE POLE REINFORCING

bars 1/2 in. in diameter, of several lengths, the bars being of Havemeyer upset type. Instead of using lag screws in fixtures, through bolts are used, the holes being cored during forming by means of paper tubes.

By March 22, 1917, the company had made up 100 35-ft. poles and forty-two 30-ft. poles at Richmond; also approximately the same number at Petersburg, from the



VIEW OF CONCRETE POLE INSTALLATION, RICHMOND, VA.

same forms. Norfolk has already made 200 35-ft. poles and a third hundred is under way. The company's present pole forms are of wood, but it is planned to make a more durable construction by using a combination of a concrete base and steel sides.

The accompanying illustration shows an installation of concrete poles in Richmond, Va., the poles shown being on Hull Street, between the James River and Seventh Street.

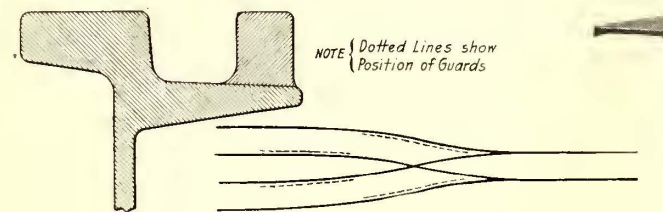
Guard for Tram Rail Made by Electric Welding

BY D. B. MOIST

Chief Engineer, Harrisburg (Pa.) Railways

This company is using 100-lb. tram rail and at a turnout, such as shown in the accompanying illustration, trouble was experienced with the pony wheels of maximum traction trucks leaving the rails. It was therefore decided that a guard was necessary, but instead of installing a separate guard rail, lengths of 1 in. x 1¼ in. mild bar steel were welded to the tram rail, as shown in the accompanying illustration.

A Lincoln welding machine was used, and two men welded the bar to the rail along the four sections in one day without interrupting traffic. Cars have been operating over this turnout for some time since the guards



NOTE { Dotted Lines show
Position of Guards

GUARD RAIL WELDED ON TRAM RAIL; TURNOUT ON WHICH RAIL GUARDS WERE USED

were welded on and no more derailments have occurred. By this means a considerable economy has been effected over the cost of material and labor which would have been necessary if we had had to purchase and install a regular guard rail.

Trolley Wheel News from San Francisco

The United Railroads of San Francisco, Cal., has recently changed from 4-in. to 6-in. trolley wheels, weighing 4¼ lb. new and 2 lb. scrapped. It is now making its own wheels, carefully finishing them on the sides to secure good balance. Case-hardened pins and bushings are used with good results. Seven bushings are made out of 1 ft. of steel tubing costing 35 cents, aside from drilling and case-hardening. A test gave the following results.

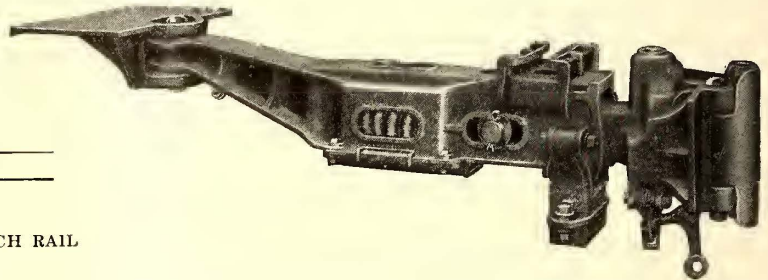
Cold-rolled case-hardened steel pin and case-hardened bushing and wheel installed July 28, 1916, wheel worn out Sept. 4, 1916; second wheel with same pin and bushing installed Sept. 17, 1916, worn out Nov. 4, 1916; third wheel with same bushing but with a tool-steel pin installed Jan. 27, 1917, worn out March 20, 1917; fourth wheel with same bushing and pin installed March 27, 1917, and in use to date. These wheels are used on the San Mateo high-speed interurban cars weighing 76,000 lb. and equipped with four GE-73 motors. The trolley wheel tension is 30 lb.

The trolley base is U. S. No. 6, which has been remodeled by the use of three springs in tandem instead of two.

New M. C. B. Coupler for Interurban Service

A new coupler designed by the Van Dorn Coupler Company, Chicago, Ill., has been brought out to meet the increasing demand which the electric railway companies are facing of interchanging freight equipment with the standard M. C. B. couplers installed on all steam road cars. This new coupler satisfies this requirement and has an added advantage over the standard M. C. B. coupler in that it will permit the operation of cars in trains through city streets where there may be short-radius curves and abrupt changes in grades.

Some of the special features of this new coupler tend to facilitate its use on electric railway systems. The guard arm extending out on the horn side of the coupler and the butting wall on the opposite side and just to the rear of the knuckle produce a "gathering-in" range of several inches more than is found on the usual coupler, and this greatly facilitates coupling on curves. This also helps to align the couplers so that the lock will drop and prevent the knuckles from buckling into the 13 deg. offset of the M. C. B. contour. The coupler shank extends into the forward end of the draft housing and is connected to the spring yoke by means of a 2-in. round pin which extends through to both sides of the yoke and protrudes outside of the draft-gear housing. The coupler head pivots vertically on this pin and



NEW M. C. B. COUPLER SUITABLE FOR INTERURBAN AND CITY SERVICE

is held in alignment by means of a triple head-support which is located in the casing at the forward end of the draft housing. This head-support is so constructed that it adjusts the wear plate upon which the coupler rests to conform to any position of the coupler and thus brings the same bearing area into play at all times. This pivoting of the coupler head permits the couplers to assume the most natural angle and thus allows the knuckles to slide freely the necessary distance, whenever a train of cars is operated over any abrupt change in grade. This freedom from binding relieves the car platforms of abnormal strains. The coupling of cars on uneven tracks without the necessity of bumping them together unduly hard is also made possible through this arrangement, since only part of the weight of the coupler head, instead of the usual full weight of the drawbar, needs to be lifted or depressed in order to produce a vertical alignment of the knuckles.

One of the features of this coupler is the construction which gives it a positive lock and at the same time provides that it remain always in the unlocked position even with the knuckle closed, so that trainmen are relieved of the necessity of holding on to the uncoupling rod during the process of uncoupling. The knuckle is thrown wide open upon lifting the lock 4½ in.

The coupler carrier is connected with a radial bar and supports the draft-gear housing at its forward end by means of a sliding connection. The couplers are equipped with the Hercules spring draft gear which automatically absorbs the slack between cars of a train.

News of Electric Railways

Traffic and Transportation

Financial and Corporate

Personal Mention

Construction News

Progress in Chicago Situation

City Council Has Taken Several Necessary Preliminary Steps Toward Carrying Out the Traction and Subway Commission Plan

Since the presentation of the Chicago Traction & Subway Commission report early in December, the local transportation committee of the City Council has been almost constantly at work studying the plan recommended by the commission and holding public hearings on it, looking toward the preparation of suitable bills for approval by the Council which could then be sent to the State Legislature for passage. While considerable delay has been brought about by the Socialists and the municipal ownership propagandists in the consideration of these bills, the Council has finally approved bills embodying the principal legislation needed.

On May 9 the Council indorsed, almost unanimously, a so-called "home-rule" bill which is modeled after the State public utilities act and transfers to the City Council the control over service and rates which is now held by the utilities commission. Control over the issuance of securities will, however, still be retained by the commission. The bill if passed will give the city the right to appoint a board of control or commission to carry on the work of regulation. At the last minute an amendment was read into the bill through which the City Council retains the right to recall a member of the commission. Similar bills introduced at previous sessions of the Legislature were lost principally because of the objections from steam railroads and suburban towns surrounding Chicago.

Under the present proposed bill, however, the State Utilities Commission would have authority over any through lines and the local board of control would have jurisdiction over local service and rates. There is still considerable opposition to this bill in the State Assembly, and if it fails in passing it is thought that a home-rule clause will be inserted in the franchise bill which has also been sent to the Legislature on approval of the City Council. If the measure meets with failure here, it will probably mean an end to the whole plan, at least for two years, or until the next session of the Legislature, since practically all other enabling legislation hinges upon local control of the transportation systems. The present Legislature will probably adjourn on June 15.

MERGER BILL APPROVED

A bill providing for the merger of the elevated and the surface lines in Chicago was also approved on May 9 by the City Council, as part of the program outlined by the traction and subway commission. Should this merger bill pass the Legislature and the unification be brought about, it would combine 1049 miles of surface lines and 162 miles of elevated railroad. The purchase price of the surface lines is \$451,650,000, while that of the elevated system, according to the traction and subway commission's evaluation, is \$70,400,000. This bill permits the consolidation of street railways and a "local railroad," the latter name having been adopted to differentiate between the elevated and steam railroads. One feature of the bill is a clause which provides that any stockholder who does not acquiesce in the consolidation scheme may file a court petition stating his disapproval, and that he shall become obliged to sell his holdings to the new corporation at a price fixed by the court. The vote of the City Council approving this merger bill was fifty-one to fifteen.

FRANCHISE BILL APPROVED

The traction and subway commission report recommended the adoption of an indeterminate franchise, but this was at-

tacked, principally on the ground that it was virtually a perpetual franchise. In the commission's report it was pointed out that this type of franchise, granting as it did the right to use the city streets as long as the company complied with the requirements of good service which might be dictated by a board of control, could never be gained until the State constitution was so amended as to give the city the financial ability to exercise its right to take over the transportation systems. Until it has that right, the city will be without means of enforcing regulatory measures.

STRAIGHT THIRTY-YEAR FRANCHISE APPROVED

The commissioners and railway officials thought that a fifty-year franchise was necessary in order to carry out the construction program. It was impossible, however, to get much consideration from the Aldermen for a franchise of this term at the present time. Several weeks ago the Council voted down a thirty-twenty-year franchise bill which provided that the city could take over the property at any time upon paying the agreed purchase price, or could take it over at the end of thirty years without paying the full price but by assuring interest payment on the unamortized portion of the investment. This was objected to as a fifty-year franchise in disguise. Finally, on May 9, a straight thirty-year franchise bill was approved by a vote of forty-three to twenty-four and sent to the State Legislature, the city not having the right to grant a franchise in excess of twenty years. This franchise bill is made inapplicable to other cities in the State. The bill allows the city to take over the transportation companies at any time on the payment of the purchase price, and also provides for amortization of the investment. It further provides that at the end of thirty years, the city may take over the property subject to a lien on the earnings which are to be used for the payment of interest on outstanding securities, but the city shall not assume to pay the principal thereof. It is expected that the earnings of the property will be great enough to pay interest on the securities and provide for the amortization fund, so that in another twenty years beyond the thirty-year franchise period the city would automatically acquire full title to the property.

In order to remove the doubt expressed by counsel as to the right of the city to construct and own subways, a bill covering this matter was approved by the City Council on May 9 for transmittal to the State Legislature.

All bills recommended to the Legislature in connection with the traction program contemplate that no ordinance in connection with them shall go into effect until after a referendum vote at some regular or special election. If the whole program is passed by the State Legislature, and the ordinances are drawn up and agreed upon, popular approval will be sought at the November election this year or the April, 1918, election.

FURTHER PROGRESS DEPENDS UPON LEGISLATURE

Further progress in the solution of the Chicago traction situation now depends on the action of the Legislature. With passage of the proposed bills, the bigger problem of drafting a working ordinance still remains to be done. Many of the Aldermen have approved the present bills with the understanding that in the formulation of the ordinance there will be opportunity for further hearing and working out of many objectionable points. With the railway men favoring consolidation and believing that the financing may be accomplished on a thirty-year franchise grant provided the present construction expenditure outlined by the traction and subway commission is rearranged, or at least is not increased for the first period of the program, it is possible that a settlement may be reached in another year.

Middlesex Wage Decision

Arbitrators Who Considered Wages on Middlesex & Boston Street Railway Praise Company Management

The arbitration committee appointed to consider the matter of wages for the employees of the Middlesex & Boston Street Railway, which operates 130 miles of line in Massachusetts, has reported its finding. The board recommends an increase of approximately 10 per cent in the wages of the trainmen of the company and a proportionate increase in the wages paid to carhouse men and other employees. Among the other questions which the board had before it for settlement was whether the award should terminate on July 1, 1919, or on some date before that time. On this point the board ruled that the award shall terminate on July 1, 1919.

CONTENTIONS OF MEN AND COMPANY

The contention of the men before the arbitration board was that the wages should be increased to the same extent that the cost of living has increased since the last award, which was on June 23, 1914. The company contended that the wages should not be increased at this time because (a) its financial condition was such that any increase would prevent the payment of dividends to stockholders and impair the ability of the company to make necessary expenditures for maintenance, and (b) the increase in the cost of living since the last award was due in part to extraordinary and temporary conditions resulting from the war.

As regards the objection of the company the board expressed the opinion that the limitation upon the income of the employer in this instance was one largely within the control of the Public Service Commission. It stated that, obviously public interest required a continuation of the public service rendered by the railway and that continuation of this public service ought not to be allowed to go on at a loss either to the owners or to the operatives. The board said further that the most careful scrutiny of the history, organization and management of the company had convinced it that the company was and had been most economically and efficiently managed and had been extremely conservative in the payment of salaries to executives. It was also clear beyond the slightest doubt that the present straightened financial condition of the company was not due in any measure to extravagance or lack of efficiency. On this point the board said: "It does not seem possible that any company could be better or more thriftily conducted."

The board also expressed its appreciation of the proposition of the company that the stockholders were entitled to dividends which should represent a living wage for their invested capital. The board said that the necessity was immediate and insistent for providing public service corporations with means to pay adequate wages to men upon whose continued employment and experience safe operation depended. In this connection the board said: "In establishing what we believe to be a no more than adequate scale of wages, we have in mind the declarations of the Public Service Commission in the Middlesex & Boston rate case, and we earnestly emphasize our conviction that it is essential that relief be granted to the company."

WHAT THE NEW SCALE MEANS

At present the weighted average wage of the blue uniform men amounts to 27.986 cents an hour. The board said that an increase of 9.311 per cent would produce a weighted average wage of 30.592 an hour, or an increase of 2.606 cents per hour. Applying the factor 9.311 to the present wage scale and using as a basis the conditions as to employment as they existed in the year 1916-1917, the scale for the year which will end July 1, 1917, is as follows: first year, 26 cents; second year, 28 cents; third year, 30 cents; fourth year, 32 cents; fifth year, 33 cents. For the period which ends July 1, 1918, the award is as follows: first year, 27 cents; second year, 29 cents; third year, 31 cents; fourth year, 33 cents; fifth year, 34 cents. For the third period, that which will end on July 1, 1919, the schedule adopted is as follows: first year, 27.5 cents; second year, 29.5 cents; third year, 31.5 cents; fourth year, 33.5 cents; fifth year, 34.5 cents.

The board said that the same reason which dictated an in-

crease in the rate of wages made to the blue uniform men also required a proportionate increase in the wages made to the carhouse men and other employees. The board found, however, that it was not practicable to adopt a graduated scale for carhouse men and other employees and established schedules for these men proportionate to those granted to the trainmen. The present rate of pay for carhouse and other miscellaneous employees exclusive of trackmen and track oilers ranges from 20 to 35 cents an hour. The award raises the foregoing to maxima of 23 and 40 cents an hour for the 1918-1919 period. Trackmen receive from 25 to 29 cents an hour at present and are to receive 28.75 to 33.5 cents maximum under the award. Track oilers, receiving 20 to 25 cents, will be increased in the final year to 23 to 28.75 cents. The board held that the financial condition of the company is such that it ought not to pay for any unnecessary time, in passing upon the question whether all regular runs should pay at least nine hours' wages. Moreover, the practical difficulty which rendered it inadvisable to grant a graduated scale of wages for carhouse men and other employees also rendered it undesirable to establish a minimum wage for such employees.

COMPANY REPRESENTATIVE DISSENTS

A minority report by A. A. Ballantine, on behalf of the company, dissented from the wage increase because the award raises the wages beyond the ability of the company to pay. Experience since the award of 1914 showed that despite the increase of fares granted by the Public Service Commission the additional revenue had been insufficient to pay the increased wages and expenses of the company and maintain the former 4 per cent return on its stock. For the year ended June 30, 1916, the dividend had to be reduced to 3.25 per cent. The award now made for the current year wiped out more than half the amount needed to maintain even that insufficient rate. Even if the Public Service Commission allowed the company to increase its charges it was doubtful whether the company could secure from its business under present conditions revenue sufficient to meet its expenses, including wages at the rates now prescribed, and permit anything like a fair return upon the investment.

The award was signed by Henry C. Sawyer, chairman, and James H. Vahey, representing a majority of the board.

Rails Removed at Night

Four blocks of rails of the double-track street railway on McGee Street, Kansas City, Mo., were torn up between midnight and 6 o'clock of the morning of April 10, by a squad of workmen commanded by Fred A. Richardson, street commissioner. Mr. Richardson was acting under written instructions from Mayor Edwards. The plan of rerouting cars which have used this street will now be put into effect according to a routing ordinance passed several months ago. The night removal of the rails was planned to avoid the securing of an injunction by business men who opposed traffic being diminished on this thoroughfare.

The city and the Kansas City Railways had agreed some time ago on the removal of the tracks in the four blocks and on the rerouting of cars, involving the construction of a short track and new curves. The Kansas City Railways last November began the work of removing the rails, but was stopped by an injunction issued by the Circuit Court of the county. The injunction read against "The Kansas City Railways and John Doe."

The Kansas City Railways has been held in contempt of court for its alleged part in tearing up the McGee Street tracks and has been ordered to replace the tracks within sixty days. The court withheld action on the motion to cite Mayor Edwards for contempt. The judge intimated, however, that the disposition of the Mayor's case would depend largely on his activity in assisting the railway in replacing the tracks. It was shown that there had been conferences between the railway officials and the city, presumably on the subject of the track removal. The court found that the contractor who assisted was in the position of an agent of the company; that the cars were routed elsewhere after the tearing-up began, and that the company furnished a work car. The company will appeal to a higher court.

Strike on I. U. T. Line

Brotherhoods Fail in Attempt to Tie Up Lines of the Indiana Union Traction Company

Efforts on the part of the Brotherhood of Locomotive Engineers and the Order of Railway Conductors to organize the trainmen of the Union Traction Company of Indiana, which have been in progress for several weeks past, resulted in about thirty-six interurban trainmen walking out on Sunday morning, May 13, in response to a strike call made by the brotherhoods. About 200 trainmen refused to respond to the call, so that while the schedules on some divisions were affected for a time the interruption to service was not serious. The schedules of the main lines of the company, operating out of Indianapolis to Anderson, Muncie, Newcastle, Kokomo, etc., were maintained, and extra train service was provided between Indianapolis and Fort Benjamin Harrison, where the training camp of the officers' reserve corps is established.

The employees of the city lines of the Union Traction Company in Anderson, Marion and Muncie were not affected by the strike. In these cities, however, mass meetings were planned for May 14 to try to arouse sympathy for the striking trainmen, and full-page advertisements were inserted in the principal newspapers submitting the case of the employees to the people.

CONTENTION OF THE BROTHERHOOD

The brotherhoods claim that the present trouble arises from the discharge of interurban trainmen of the Union Traction Company in March, 1917, on account of their activity in attempting to induce other employees to affiliate with the Order of Railway Conductors and the Brotherhood of Locomotive Engineers. An attempt was made early in April by officers of the two brotherhoods to confer with H. A. Nicholl, general manager of the company, but Mr. Nicholl declined to concede the right of the brotherhoods to represent the discharged employees and refused to meet them. The brotherhood officers then submitted the matter to W. L. Chambers, Commissioner of the United States Board of Mediation and Conciliation. They asked for mediation under the Newlands act, and stated their reluctance to distribute strike ballots in view of the published policy of the National Council of Defense.

On April 11 Judge Chambers conferred with F. A. Burgess and T. A. Gregg, representing the brotherhoods, and also with Arthur W. Brady, president of the Union Traction Company of Indiana, but was unable to bring about any joint conference. Judge Chambers notified the brotherhood officers that Mr. Brady declined to meet them on the ground that his company did not recognize organized labor and he saw no reason to change its policy.

PRESIDENT BRADY STATES COMPANY'S CASE

Mr. Brady wrote to Judge Chambers on April 13 confirming an offer which he had made at their conference, that on individual application by any of the discharged motormen and conductors the causes of their discharge would be reviewed by Mr. Nicholl, general manager, or Mr. Brady, or both, and if any of the men should not be reinstated, Mr. Brady would then take under consideration the question of submitting the case to arbitration in the manner provided by the Newlands mediation act of July 15, 1913. Mr. Brady then called attention to the fact that twenty-four trainmen were discharged early in March and that no request for a review of their cases had been made by any of the discharged men or by their fellow employees, nor had any committee of employees presented any statement of grievances. He said, however, that on April 12 a paper was circulated among all the interurban trainmen to ascertain their views as to desirability of membership in the two brotherhoods. This was signed by 216 of the men. Eighty per cent of the men went on record as against any change of working relations with the company, and only two men did not sign the paper.

The controversy was the subject of considerable discussion and correspondence between W. L. Chambers and Daniel Willard, president, and Walter S. Gifford, director, of the National Council of Defense, and L. S. Storrs, president of the American Electric Railway Association, and was

referred in a communication to Newton D. Baker, Secretary of War, in an attempt to remove any misunderstanding of the statement of the National Council of Defense when it advised "that neither employers nor employees shall endeavor to take advantage of the country's necessities to change existing standards."

On May 2 Judge Chambers wrote to Mr. Brady, renewing the offer of the Board of Mediation and Conciliation to arbitrate the differences between the discharged men and the company. Mr. Brady replied on May 4, expressing his appreciation of the courtesies extended, and closed by saying: "Our relations with our employees remain cordial and satisfactory and events since your trip to Indiana convince me that the instruments signed at that time by practically all our motormen and conductors express their genuine and sincere sentiments and intentions. Further agitation of the subject cannot be in the public interest and is manifestly undesired by our employees."

On May 12 T. A. Gregg, vice-president of the Order of Conductors, and F. A. Burgess, assistant grand chief of the Brotherhood of Locomotive Engineers, in a communication to Mr. Brady announced that, having failed to reach an amicable adjustment of the differences, a strike would become effective at 4 a. m. on May 13.

On May 15 officials of the Union Traction Company notified the striking trainmen that they must apply individually for reinstatement before noon on May 16 in order to receive consideration. The superintendent at Marion announced on the evening of May 16 that sixteen men reported for work under the company's conditions. Other striking trainmen declared they would hold out for recognition as members of brotherhoods and stated that there were no further desertions from their ranks. The company reports that practically regular schedules are being operated on the system and that all passenger and freight schedules were normal on May 18.

Preparing for Cincinnati Work

A partial organization of the working force to prepare plans and specifications for the proposed rapid-transit loop at Cincinnati, Ohio, was effected at a meeting of the Rapid Transit Commission on April 4. Frank L. Raschig was appointed principal assistant engineer at a salary of \$5,000 a year, while J. R. Biedinger, F. F. McMinn and P. R. Kirstein were appointed designing engineers at salaries ranging from \$2,100 to \$2,400 a year. H. C. Kleemeier was appointed assistant engineer and W. C. Boone was appointed draftsman. All these men were associated with Frank S. Krug, chief engineer, in his office as city engineer. Departments will be combined and their places will not be filled in the city office for the present.

The commission has approved the answer to the petition of David S. Oliver, who as a taxpayer recently brought an injunction suit against the city and the commission to prevent the construction of the loop. The answer of the commission will be filed in court at once. The commission denies all the allegations contained in the plaintiff's petition.

MAYOR TO SUPERVISE FARE AND TRANSFER PROBLEM

At a conference on May 9, in which the members of the Rapid Transit Commission, Mayor Puchta, City Solicitor Groom, Chief Engineer Frank S. Krug and former Mayor Frederick S. Spiegel took part, it was decided that the Mayor should have supervision over the fare and transfer question and pending and proposed construction of the surface lines. The members of the Rapid Transit Commission are to devote their attention wholly to the construction of the rapid transit loop. Mayor Puchta has been authorized to ascertain the course to be followed in making an appropriation for the payment of a street railway commissioner. Until this is done no commissioner will be appointed.

In connection with the proposed universal transfer system, which was intended to go into effect on May 15, Mayor Puchta stated that he would have authority to amend the schedule after it is approved, if found necessary. It must provide for transportation from one point to another by the shortest possible route at a fare of 5 cents. The 5-cent fare on the Millcreek Valley route, under the provisions of the new franchise, was to have gone into effect on May 15.

Municipal Men Get Increase

At a conference of the Mayor and city officials of San Francisco, Cal., on April 27, it was unanimously voted to increase the pay of all car and platform men, trackmen and repairmen of the San Francisco Municipal Railway 5 cents an hour, or 40 cents a day. The conference was presided over by Supervisor Wolfe and was participated in by Mayor James Rolph, Jr., President Reardon of the Board of Public Works, Superintendent T. A. Cashin of the Municipal Railway, and members of the committees on finance and public utility of the Board of Supervisors. The decision was expressly based upon two grounds, first that it is now virtually impossible for a workingman to live in San Francisco on a wage of \$3 a day; and second, that the municipal railway of San Francisco has proved such a financial success that there is no plausible reason for denying a living wage to its employees.

On May 7 the Board of Works passed a resolution recommending that the employees of the municipal street railway receive an increase in pay of 50 cents a day. The question was then referred to the Board of Supervisors' finance committee.

Superintendent Cashin explained that the proposed wage increase will amount to about \$93,000 a year. Originally he figured on an increase of 5 cents an hour, which for an eight-hour day would amount to 40 cents a day. This he estimated would cost \$78,000 a year. President Reardon of the Board of Works said that whether this money shall come by reduction of the 18 per cent of the gross earnings that have been set aside for depreciation, redemptions and bonds, or out of the tax levy, is a matter for the Supervisors to decide.

Wage Increase in Chattanooga.

The trainmen in the employ of the Chattanooga Railway & Light Company, which operates in the city and vicinity, asked for an increase in wages of 1 cent an hour. The present minimum is 19 cents and the maximum 26 cents for the fifth year. On Oct. 7, 1916, the company made a new working agreement with its men to be effective for one and one-half years. This agreement was on the open-shop basis. Arbitration was provided as a means of adjusting wages only in the event the company did not increase the wages prior to April 7, 1917, or within six months of the date of signing the new agreement. Prior to April 1 an advance of 1 cent an hour was announced by the company. The men were not satisfied with this increase and demanded arbitration. This was declined by the company in view of the fact that the advance was made within six months of the execution of the agreement, thus complying in full with the statement and terms of the agreement. The company has notified its employees that they will receive another increase as soon as the earnings justify it.

Negotiations Continued at East St. Louis.—The conferences between the officers of the East St. Louis & Suburban Railway, East St. Louis, Ill., and the trainmen of the company over the working conditions of a new contract to take the place of the one that expired on May 1 were still being held on May 17.

Strike on Cincinnati Interurban Line Settled.—The motormen and conductors on the Cincinnati, Georgetown & Portsmouth Railway returned to work on May 11 after the company had signed an agreement recognizing the union and reinstating the president of the local branch of the union. The strike lasted about a week.

Strike in McAlester Ended.—The strike of motormen and conductors on the Pittsburg County Railway, McAlester, Okla., has been ended and the men have returned to work. The trainmen demanded a wage increase of 4 cents an hour, and the company offered an advance of 2 cents. A compromise was reached on an advance of 3 cents an hour for all motormen and conductors.

State Mediators Called.—George F. Miles and Ralph Maxwell, State mediators, went to Alliance, Ohio, on May 10 to aid in the settlement of a strike of motormen and conductors on the Stark Electric Railroad and the Cleveland, Alliance & Mahoning Valley Railway. The men quit work

on the refusal of the company to increase their wages 5 cents an hour and recognize their union. They had been out several days when the mediators interceded.

Rhode Island Valuation Report Presented to State.—The special State committee appointed to investigate the financial affairs of the Rhode Island Company has held a conference with the federal trustees in charge of that property, and has received from them a complete report on the valuation of the company's physical plant, taken during the past few months by the company. Chairman Zenas W. Bliss states that this report will be the basis of the State investigation. The contents of the report have not yet been made public. The formal hearings have not been scheduled.

Utah Interurban Men Seek Increase.—The trainmen in the service of the Ogden, Logan & Idaho Railway, Ogden, Utah, have a contract with the company which expired on May 15. Their pay under this contract has been 25 cents an hour for the first two years, 27½ cents for the next two and 30 cents after four years. The men are seeking an advance over these rates. They have granted William H. Whitney, the new general manager of the company, an additional four weeks in which to reply to their request.

Wage Increase Without Change of Contract.—On account of the increased cost of living, the Aurora, Plainfield & Joliet Railway, Joliet, Ill., has voluntarily decided to pay all trainmen an additional 2 cents per-hour wage, until further notice. This increase is not to affect the terms of the company's contract with the men, which runs until July 31, 1918, and the company reserves the right to resume the wage scale provided in the contract at any time. Carhouse men, trackmen, linemen, substation men, dispatchers, agents, and office and park employees have also received an increase in proportion to the trainmen.

New Working Agreement in Salt Lake City.—Articles covering a new labor agreement between the Utah Light & Traction Company, Salt Lake City, Utah, and employees were agreed to recently at the conclusion of a conference of several days between H. F. Dicke, general manager of the company, and a committee of seven, representing all the trades in the company's service. It is stated that the new contract does not differ materially in its terms from the old one, but that the conditions which in future will govern the relations of the men and the company will not be made public until the agreement has been ratified by the men.

Full Service in South Bend.—Full operation of cars continues without interruption on the lines of the Chicago, South Bend & Northern Indiana Railway in South Bend. Governor Goodrich advised the union officials that the company had informed him in a letter from General Manager Hardy that the men had received an opportunity to return to work; that all schedules and lines were in operation, and that the company could not accept the offices of any board of arbitration. Therefore he could not appoint such a board. A delegation of the strikers called on the Governor late on the afternoon of May 16, however, and again urged the appointment of a board of conciliation.

Increase in Wages in Los Angeles.—Howard Huntington, general manager of the Los Angeles (Cal.) Railway Corporation, on May 4 ordered the pay of the trainmen raised approximately 7½ per cent, the raise to be effective immediately. This raise will increase the company's payroll \$120,000 a year and was made because of the increase in living cost. In addition to the present 7½ per cent increase it was announced that an additional increase of 7½ per cent will be paid the men if the jitney bus competition is curbed. This additional raise will, if the railway men are successful in their initiative petition against the jitneys, mentioned previously in the ELECTRIC RAILWAY JOURNAL, mean an additional expense of \$120,000 annually to the company.

Tripper Arbitration for New York State Railways.—Resort will be had to arbitration to settle the differences between the New York State Railways, Syracuse, Utica and Rochester lines, and the Amalgamated Association of Street & Electric Railway Employees in the matter of adjusting the tripper scale of pay on those lines. Under present conditions, union officials say these men are able to put in not more than six hours daily. They have asked

that all time under six hours and over four hours be rated at six hours, and all time over six hours and under nine hours be rated as a full day. It is understood that the Amalgamated men have submitted the name of their arbitrator to the railway officials and that the entire mediation committee will be announced and a hearing held soon.

Suit for Failure to Pave Right-of-Way.—The Commissioners of Franklin County, Ohio, have filed suit against the Columbus Railway, Power & Light Company for \$230,000 damages, because of the alleged refusal of the company to pave its right-of-way on Harbor Road. The petition alleges that the county must do the work at a cost of \$180,000 and that because of this refusal the contractor now refuses to do the county's share at the original figures and the county will be compelled to pay \$25,000 more on account of the increase in the price of materials. In addition it is claimed that property owners suffered damage to the extent of \$25,000 because of the delay. The company's franchise will expire in June and it declared that if a new franchise was not granted it would be compelled to remove the Westerville track and discontinue service.

Increase in Wages in Seattle.—For the second time this year the wages of the trainmen in the employ of the Seattle division of the Puget Sound Traction, Light & Power Company have been raised, and the increase has been made retroactive. Last January, when the company announced an increase of 1 cent an hour, it was stated that another increase of 1 cent an hour would be put into effect on July 1 of this year. The recent order, however, makes the promised increase take effect on May 1. Two other changes are made that were not contemplated in the order of Jan. 1. Trainmen while breaking in students will receive henceforth 2½ cents an hour extra, whereas the extra pay of men serving as instructors has been 1 cent an hour. Hitherto the newly employed trainmen have been receiving a minimum wage of \$55 a month. Hereafter the lowest wage paid by the company to its trainmen will be \$65 a month. The increase in pay now in effect will add about \$43,000 annually to the operating expense of the company. Speaking of the increase in wages, G. A. Richardson, general superintendent of railways, said, "The changes are made at this time on account of the increased cost of living, caused by war conditions, which were not anticipated when the order of January was posted."

Programs of Association Meetings

Iowa Electric Railway Association

The annual convention of the Iowa Electric Railway Association, arranged to be held at Des Moines, Iowa, on May 24 and 25, has been postponed for a year.

Illinois Electric Railway Association

The regular meeting of the Illinois Electric Railway Association which was to have been held on May 18 in Chicago was called off owing to the present uncertain conditions.

American Society of Mechanical Engineers

The spring meeting of the American Society of Mechanical Engineers will be held in Cincinnati, Ohio, May 21 to 24. The program reveals two important features of this meeting—sessions on munitions manufacture and a joint session with the National Machine Tool Builders' Association.

New England Street Railway Club

For the next regular meeting of the New England Street Railway Club at the Hotel Brunswick, Boston, Mass., on May 24 the principal speaker of the evening will be Charles F. Weed, president of the Boston Chamber of Commerce, Boston, Mass. Mr. Weed is vice-chairman of the executive committee of the committee on public safety, and has made a thorough study of the needs of the country under war conditions. His subject will be "New England's Part in Preparedness." There will also be heard a few words from some of the distinguished military and naval men, who will be present as guests.

Financial and Corporate

The War and the Utilities

Decline in Security Prices Causes Comment—Increased Fare Proposals Should Serve to Reassure Holders

With respect to the prices of public utility and other investment securities, the times are sadly out of joint, as Shakespeare has said,—so sadly so that at the time this was written the quotations of many of the standard utility and railroad issues dealt in on the exchanges were at or below the levels reached in the panic of 1907. The liquidation of high-class investment issues Boersianer in the *Chicago American* ascribes to the fear of imprudent economic legislation. According to him investors preferred to exchange their holdings for what Disraeli called the "sweet simplicity of the 3½ per cents."

Managers are interested in the subject of the effect on their credit caused by an era of decline in security prices such as the present, and one of them, Samuel Insull of the Commonwealth Edison Company, Chicago, has raised his voice in behalf of the utilities. He says that the depression in prices is unwarranted. While he admits that expenses are high, in speaking more particularly about the Commonwealth Edison Company, the People's Gas Company, the Public Service Company and the Middle West Utilities Company, he says they are by no means so extreme as to have warranted the depreciation in the price of the general run of utility securities. Another authority has urged the holders of utility stock to retain their securities as it is only a question of time when the situation will right itself.

All connected with the industry should take their cue from the recent remarks of President Sullivan of the Bay State Street Railway and do what they can to drive home the imperative need of the service which they render. Many electric light, power and gas companies already have wonderful merchandising organizations, but for the vast majority of these companies only the surface of business has been scratched. There is nothing spectacular in prospect for the holders of the securities of such companies, but there is something much more important in view from the standpoint of the conservative investor—a steady, consistent increase in business which has back of it a real need on the part of the general public.

What intensive merchandising methods can accomplish for the electric railway, however, is still an unsettled problem. Earnings of utilities are unusually stable, irrespective of whether financial conditions are good or bad. This applies in a large measure to the electric railways as well as other utilities, but the electric railways are handicapped as compared with the electric light, power and gas companies because they do not respond in anything like a similar ratio to quickened commercial activity.

While the declines in the prices of many issues dealt in on the exchanges have called for comment from Mr. Insull and others, investment houses that specialize in utility issues report no undue liquidation. This is true not only in New York, but in New England and in other centers where such issues are disposed of direct to the public over the counter. The utilities have on the whole built well for the future, and with a return to normal of many things that enter into their operation the increases in gross that many of the combined railway and lighting companies are enjoying and are likely to continue to enjoy will loom large.

There is no mistaking the fact, however, that many electric railways are finding it increasingly difficult to make ends meet. Relief has already been granted by the regulating bodies in a number of cases, and applications are under way for other measures that will serve to augment the earnings of these companies without being unduly burdensome to the users of the service. These efforts should serve not to quicken liquidation, but to reassure holders of securities that their interests are being carefully safeguarded.

Annual Reports

Hudson & Manhattan Railroad

The comparative income statement of the Hudson & Manhattan Railroad, New York, N. Y., for the two years ended Dec. 31, 1915 and 1916, follows:

	1916		1915	
	Amount	Per Cent	Amount	Per Cent
Passenger revenues	\$3,822,578	93.6	\$3,477,695	93.3
Miscellaneous revenues from railroad operations	262,270	6.4	248,294	6.7
Total railroad revenue	\$4,084,848	100.0	\$3,725,989	100.0
Maintenance of way and structures	\$268,061	6.5	\$269,424	7.2
Maintenance of equipment	219,179	5.4	179,676	4.8
Power	275,986	6.8	243,509	6.5
Transportation expenses	679,464	16.6	615,303	16.5
Traffic expenses	3,308	0.1	1,110	0.6
General expenses	176,636	4.3	147,574	4.0
Total railroad operating expenses	\$1,622,634	39.7	\$1,456,596	39.1
Net railroad operating revenue	\$2,462,214	60.3	\$2,269,393	60.9
Railroad taxes	293,610	7.1	272,237	7.3
Net railroad income	\$2,168,604	53.2	\$1,997,156	53.6
Net income from outside operations	918,077	22.5	982,627	26.4
Total operating income	\$3,086,681	75.7	\$2,979,783	80.0
Non-operating income	55,398	1.3	43,111	1.1
Gross income	\$3,142,079	77.0	\$3,022,895	81.1
Income deductions prior to bond interest	264,582	6.5	243,765	6.5
Net income applicable to bond interest	\$2,877,537	70.5	\$2,779,130	74.6
Bond interest on N. Y. & J. 5's, first mortgage 4½'s and first refunding 5's	2,155,402	52.8	2,137,998	57.4
Net income available for income bond interest	\$722,135	17.7	\$641,132	17.2

The growth of traffic which began to manifest itself in the fall of 1915 continued steadily throughout 1916, the increase in the number of passengers carried during the year being 6,268,438, or about 10.5 per cent. Of this increase, 4,682,540 passengers (13.1 per cent) represents the growth in the downtown traffic and 1,585,898 (6.6 per cent) in the uptown traffic. The passenger revenue increased \$344,882 or 9.9 per cent, while other items showed the following changes: Advertising, a decrease of \$8,778 or 7.1 per cent; other car and station privileges, an increase of \$4,582 or 6.6 per cent; sale of power, an increase of \$8,608 or 71.2 per cent; miscellaneous revenue other than transportation, an increase of \$12,379 or 40.5 per cent, and miscellaneous transportation revenue, a decrease of \$3,014 or 19.5 per cent. The net effect on operating revenues was a gain of \$358,859 or 9.6 per cent.

During 1916 the company experienced unavoidable increases in the cost of operation. These became most noticeable in the later months of the year, and were the result principally of wage increases and fuel shortage. The total operating expenses rose \$166,038 or 11.4 per cent. All sections of the expense group, with the exception of maintenance of way and structures (which decreased \$1,363 or 0.5 per cent), showed increases, as follows: Maintenance of equipment, \$39,502 or 22.0 per cent; power, \$32,477 or 13.3 per cent; transportation, \$64,161 or 10.4 per cent; traffic, \$2,197 or 197.9 per cent, and general, \$29,062 or 19.7 per cent. As a result the gain in net operating revenue was cut to \$192,821 or 8.5 per cent.

After careful study the board of directors reached the conclusion that it was in the interest of the company and of its security holders to considerably strengthen itself financially, so that it might be fortified against any contingencies. The report of Stone & Webster, noted in the ELECTRIC RAILWAY JOURNAL of March 3, confirmed the judgment of the directors that it was urgently necessary promptly to attain an adequate cash reserve—at least \$1,000,000, their report said. Therefore, on Feb. 26 an appropriation of \$340,000 was made to the reserve account for the period ended Dec. 31, 1916. An initial appropriation of \$50,000 to this reserve had been made as of June 30, 1916, making the total appropriated \$390,000. As this appropriation absorbed the surplus earnings of the com-

pany for the period ended Dec. 31, 1916, no distribution of interest upon the adjustment income bonds was made on April 1 for the last six months of 1916. For the first six months \$331,020 had been paid. The surplus balance carried forward to 1917 was \$51,359.

The following table gives some comparative statistics for the last two calendar years:

	1916	1915
Passenger revenue per revenue car mile	\$0.4696	\$0.4456
Gross railroad operating revenue per revenue car mile	0.5018	0.4774
Operating expenses (excluding taxes) per revenue car mile	0.1993	0.1866
Net railroad operating revenue per revenue car mile	0.3025	0.2908
Passenger revenue per passenger	0.0578	0.0580
Gross railroad operating revenue per passenger	0.0617	0.0621
Operating expenses (excluding taxes) per passenger	0.0245	0.0243
Net railroad operating revenue per passenger	0.0372	0.0378

London Street Railway

The gross earnings of the London (Ont.) Street Railway for the year ended Dec. 31, 1916, amounted to \$426,314, an increase of \$27,456, or 6.8 per cent, over those of the preceding year. Of this total, passenger traffic accounted for \$420,704, an increase of \$27,405, or 6.9 per cent. The total operating expenses amounted to \$292,400, an increase of \$17,188, or 6.2 per cent, this arising mostly from increases of \$21,085, or 72.5 per cent, for maintenance of equipment, \$7,344, or 5.5 per cent, for transportation expenses for car service, and \$8,996, or 22 per cent, for general expenses. The net earnings for the year at \$133,913 increased \$10,267, or 8.3 per cent, but owing mostly to the increase of \$8,123 in taxes, the net income at \$93,610 showed a gain of only \$2,757, or 3 per cent.

During the year \$55,831 was expended for construction and equipment, \$54,965 being for track and roadway construction. The passengers carried in 1916 totaled 11,518,428, as compared to 10,801,531 in 1915, and the car earnings per revenue passenger fell from 3.68 cents in 1915 to 3.67 cents in 1916. Transfers increased from 1,765,067 to 1,792,579, so that the car earnings per passenger dropped from 3.13 cents to 3.08 cents. The gross earnings per car mile were 21.99 cents in 1916 and 20.48 cents in 1915, while the net earnings per car mile were 6.91 cents and 6.35 cents respectively. The gross earnings per mile of track showed an increase from \$11,334 in 1915 to \$11,835 in 1916.

Although approximately 3000 citizens went with the overseas forces, the business of the company continued to increase substantially. Several battalions of soldiers were brought to London for training, so that approximately 12,000 men were in camp during May and June. This made extra car service necessary, and caused abnormal earnings for those two months. After that a large percentage of the troops was moved away for more extensive field training.

Liverpool Corporation Tramways

The total revenue of the Liverpool (England) Corporation Tramways for the calendar year 1916 amounted to £766,577. The operating costs, including the rental of leased lines, totaled £518,037, leaving a gross profit of £248,540. The net profit for the year, after the payment of interest, sinking fund charges and reserve payments, amounted to £145,971, an increase of £22,777 as compared with 1915.

The number of passengers carried in 1916 was 157,636,595, an increase of 6,880,915 over 1915, while the passenger receipts at £738,321 showed a gain of £41,428. The car-miles run in 1916 amounted to 12,688,163, an increase of 6145. The average earnings per car-mile for 1916 amounted to 13.97d. as compared to 13.20d. for 1915, an increase of 0.77d. The average fare per passenger in 1916 was 1.124d. as compared to 1.109d. in the preceding year. Up to Dec. 31, 1916, a total of 9,766,916 free transfers had been issued to members of the British forces, these being equivalent to £45,131.

Thirteen and a half million more passengers were carried in 1916 than in 1913, which had been the record year of the system. This large increase was no doubt brought about by the enormous number of persons employed in the manufacture of munitions and on admiralty and transport work in the port.

Chicago Railways

The comparative income statement of the Chicago (Ill.) Railways for the years ended Jan. 31, 1916 and 1917, follows:

	1917	1916
Gross earnings of Chicago Surface Lines..	\$34,789,636	\$31,690,761
Operating expenses	21,743,522	21,041,356
Residue receipts	\$13,026,114	\$10,649,405
Chicago Railways' proportion of residue receipts (60 per cent)	\$7,827,668	\$6,283,149
Expenses and adjustments applicable to previous years	290,684	20,327
Less 5 per cent on capital valuation....	\$7,536,983	\$6,262,822
	4,319,783	4,230,975
Divisible income	\$3,217,200	\$2,031,847
City of Chicago, 55 per cent.....	1,769,460	1,117,516
Chicago Railways, 45 per cent.....	\$1,447,740	\$914,331
Interest allowance on valuation.....	4,319,783	4,230,975
Interest on bank balances	66,960	64,807
Income from treasury securities.....	123,886	103,440
Gross income	\$5,958,369	\$5,313,553
Deductions	5,180,354	4,982,981
Net income	\$778,015	\$330,573

The full details of the earnings and expenses of the Chicago Surface Lines were published in the ELECTRIC RAILWAY JOURNAL of April 21, in connection with the annual report of the Chicago City Railway, which with other South-Side Lines receives 40 per cent of the residue receipts. As noted at that time, the gross earnings of all the surface lines increased \$3,098,874 or 9.78 per cent during the last fiscal year.

The part of this gain coming to the Chicago Railways through its 60 per cent share in the residue receipts was \$1,544,519, an increase of 24.5 per cent. The company's own gross income, after the city had deducted its 55 per cent share of the divisible total, represented a gain of \$533,409 over the amount of \$914,331 the year before, or not far from 60 per cent.

The net income of the company for the year was \$778,015, as compared with \$330,572 for the preceding year. The net income combined with the surplus at the beginning of the year amounted to \$1,064,967. Deducting from this latter amount the total of the two dividends (participation certificates—Series 1, \$8; Series 2, \$2), together with the adjustment income bond interest for the preceding year (paid out of surplus May 1, 1916), aggregating in all \$611,200, the surplus balance at Jan. 31, 1917, was \$453,767. From this surplus there will be payable on May 1, 1917, the annual interest on the adjustment income bonds, amounting to \$100,000.

During the year approximately \$1,800,000 was expended for new construction and extensions under ordinance requirements. The company constructed a total of 11.08 miles of single track, making the total 580.65 miles. The unexpended balance in the special renewal and depreciation reserve fund on Jan. 31, 1917, was \$3,663,514.

Dominion Power & Transmission Company, Ltd.

The comparative income statement of the Dominion Power & Transmission Company, Ltd., Hamilton, Ont., for the years ended Dec. 31, 1915 and 1916, follows:

	—1916—		—1915—	
	Amount	Per Cent	Amount	Per Cent
Gross earnings	\$2,693,211	100.0	\$2,353,956	100.0
Operating expenses	1,459,601	54.2	1,352,001	57.4
Net earnings	\$1,233,610	45.8	\$1,001,955	42.6
Transfer to maintenance and renewal account	157,689	5.9	109,640	4.6
Balance	\$1,075,921	39.9	\$892,315	38.0
Bond and other interest....	365,573	13.5	384,772	16.4
Surplus earnings	\$710,348	26.4	\$507,543	21.6

The indications of the closing months of 1915, that the business of the company was rapidly tending toward recovery from the low figures of the 1914 report, were realized during 1916. The gross business for the last year was about equal to that of 1913, the best year preceding the war, and it is believed that there is hope for the coming year to show an improvement over 1913.

The gross earnings of the company gained \$339,255, or

14.4 per cent, during the last year as compared to 1915, while the operating expenses increased only \$107,600, or 7.9 per cent, so that the net earnings showed a gain of \$231,665, or 23.1 per cent. The bond and other interest decreased \$19,199, or 4.9 per cent, with the result that the surplus earnings for the last year represented a gain of \$202,805, or about 40 per cent, as compared with those of the year preceding. After appropriating \$250,000 to the regular reserve, paying dividends of \$534,351 and making other adjustments, the profit and loss account on Dec. 31, 1916, totaled \$536,060, as compared to \$639,259 the year before.

The unexpended balance of the company's allowance of 20 per cent of the gross earnings for maintenance and renewals totaled \$157,689 in 1916, as compared to \$109,640 in 1915. This balance was credited to the reserve for maintenance and renewals. The withdrawals from the account in 1916 amounted to \$46,610, and the reserve on Dec. 31, 1916, amounted to \$403,050, an increase of \$111,079 over the reserve the year before.

Staten Island Merger Disapproved

The Public Service Commission for the First District of New York has disapproved a proposed merger of the Richmond Light & Railroad Company and the Staten Island Midland Railway and the issue of certain securities incident to the proposed merger, as noted in the ELECTRIC RAILWAY JOURNAL of May 12, page 891. The commission acted upon an opinion prepared by Commissioner Charles S. Hervey. The opinion held that the merger plan included certain features inimical to the public interest and contrary to law and sound finance. The two companies own and operate all of the street railways on Staten Island, and in addition the Richmond Light & Railroad Company has a monopoly of the supply of electricity in Richmond Borough. It was proposed to consolidate the two companies and to issue \$1,350,000 par value of 6 per cent cumulative preferred stock and \$3,291,000 par value of common stock. In addition there was to be executed a mortgage and deed of trust to secure \$7,500,000 par value of first and refunding mortgage 6 per cent gold bonds to be issued by the new corporation. Antecedent to the consolidation it was contemplated that the Staten Island Midland Railway should increase its authorized capital stock from \$1,000,000 to \$3,250,000. Commissioner Hervey criticized the plan for the merger on several grounds, one being to the effect that the company had submitted no proof that the bonds to be refunded had been issued for capital purposes. He also found cause to criticize a proposal to refund \$350,000 in unpaid interest coupons of the Staten Island Midland Company by the issue of preferred stock. The commissioner held as a result of his study of the case that one claim of the applicants, namely, that the new securities would represent a decrease of \$530,750 in capitalization, was erroneous. In substance, Commissioner Hervey held that various features of the plan were such as to place the commission in a position of acting illegally were it to grant approval of the proposed securities issues.

American Power & Light Company, New York, N. Y.—The combined gross earnings of the American Power & Light Company subsidiaries for the calendar year 1916 totaled \$8,501,614, as compared to \$7,817,802 the year before, while the net earnings in the two years were \$3,941,669 and \$3,566,334 respectively. Of the 1916 gross \$182,383 or 2 per cent came from railway lines, this being divided \$141,984 to the Pacific Power & Light Company, or 9 per cent of this subsidiary's earnings, and \$40,399 to the Southwestern Power & Light Company, or 1 per cent of this company's earnings.

Billings Railway, Light & Power Company, Billings, Mont. The Billings Railway, Light & Power Company has been incorporated to take over the property of the Billings Traction Company and electrify the line. The authorized capital stock of the new company is \$300,000.

Columbus, Delaware & Marion Railway, Cincinnati, Ohio.—Under the order of sale recently issued by Judge Kinkead of the Common Pleas Court at Columbus, Ohio, E. K. Stewart of the Columbus Railway, Power & Light Company,

William F. Burdell and Fred W. Herbst were appointed appraisers of the property of the Columbus, Delaware & Marion Railway. On May 8 they made their report which fixed the total value at \$2,000,000 and set out that there are outstanding mortgage liens for \$1,582,505 and damage claims estimated at \$50,000, leaving a balance of \$367,494. Other obligations outstanding amount to \$920,000. On the following day the court approved the appraisal and fixed the upset price of the property at public sale at \$250,000, subject to the liens. Eli M. West was appointed special master to sell the property on June 11. He has been receiver of the company for several years.

Hagerstown & Frederick Railway, Frederick, Md.—The stockholders of the Hagerstown & Frederick Railway have approved the plan for the readjustment of the finances of the company referred to in the *ELECTRIC RAILWAY JOURNAL* for May 12, page 891. Under the new plan the yearly interest charges and the preferred stock requirement will be reduced about \$20,000 a year. A portion of the old preferred stock will be converted into new common stock and the holdings of the old common stockholders will be reduced by two-thirds. The plan is to date back to May 1. It has also been decided to dissolve the voting trust after the new plan becomes effective. The plan, however, must first be passed upon by the Maryland Public Service Commission. It is said unofficially that "it is expected that on the basis of the earnings for the year ended Dec. 31, 1916, the company will pay quarterly dividends on its new preferred stock beginning Aug. 1."

Havana Electric Railway, Light & Power Company, Havana, Cuba.—A special meeting of the stockholders of the Havana Electric Railway, Light & Power Company was adjourned on May 17 until May 22. Retiring directors were re-elected at the annual meeting of the company. It was proposed at the special meeting to vote on the matter of increasing the capital stock of the company in accordance with the conditions reviewed briefly in the *ELECTRIC RAILWAY JOURNAL* of April 28, page 799.

Illinois Traction Company, Peoria, Ill.—The Illinois Public Utility Commission has authorized the Urbana & Champaign Railway, Gas & Electric Company to issue 5 per cent debenture bonds to the extent of \$114,000. The commission has also authorized the Galesburg Railway, Lighting & Power Company to issue 6 per cent cumulative preferred stock to the amount of \$141,000. Both companies are controlled by the Illinois Traction Company. A committee of citizens of Lincoln, Ill., is understood to have conferred recently with H. E. Chubbuck, vice-president executive of the Illinois Traction Company, with respect to the taking over by that company of the street railway service in Lincoln operated previously by the Lincoln Railway & Heating Company. Last summer the Illinois Public Utilities Commission authorized the Lincoln Railway & Heating Company to discontinue business provided the Council of Lincoln would concur in the suspension of street railway service. The city desires to have the service continued. The property at Lincoln is a very small one and the basis on which the officers of the Illinois Traction Company were approached has not been disclosed.

J. G. White Companies, New York, N. Y.—The report of The J. G. White Companies for the year ended Dec. 31, 1916, presents an amalgamated balance sheet showing the following items: Assets—good will, contracts, etc., \$1,512,351; securities owned and syndicate participations, \$2,341,542; miscellaneous assets, \$95,107; bills receivable, less reserve for doubtful items, \$395,350; accounts receivable, less reserve for doubtful accounts, \$577,942; interest and dividends accrued, \$17,239; cash in bank and on hand, \$500,941, and working capital and cash in branch offices, \$4,004. Liabilities and capital—capital stock issued, \$4,300,000; bills payable, \$325,000; accounts payable, \$158,977; dividends payable, \$44,000; accruals less deferred charges and sundries, \$24,231, and surplus or undivided profits, \$592,270. During 1916 a large block of securities was liquidated at a satisfactory profit over the balance sheet figures. Since Dec. 31, 1916, the engineering corporation has secured several important and satisfactory engineering and construction contracts on a percentage basis and a large amount of profitable business in its purchasing and commercial de-

partments. The management corporation has also secured some important management contracts in new lines of endeavor, including the management of sugar estates and industrial concerns.

Lake Shore Electric Railway, Cleveland, Ohio.—At the annual meeting of the Lake Shore Electric Railway on May 14 F. H. Goff, president of the Cleveland Trust Company; I. F. Frieberger, vice-president of the Cleveland Trust Company; J. R. Nutt, vice-president of the Citizens' Savings & Trust Company, and Charles Currie, vice-president of the Northern Ohio Traction & Light Company, were elected directors to succeed the late Henry A. Everett, J. B. Hanna, T. H. Hogsett and John P. Witt. The bank officials represent the estate of Mr. Everett. The officers of the company are: E. W. Moore, president; F. H. Goff, vice-president; A. Lewenthal, vice-president; F. W. Coen, vice-president and general manager; John P. Witt, secretary and treasurer.

Lehigh Valley Transit Company, Allentown, Pa.—At the close of business on May 9 there had been deposited \$3,385,250 shares of preferred and \$2,288,000 shares of common stock receipts of the Girard Trust Company, issued against deposits of Lehigh Valley Transit Company stock under the proposal of merger with the Lehigh Navigation Electric Company. This indicates that deposits in assent to the merger plan amount to 67.9 per cent of the preferred and 76.3 per cent of the common. It is stipulated that not less than 70 per cent of each class of stock be deposited. There is still needed \$100,531 preferred stock to bring the total deposits up to the required figure.

Minster & Loramie Railway, Fort Loramie, Ohio.—The property of the Minster & Loramie Railway, operated by the Western Ohio Railway, has been sold for \$23,000 at receiver's sale to C. P. Gress, representing the New Bremen First National Bank acting for creditors of the company. The road is 3.3 miles long. Energy for operation is furnished by the Western Ohio Railway.

Monongahela Valley Traction Company, Fairmont, W. Va.—The outstanding first mortgage bonds of the Fairmont & Mannington Railroad, which is controlled by the Monongahela Valley Traction Company, dated Jan. 1, 1916, have been called for payment on July 1 at 105 and interest at the office of the Guarantee Title & Trust Company, Pittsburgh.

Municipal Service Corporation, Philadelphia, Pa.—Announcement is made of the conclusion of the negotiations for the sale of the property of the Youngstown & Suburban Railway to the Municipal Service Corporation through an exchange of stock dollar for dollar. The securities of the Youngstown & Suburban Railway said to be included are the entire \$350,000 of common stock, \$500,000 of 6 per cent cumulative preferred stock and \$700,000 of first mortgage 5 per cent bonds.

Pittsburgh & Butler Railway, Pittsburgh, Pa.—The property of the Pittsburgh & Butler Railway was sold at public auction on May 9 at \$670,500. The property was bought by interests who are said to control the Pittsburgh, Harmony, Butler & New Castle Railway.

Southern New York Power & Railway Corporation, Cooperstown, N. Y.—The Southern New York Power & Railway Corporation on May 8 filed a certificate at Albany increasing its authorized capital stock from \$1,500,000 to \$2,500,000.

United Railways Investment Company, San Francisco, Cal.—The trustee of the mortgage had on hand on May 5 \$1,747,000 par value of the United Railways Investment Company collateral trust sinking fund twenty-year 5 per cent gold bonds in the sinking fund, as compared with \$1,388,000 on May 3, 1916, indicating that during the year \$359,000 par value of the bonds has been purchased. In the twelve months previous to May, 1916, \$322,000 par value of the bonds were acquired and in the twelve months preceding May, 1915, \$350,000. The sinking fund provisions require that each year there shall be purchased a par value of the bonds equal to 1 per cent of the original issue, and the interest on the bonds purchased. This would have required the purchase last year of less than \$250,000 par value of the bonds, whereas \$359,000 were actually acquired, owing to the basis on which the bonds could be purchased in the open market.

Winnipeg (Man.) Electric Railway.—The gross earnings from operation of the Winnipeg Electric Railway for the calendar year 1916 totaled \$3,311,169, with operating expenses at \$1,939,041, so that the net operating revenues amounted to \$1,372,128. The gross income available for fixed charges totaled \$1,398,138 and the net income \$445,251. The last figure is equivalent to about 5 per cent on the capital stock. The net income in 1916 showed a decrease of \$35,742 from the results for 1915. According to a statement of the directors, the disappointing 1916 result was caused by the substantial increases in the cost of all materials necessary for the railway, gas and lighting departments, as well as by the serious competition of jitneys in Winnipeg. It was said to be reasonable to assume that with a return to normal conditions the revenues from the various departments will show satisfactory increases.

Dividends Declared

Central Arkansas Railway & Light Company, Hot Springs, Ark., quarterly, 1¼ per cent, preferred.

Central Mississippi Valley Electric Properties, Keokuk, Iowa, quarterly, 1½ per cent, preferred.

Pensacola (Fla.) Electric Company, quarterly, 2½ per cent.

Electric Railway Monthly Earnings

BATON ROUGE (LA.) ELECTRIC RAILWAY						
Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income	
1m., Mar., '17	\$18,277	*\$9,637	\$8,640	\$3,525	\$5,115	
1 " " '16	16,199	*8,999	7,200	3,461	3,739	
12 " " '17	218,061	*102,432	115,629	42,212	73,417	
12 " " '16	197,636	*106,935	90,701	30,989	59,712	
CAPE BRETON ELECTRIC COMPANY, LTD., SYDNEY, N. S.						
1m., Mar., '17	\$33,753	*\$20,905	\$12,848	\$6,552	\$6,296	
1 " " '16	27,866	*19,940	7,926	6,451	1,475	
12 " " '17	407,386	*237,115	170,271	78,553	91,718	
12 " " '16	371,850	*215,629	156,221	78,780	77,441	
COLUMBUS (GA.) ELECTRIC COMPANY						
1m., Mar., '17	\$87,851	*\$33,907	\$53,944	\$28,550	\$25,594	
1 " " '16	66,735	*28,272	38,463	28,705	9,758	
12 " " '17	936,494	*362,619	573,875	342,788	231,087	
12 " " '16	752,394	*328,458	423,936	344,242	79,694	
DALLAS (TEX.) ELECTRIC COMPANY						
1m., Mar., '17	\$188,025	*\$120,055	\$67,970	\$40,794	\$27,176	
1 " " '16	159,828	*100,143	59,685	36,779	22,906	
12 " " '17	2,061,842	*1,251,280	810,562	463,546	335,916	
12 " " '16	1,851,642	*1,140,849	710,793	414,454	296,339	
EASTERN TEXAS ELECTRIC COMPANY, BEAUMONT, TEX.						
1m., Mar., '17	\$75,062	*\$43,077	\$32,985	\$9,913	\$23,072	
1 " " '16	62,339	*34,888	27,451	8,867	18,584	
12 " " '17	862,126	*462,488	399,638	110,502	289,136	
12 " " '16	761,575	*398,230	363,345	105,630	257,715	
GALVESTON-HOUSTON ELECTRIC COMPANY, GALVESTON, TEX.						
1m., Mar., '17	\$157,469	*\$112,719	\$44,750	\$36,417	\$8,333	
1 " " '16	158,393	*106,471	51,922	36,178	15,744	
12 " " '17	1,953,072	*1,254,997	698,075	439,695	258,380	
12 " " '16	1,925,685	*1,220,785	704,900	434,868	270,032	
HOUGHTON COUNTY TRACTION COMPANY, HOUGHTON, MICH.						
1m., Mar., '17	\$30,497	*\$19,606	\$10,891	\$5,026	\$5,865	
1 " " '16	27,190	*14,692	12,498	5,357	7,141	
12 " " '17	334,706	*194,572	140,134	62,948	77,186	
12 " " '16	292,373	*162,348	130,025	66,259	63,766	
NORTHERN TEXAS ELECTRIC COMPANY, FORT WORTH, TEX.						
1m., Mar., '17	\$199,545	*\$114,173	\$85,372	\$29,182	\$56,190	
1 " " '16	166,936	*101,660	65,276	28,725	36,551	
12 " " '17	2,000,099	*1,188,249	811,850	347,921	463,929	
12 " " '16	1,777,984	*1,086,617	691,367	335,631	355,736	
PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH.						
1m., Mar., '17	\$768,418	*\$478,629	\$289,789	\$191,724	\$98,065	
1 " " '16	655,362	*440,468	214,894	184,372	30,522	
12 " " '17	8,461,666	*5,206,585	3,255,081	2,234,954	1,020,127	
12 " " '16	7,603,965	*4,850,755	2,753,210	2,189,950	563,260	
SAVANNAH (GA.) ELECTRIC COMPANY						
1m., Mar., '17	\$77,252	*\$52,672	\$24,580	\$24,077	\$503	
1 " " '16	65,269	*45,240	20,029	23,344	†3,315	
12 " " '17	855,893	*566,586	289,307	284,792	4,515	
12 " " '16	786,035	521,013	265,022	278,401	13,378	
TAMPA (FLA.) ELECTRIC COMPANY						
1m., Mar., '17	\$89,765	*\$46,954	\$42,811	\$4,373	\$38,438	
1 " " '16	81,928	*45,224	36,704	4,395	32,309	
12 " " '17	980,349	*534,499	445,850	52,328	393,522	
12 " " '16	989,708	*513,922	475,786	52,202	423,584	

*Includes taxes. †Includes non-operating income.

Traffic and Transportation

Pennsylvania Jitneys Lose in Court Decision Received Upon Appeal to Superior Court States That Jitneys Operating Within City Limits Are Common Carriers

The Superior Court of Pennsylvania has handed down a decision in a case involving the Scranton Railway, following an appeal from an order of the Public Service Commission which, it is believed, will affect the future of jitney operations in that State. It affirmed the order of the commission, thereby putting the control of jitneys under the jurisdiction of that body by classing them as common carriers.

The public service commission act of July 26, 1913, states: "The term 'common carrier' as used in this act includes any and all common carriers whether corporations or persons engaged for profit in the conveyance of passengers or property or both between points within this Commonwealth by, through, over, above or under land or water or both." The question involved in this case as presented by the appellant was whether the Public Service Commission has jurisdiction over those operating jitney service entirely within the limits of one municipality, and whether such operation is "between points."

HOW THE COURT REASONED

The court, in its decision, held it must be admitted that a jitney bus as ordinarily operated is a common carrier, and said that the counsel for the appellant had advanced no argument to the contrary, but had regarded the words "between points within this Commonwealth," appearing in the section above quoted, to apply to operation confined to the limits of a city or town. It maintained that although the word "point" is often used as a synonym for a city or town, the meaning of the word also includes parts of the same town. It refused to interpret the act to mean that a public carrier operating wholly within the limits of any city, but covering routes between terminals which might be more than 20 miles apart, would not come within the provision of the act. The decision stated further that the legislative intention was not to make an exempted class of public carriers operating wholly within the limits of a city and including those who ran beyond, and that the words "within this Commonwealth," as applied to this question, was evidently used to designate intra-state commerce as distinguished from inter-state traffic.

CORPORATIONS UNDER DUAL CONTROL

By an act of June 1, 1915, the power to regulate and license certain motor vehicles was given to the cities and it was contended that this is an implied repeal of the public service act of 1913, so far as it relates to the same subject. There is no express repeal in the later act, and if one is implied it would mean that both acts could not stand. Many public service corporations which fall under the provisions of the public service act are subject to local regulation, such as street car lines, which may not be constructed until municipal consent is obtained, and railroads, which are subject to ordinances requiring them to place watchmen at crossings and subjecting them to other regulations.

In view of the above the court concluded that the authority given by the act of 1915 could not be held in any view of the matter to give cities any power that would abrogate the right of the Public Service Commission to require a certificate of public convenience. The two powers do not trench on each other since the Public Service Commission and City Councils can exercise their powers coordinately. This decision will no doubt form a better basis for jitney regulation in Pennsylvania. Heretofore the city drivers have declined to operate with a certificate of public convenience since they contended they were subject only to the municipal authorities.

Jitney Insurance Question in Washington

H. O. Fishback, State Insurance Commissioner of Washington, has submitted to the Attorney General a proposal of the Mutual Union Insurance Company of Seattle, composed of jitney operators, to furnish surety insurance for jitney operators. The point raised is whether a mutual company can insure the traveling public or only its own members. Commissioner Fishback has decided to permit the new mutual company, composed entirely of jitney operators, with W. R. Crawford, Seattle, as general counsel, to insure its members for \$1,000 against accident to themselves, and upon the collection of a cash reserve of \$5,000 additional to \$6,452 now paid in, to write liability insurance for machines of members up to \$2,500, upon additional premiums of \$200 annually, \$30 of which is paid in cash and balance at \$10 a week.

As the State Supreme Court has held jitney bondsmen liable up to \$2,500 for each person injured in a wreck, the jitney operator mutual insurance does not yet meet the requirements of the Supreme Court, it is claimed, but it is believed an effort will be made to accumulate sufficient reserve for that purpose, if it is held that a mutual company may write surety insurance.

A list of 321 members applying for the machine liability insurance has been filed with the insurance commissioner, with another list of 500 subscribing for accident insurance.

The jitney men of Spokane, applying for a temporary injunction preventing the city from requiring them to give bond in order to operate, quoted A. M. Winston, assistant corporation counsel of the city, to the effect that jitney operators could get bonds without trouble if they had adequate collateral.

Los Angeles Anti-Jitney Men Multiply

The committee representing the 3500 employees of the Los Angeles (Cal.) Railway has filed with the City Clerk the initiative petition signed by more than 35,000 registered voters, which asks for the adoption of an initiative ordinance intended to insure a more effective control of the operation of jitneys as reported in this paper for May 5, page 846. The proposed ordinance will be submitted to the people at the coming election on June 5.

W. A. Hagans, organizer of the Jitney-bus Operators' Association, said: "This is a most drastic measure and if put into effect will stop jitneys from operating in the downtown business district after July 1."

The employees of the Pacific Electric Railway have joined forces with the men of the Los Angeles Railway in the movement for better jitney regulation and have circulated petitions in a similar way. They are pleased with the responses received and claim that when the necessary eliminations are made because of faulty signatures, they will be able to file nearly 75,000 valid signatures in addition to the 35,000 which the Los Angeles Railway employees have obtained.

Service Reductions in Tacoma

The Tacoma Railway & Power Company and the Pacific Traction Company, Tacoma, Wash., will reduce service on car lines which have been operated at a loss. L. H. Bean, manager of the companies, is quoted in part as follows:

"The companies have endeavored to maintain a service for the public in all ways satisfactory for their needs, and in order to do this we have been forced to operate at a loss. We have repeatedly called attention to the serious financial situation which confronts the companies. We hoped to be relieved of burdens such as paving and the tax on gross earnings which are not in any way necessary for furnishing service. This relief having been temporarily deferred, we are forced to reduce service on lines where service has been maintained entirely for the benefit of the public but at a serious financial loss to us."

Mr. Bean also states that after thirty days city commutation tickets will be withdrawn. These tickets are used by city employees during working hours. They aggregate about \$6,000 a month.

Auto Drivers Urged to Use More Care

An open letter was recently sent out by General Manager A. R. Myers of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., with a view to secure the co-operation of automobile drivers in reducing the number of automobile accidents. It was a personal appeal to all concerned to take an added interest in the elimination of unnecessary pain, injuries and expense. The letter read, in part, as follows:

"We do our part by educating our motormen and conductors to avoid collisions with automobiles and other vehicles. You can do your part without any expense to you, and we ask you to do it. Do you forget to check the speed of your car when with obstructed view either way you approach an intersecting street on which cars operate? If so, your habit should be changed. Some automobile drivers turn to the left onto a track in front of cars going in the same direction in order to pass a more slowly moving vehicle or one standing at the curb. It is easy to misjudge the speed of a trolley car and to mistake the amount of space in passing between the car and other vehicles. Did you ever do this? If so, for your family, yourself and for your friends, stop it.

"Our experience and investigations compel us to speak candidly. We are making this a personal matter. If you are a careful driver you will not resent this letter. If you are inclined to be careless you cannot in fairness resent it. 'Safety First' is a great big humanitarian movement. If we all pull together we can succeed. Will you help?"

Bay State Fare Bill Turned Down

The lower house of the Massachusetts Legislature has voted down the report of the joint committee on rules, accepted by the Senate, favoring the admission of a 6-cent fare bill for the Bay State Street Railway. Owing to the lateness of the session, it was necessary to secure a suspension of the rules to permit consideration of the bill. Now it is said, the bill must go to the next Legislature.

The bill providing for an increase in fare stipulated that the 6-cent rate should apply to a single continuous trip in any fare zone as already laid out or which might hereafter be established by the Public Service Commission. The bill provided that the company should pay no dividends on its common stock for two years, and that its net earnings above preferred-stock dividends should be expended for improving the property.

The company has also had a clause introduced which provided for an investigation of the problem of public ownership by a commission to consist of two Senators, four Representatives, one member of the Public Service Commission and four citizens, the last five to be named by the Governor. The lower house of the Legislature also refused to admit this provision for consideration.

The filing of the relief bill followed about nine months' experience under the ruling of the commission in the noted 6-cent rate case of 1916, in which the board denied the company permission to raise its fare to 6 cents throughout the greater part of the system, but authorized this unit on the country lines.

S. H. Pillsbury, counsel for the company, stated at a legislative hearing that the credit of the road was exhausted; that no new money could be raised, and that earnings had shrunk more than \$1,000,000 in the last three years. Mr. Pillsbury said that in the past three months the company had run \$145,522 short of its expenses, without making any allowance for depreciation. He contended that the present cost of carrying a passenger was 6.10 cents, compared with 5.27 cents in 1916, 5.14 cents in 1915, and 4.94 cents in 1914. The company was willing to sell its property at about \$39,000,000, the value fixed by the commission in the rate case.

Fare Protest Under Consideration.—The Borough Council of Rutherford, N. J., has under consideration the matter of seeking a reduction in the present 15-cent fare to Newark over the Public Service Railway.

Half-Fare Hearing Postponed.—The Public Service Commission of Massachusetts has postponed to June 5 its hearing upon the scholar's half-fare petition of the Bay State

Street Railway, on account of pending legislation in connection with the company's 6-cent fare bill and the proposed investigation of public ownership of street railways.

Increase in Monthly Commutation Authorized.—The State Railroad Commission of California has authorized the San Francisco Napa & Calistoga Railway, Napa, Cal., to make a commutation fare of \$6 for the calendar month between Napa and Vallejo. The company asked the commission to increase the present commutation from \$5 to \$7.80, alleging the existing fare to be non-remunerative in consideration of the character of service rendered.

United Railroads Haul Fewer Passengers.—During March the United Railroads, San Francisco, Cal., carried 17,900,000 passengers, only about 85 per cent of the number carried in the same month of 1914. These figures were given out as evidence that street railways have not shared the general prosperity since the war began. Among the reasons advanced for this decrease is competition from the jitneys and the Municipal Railway of that city.

Macon Men Insured.—Approximately 150 motormen and conductors in the service of the company have been insured by the Macon Railway & Light Company, Macon, Ga., for sums ranging from \$200 to \$500, each premium being paid by the company. Each employee must have six months' service to his credit in order to be insured. Each man having two years' service is insured for \$200; three years' service, \$300, with \$500 as the maximum.

Kentucky Derby Affords Traffic Problems.—The attendance on May 12 at the forty-third renewal of Derby Day, the annual racing tournament in Louisville, Ky., was one of the highest on record and taxed the capacity of the Louisville Railway. It is estimated that the company hauled about 34,000 people from the downtown district to Churchill Downs, the scene of the races. This is more than the number of passengers hauled last year. All the available equipment of the company was put in service and no accident was reported. An improvement was made in the service this year by changes in routing in Louisville.

Protest Proceedings Authorizing Seattle One-Man Cars.—At a recent meeting of the city utilities committee, Councilman W. D. Lane, chairman of the judiciary committee, filed a protest against the action of the State Public Service Commission in issuing an order allowing the use of single-truck and single-operator cars by the Puget Sound Traction, Light & Power Company in Seattle, Wash., without advising the city of such an application. A copy of the order was referred to Councilman Lane by Corporation Counsel Hugh M. Caldwell, for preparation of such a protest. The use of one-man cars was referred to the Council by the officials of the company several months ago, but no action was taken. Several weeks later, an application for an order allowing the use of this type of car was made to the Public Service Commission. It is understood that Mr. Lane's protest will be limited to an arraignment of the Public Service Commission for the alleged granting of a petition without notifying the Council and holding hearing in regular form.

Taking Chances.—Not long ago Gerald Stanley Lee of Northampton, Mass., who gained fame with his book "Crowds," wrote an appreciation of all the wonderful things that the patron of an electric railway car got for his nickel. That appreciation was republished in the *ELECTRIC RAILWAY JOURNAL* and then was copied and used by many publications distributed to railway employees. An opportunity exists now for some one to put into language that will live the prospect that the jitney patron has in store for him for his nickel. There are the reckless driving, the crowding, the collisions, the thefts that take place in poorly lighted cars and finally the prospect that your driver may do as did Charles Yasmagian, a licensed jitney driver of Lowell, Mass., that is, peer into the gasoline tank with a lighted match to see how low his supply of gas was. If he should do that there are added to the ordinary thrills of the jitney ride the clanging of the fire bells, the coming of the engines, the approach of the ambulances, prospects of a cot in the hospital and finally burial in the country churchyard. All the melodrama of the movies for 5 cents! After life's fitful fever you will probably sleep well, but by taking a jitney you increase materially the likelihood of your sleeping before your allotted time.

Legal Notes

CHARTERS, ORDINANCES, FRANCHISES

KENTUCKY.—*Improvement of Street by City—Franchise—"In All Respects."*

Where a street railway company franchise required it to improve its portion of the street to conform with the rest of the street "in all respects," and upon the company's refusal the city constructed the company's portion, different only in the depth of excavation necessary to accommodate ties and foundation, this was not contrary to the franchise, and the company was liable for the cost. (Central Kentucky Traction Co. v. City of Winchester, 191 Southwestern Rep., 636.)

TEXAS.—*Legal Difference Between "Express" and "Freight."*

The question whether goods carried by an interurban electric railroad are express or freight, on which depends whether the railroad is an additional servitude on the street, does not depend on the weight of the separate articles but on the manner in which they are carried, since the carriage of a few heavy articles would not damage the abutting owners more than the carriage of a large number of lighter articles in the same car. (Galveston-Houston Electric Ry. et al. v. Jewish Literary Society, 192 Southwestern Rep., 324.)

WISCONSIN.—*Repaving Ordinance Is Valid Even If It Reduces Earnings.*

The fact that an ordinance, requiring a street railway to repave its track zone with the same material used by the city, will unreasonably reduce its earning capacity, so as to fail to give reasonable return on the investment, will not invalidate the ordinance, since the company can apply to the Railroad Commission for a change in rates if necessary.

The Milwaukee ordinance of Nov. 8, 1915, requiring a street railway to repave its track zone with the same material used by the city, is not unconstitutional as impairing a contract obligation, since previous ordinances relating thereto did not give the railroad company a contractual right, but were merely regulative, nor does it deprive the company of its property without due process of law. (State ex rel. City of Milwaukee v. Milwaukee Electric Railway & Light Co., 161 Northwestern Rep., 745.)

LIABILITY FOR NEGLIGENCE

NEW YORK.—*Ice on Car Platform.*

Where a carrier did nothing to remove ice from the platform of a car operated in a large city, with frequent stops at short intervals, with large numbers of persons passing in and out, and gave the passengers no notice of the presence of the ice, an inference of negligence is warranted. (Altberger v. New York Consolidated Railroad, 162 New York Sup., 739.)

NEW YORK.—*Injury Where Passenger Assumes Car Will Stop at Station.*

Where the local cars of a railroad company stopped on signal at a station established to receive passengers, and no particular form of signal was established, a prospective passenger clearly visible, with a suitcase in her hand, hurrying to the pole which marked the stopping place, is entitled to assume that the car will be stopped. (Brott v. Auburn & Syracuse Electric Railroad, 115 Northeastern Rep., 273.)

NEW YORK.—*Workmen's Compensation Act—"Hazardous Business."*

A street surface railroad is engaged in a "hazardous business," under the workmen's compensation law (Consol. Laws, chap. 67; Laws 1914, chap. 41). A street railway conductor, temporarily relieved of duty, who was riding back on a car to his work, who left the car and in crossing the street was killed by his employer's street car, was not at the time, within workmen's compensation act, Sec. 3, Subd. 4, engaged in a hazardous employment. (McCabe v. Brooklyn Heights Railroad, 162 New York Sup., 741.)

Personal Mention

William Mittendorf, assistant chief engineer of the Cincinnati (Ohio) Traction Company, has been appointed chief engineer, succeeding Thomas Elliott. Mr. Mittendorf has been acting chief engineer for three years during Mr. Elliott's connection with the Cincinnati Car Company.

W. S. Murray, the engineering firm of McHenry & Murray, New Haven, Conn., having been dissolved by mutual consent, will hereafter devote his entire time and attention to the interests of the Housatonic Power Company, of which he is president. Mr. McHenry will retire to private life.

Thomas Elliott, chief engineer of the Cincinnati (Ohio) Traction Company, becomes consulting engineer of the company. Mr. Elliott has been vice-president and general manager of the Cincinnati Car Company for about three years, but retained his title of chief engineer of the traction company.

Niles Persons, for the last four years assistant master mechanic of the United Traction Company, Albany, N. Y., who resigned to accept a position with the New York State Railways, Rochester Lines, was presented on May 5 with a gold watch and chain, and an Elk's charm with a genuine elk tooth by the employees of the mechanical department of the company at Albany.

S. R. Bertron, banker and financier, has been appointed a member of the commission to Russia by President Wilson. Mr. Bertron is connected with the firm of Bertron, Griscom & Company, New York, N. Y., which is largely interested in the United Gas & Electric Corporation, the New Orleans Railway & Light Company, the International Railway and other public utility properties.

G. N. Brown and H. S. Johnson, superintendent of transportation of interurban lines and engineer of maintenance of way, respectively, of the New York State Railways, Utica Lines, departed on May 14 to attend the Officers' Reserve Corps Training Camp for three months at Sacket Harbor, N. Y. Mr. Brown is also electrical engineer of the Syracuse and Utica lines of the company.

Arthur V. Gardiner has been appointed superintendent of track for the Rhode Island Company, Providence, R. I., succeeding H. F. Purrington, who accepted a position with the Connecticut Company. Mr. Gardiner was engaged in trolley line construction for three years prior to 1908 when he entered the construction department of the New York, New Haven & Hartford Railroad. Since 1913 he has been a resident engineer of the Rhode Island Company.

Charles O. Warfel, superintendent of the Indianapolis & Cincinnati Traction Company, Indianapolis, Ind., has received leave of absence to attend the officers' training camp at Fort Benjamin Harrison, and the following readjustment of duties has been made to cover this change: L. W. Henry, chief clerk for the president, will also be acting superintendent, with headquarters at Indianapolis. J. L. Jackson, formerly agent at Greensburg, Ind., will be made traveling freight agent and assistant to L. W. Henry. These changes are effective at once.

Perry R. McComas has been appointed superintendent of railways of the Northwestern Ohio Railway & Power Company, Toledo, Ohio, with jurisdiction over all transportation employees. Mr. McComas is a native of Illinois. He spent the major part of his career in the steam railroad field, beginning as a telegraph operator for what is now the Chicago & Alton Railroad. Following a five-year connection as station agent for the Chicago, Peoria & St. Louis Railroad he was chief train dispatcher for the Illinois Terminal Railroad and later for the Litchfield & Madison Railway and then he served nearly seven years as train dispatcher and chief clerk to the general superintendent of the Toledo, Peoria & Western Railway. For the past six years Mr. McComas has been chief train dispatcher and car accountant of the Peoria (Ill.) Railway Terminal Company, a subsidiary of the Illinois Traction System. His headquarters are now at Genoa, Ohio.

Alvah Seaman has been made superintendent of the trolley lines of the Long Island Railroad, New York, N. Y., succeeding J. P. Kineon. Mr. Seaman was born in 1863 in Pike County, Pa., where he received his early education in the public schools. At the age of twelve he entered the telegraph office of the Pennsylvania Coal Company at Hawley, Pa., and five years later was employed by the Western Union at Scranton. His connection with the Long Island Railroad dates from 1882, when he was employed as telegraph operator at East New York, now a part of Brooklyn. Mr. Seaman's services have merited several promotions, first to train dispatcher at Woodhaven Junction, and then station master located at Long Island City. In 1906 he became assistant trainmaster in charge of time-tables. His headquarters are now at Far Rockaway, and the roads of which he is superintendent are the Ocean Electric Railway, the Huntington Railroad, the Nassau County Railway, the Glen Cove Railroad and the Northport Traction Company, all controlled by the Long Island Railroad.

Carl W. Stocks, who for the last seven years has been statistician of the American Electric Railway Association, has been appointed general passenger agent of the Bay



C. W. STOCKS

State Street Railway, with headquarters at Boston. In his new position Mr. Stocks will work in co-operation with R. M. Sparks, formerly general passenger and advertising agent and now assistant to the general manager. This position will give him an excellent opportunity to apply the experience which he has gained in his statistical investigations for the association members. In returning to the railway field in Massachusetts he will not be upon ground entirely unfamiliar as he was for two years, between 1907 and 1909, an inspector in the overhead line department of the Boston & Northern Street Railway, a company which now forms part of the Bay State system. Mr. Stocks was graduated from the electrical engineering course at the Worcester (Mass.) Polytechnic Institute in 1907. As a senior he had a year's contact with Prof. A. S. Richey, who in 1906 resigned his position as chief engineer of the Indiana Union Traction Company to become a member of the faculty of the Institute. After graduation Mr. Stocks was employed by the Boston & Northern as already mentioned, and in 1909 became assistant to the master mechanic in the Everett Mills at Lawrence, Mass. The textile industry, however, did not appeal to him. He, therefore, welcomed the opportunity in 1910 to become assistant to H. C. Donecker, secretary of the American Electric Railway Association, and has been continuously with the association since that year. As he became familiar with the opportunities afforded by the association work Mr. Stocks took on one responsibility after another until he was editing and publishing the *Proceedings*, writing and revising the *Engineering Manual*, acting as head of the Information Bureau, and in other ways proving useful to the industry.

On April 14 the Toledo *Times* praised Henry L. Doherty, chairman of the board of the Toledo Railways & Light Company, Toledo, Ohio, for the energy that he has shown in connection with the effort to settle the franchise situation there. The paper said: "It is worthy of observation that while the 'street car commission' has been extracting from Mr. Doherty information on how to run a street railway system, he has been going ahead constructively. The new power plant on the East Side is going to be a model of its kind. It is characteristic of Mr. Doherty that whatever he undertakes he does well. The addition to the city's lighting and traction facilities will be increased many fold, meeting the requirements of the present and the needs of the future. His energies here merely parallel his energies in the other cities in which he operates. He fits in with the community and aims to be a vital part of it."

Construction News

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

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

RECENT INCORPORATIONS

*Marion (N. Y.) Railway Corporation.—Incorporated to maintain and operate electric railways. Capital stock, \$100,000. Incorporators: Claude N. Jagger and Charles L. Seybold, Marion, and James D. Bashford, Lyons.

FRANCHISES

Terre Haute, Ind.—The Terre Haute, Indianapolis & Eastern Traction Company has received a franchise from the Board of County Commissioners of Sullivan County to extend its power lines to the mines of the Vandalia Coal Company.

New York, N. Y.—The New York & Long Island Traction Company has asked the Public Service Commission for the First District of New York for permission to discontinue the operation of its line in Rockaway Road and Broadway, between Liberty Avenue and Grant Avenue, Queens, and also to abandon the franchise it holds for routes not yet constructed between Queens and Jamaica and in Jamaica. In its application to the commission for permission to abandon the above routes and franchises, the company states that operation over these thoroughfares is no longer necessary because of the construction of the Liberty Avenue extension of the Fulton Street elevated line.

TRACK AND ROADWAY

Little Rock Railway & Electric Company, Little Rock, Ark.—This company proposes to construct an extension of its line on Pike Avenue from Eighth Street to Eighteenth Street.

San Francisco, Napa & Calistoga Electric Railway, Napa, Cal.—Work will soon be begun by this company on improvements to its roadbed in Sonoma Street, Vallejo. New ties will be installed and new pavement laid between and on either side of the tracks.

Connecticut Company, New Haven, Conn.—The City Council of Rockville has ordered the Connecticut Company to relocate its tracks on Grove Street. It is estimated that the work will cost about \$9,000.

Waterbury & Bristol Tramway, Waterbury, Conn.—A survey will be begun at once by William G. Smith, Waterbury, Conn., of this company's proposed line between Bristol and Waterbury. It is expected that construction work will be begun in August. The following officers have been elected: Frederick N. Manross, Bristol, president; Richard Elliott, Southington, treasurer, and John H. Cassidy, secretary of the Waterbury & Milldale Tramway, Waterbury, secretary. Directors: Frederick N. Manross, Richard Elliott, John H. Cassidy; John R. Hughes, Waterbury, and Irving I. Ingraham, Bristol. [Dec. 23, '16.]

Waterbury & Milldale Tramway, Waterbury, Conn.—An amendment has been made to the charter of the Waterbury & Milldale Tramway providing for an extension of the company's lines for about 3 miles in the southeastern section of Waterbury.

Chicago (Ill.) City Railway.—An agreement has been reached between this company and the Chicago, Rock Island & Pacific Railway whereby the Chicago City Railway may finish its crossing at 111th Street and provide service to and from Morgan Park and various cemeteries near Morgan Park.

Chicago, North Shore & Milwaukee Railroad, Highwood, Ill.—Actual construction work has been begun by this company on the building of the extensions of its lines in Waukegan, Ill. The work was begun at the intersection of Grand Avenue and the west line of the North Shore inter-

urban line, where a track 500 ft. long will be located. The switch will be placed into immediate use and will be operated for the handling of the material for the work of extending the lines on North Avenue and Glen Flora Avenue. The initial switch will become a part of the line on Glen Flora Avenue which will connect the West Side line with the tannery. The plans of the company include an expenditure of \$150,000 in Waukegan for permanent improvements and reconstruction.

La Salle County Electric Railroad, Ottawa, Ill.—Plans are being made to revive the project to construct a line from Ottawa to Mendota. The Potapsco Engineering Company is said to be willing to go ahead with the work as soon as the preliminary matters pertaining to the right-of-way are established and to carry out the work on the basis of accepting as its pay a considerable proportion of the securities of the railway. The line has been graded for 25 miles. W. C. Vittum, Ottawa, is interested. [July 22, '16.]

Illinois Traction System, Peoria, Ill.—The installation of an interlocking plant for the crossing of this company's line with that of the Lake Erie & Western Railroad at East Peoria has been recommended.

Indianapolis Traction & Terminal Company, Indianapolis, Ind.—This company has received permission from the Board of Public Works to construct an additional track in Martindale Avenue from the tracks of the Indianapolis Union Railway to Twenty-fifth Street to facilitate the handling of troops to Fort Benjamin Harrison.

Wichita-Walnut Valley Interurban Railway, Wichita, Kan.—Right-of-way is being secured by this company for its proposed line from Wichita through the oil fields to Augusta, Douglass and El Dorado. The capital of the company will be increased from \$1,000,000 to \$1,500,000. T. C. Coffman, secretary. [May 5, '17.]

Trenton, Lakewood & Seacoast Railway, Trenton, N. J.—The directors of the Trenton, Lakewood & Seacoast Railway have announced that work will be rushed on its line from Point Pleasant to Lakewood. Tracks have been laid as far as Laurelton. George O. Vanderbilt, Trenton, is interested. [Nov. 18, '16.]

International Railway, Buffalo, N. Y.—A bill has been passed by the State Senate granting a two-year extension of time to the Frontier Electric Railway, owned by the International Railway, in which to construct its proposed line between Niagara Falls and Buffalo.

Ohio Electric Railway, Cincinnati, Ohio.—The construction of an extension to Defiance and the erection of a passenger and freight station in that city are being considered by the Ohio Electric Railway.

Gallipolis & Northern Traction Company, Gallipolis, Ohio.—This company reports that it may construct about 1 mile of new track.

Youngstown & Suburban Railway, Youngstown, Ohio.—Plans are being made to double-track most of this company's line and to construct an extension from Columbiana to East Palestine, 8 miles.

*Muskogee, Okla.—Announcement has been made by Mayor J. E. Wyand of Muskogee that an electric interurban railroad between Muskogee and Oklahoma City crossing another between Henryetta and Tulsa at Okmulgee is proposed by Oklahoma City capitalists who have practically consummated their plans.

Oregon Electric Railway, Portland, Ore.—A contract has been awarded by the Oregon Electric Railway to Grant, Smith & Company, Portland, for the erection of trestle approaches to the bridge to be built over the Willamette River at Wilsonville, Ore. The trestle will be 2600 ft. long and will cost about \$60,000.

Easton (Pa.) Transit Company.—Work has been begun by the Easton Transit Company on the double-tracking of its line between Bethlehem and Easton.

Philadelphia, Pa.—Sealed proposals will be received by the Department of City Transit, Philadelphia, Pa., William S. Twining, director, until May 22, for contract No. 521, including concrete track floor, cast-iron and steel floor drains and reinforced concrete slab footwalks for the Frank-

ford Elevated Railway from Callowhill to Indiana Streets, about 15,680 lineal feet of structure; contract No. 522, concrete track floor, cast-iron and steel floor drains and reinforced concrete slab footwalks for the Frankford Elevated Railway from Indiana to Dyre Streets, about 15,000 lineal feet.

***North Star Electric Railway, Belle Fourche, S. D.**—This company has been organized to construct an electric railway from Belle Fourche to Dickinson, via Scranton. C. A. Johnson, Scranton, N. D., is interested.

Chattanooga Railway & Light Company, Chattanooga, Tenn.—The Chamber of Commerce of Chattanooga, Tenn., looking forward to the near future when 100,000 men will be in training at Fort Oglethorpe, near that city, has asked the Chattanooga Railway & Light Company to expedite construction of a short line planned from the city to Chickamauga Park. This short line is planned to supplement another which already reaches the park. It would give a second trolley connection and supplement the connection provided by the Georgia Central Railroad.

Salt Lake & Utah Railroad, Salt Lake City, Utah.—Work has been begun by the Salt Lake & Utah Railroad on the construction of an extension from Hunter to Pleasant Green, about 9 miles. The cost is estimated at about \$300,000.

Rutland Railway, Light & Power Company, Rutland, Vt.—Work has been begun by the Rutland Railway, Light & Power Company relaying the ties and graveling the tracks of its main line from Rutland to Poultney.

Aberdeen, Wash.—Representatives of Sanderson & Porter of New York, who have been assigned a part in the government shipbuilding work, have been investigating prospective yards in Grays Harbor, Wash., for the past few days. Five sites, two in Hoquiam and three in Aberdeen, have been under consideration. Sanderson & Porter own the Grays Harbor Railway, Light & Power Company, connecting Aberdeen with Cosmopolis and Hoquiam.

Puget Sound Traction, Light & Power Company, Seattle, Wash.—This company will construct a line along Avalon Way from West Spokane Avenue and Thirtieth Avenue southwest to West Seattle.

Tacoma, Wash.—The city of Tacoma has received an urgent appeal from Ernest Dolge, Inc., to extend the tide-flats line from its present proposed terminus at the Todd Shipbuilding & Construction Company's plant, to Lincoln Avenue, to give service to employees of a lumber mill which is being constructed by Ernest Dolge, Inc. The Council is favorably considering the further extension.

Tacoma Railway & Power Company, Tacoma, Wash.—Following the recent decision of the Public Service Commission of Washington that it has no jurisdiction to relieve public utilities of paving obligations and other franchise burdens, it is stated the Tacoma Railway & Power Company will repave between its tracks on Broadway, St. Helena Avenue and Sixth Avenue, at a cost of \$100,000.

SHOPS AND BUILDINGS

Indianapolis & Louisville Traction Railway, Scottsburg, Ind.—This company reports that it has just completed a freight and passenger station at Henryville.

Boston (Mass.) Elevated Railway.—Recommending an underground terminal and a temporary surface station in Everett, the Public Service Commission of Massachusetts on May 14 withheld approval of this company's petition for the erection of a permanent station for the elevated extension upon private land abutting on Broadway and Everett Streets between Chemical Lane and Brickyard Lane. The commission figures that the temporary station would save about \$372,000.

Worcester (Mass.) Consolidated Street Railway.—Preliminary designs have been begun by H. R. Whitney, engineer of way and structures, Worcester Consolidated Street Railway, for the construction of a new fireproof carhouse at the intersection of Grove Street and Park Avenue, Worcester. The first section to be built will have a storage capacity of about forty-eight cars and an outdoor storage capacity of 120 cars on yard trackage. The carhouse will probably be erected in 1918.

Detroit (Mich.) United Railway.—The third unit of the Highland Park shops of the Detroit United Railway has been completed and is now in use. This unit is the building which houses the carpenter shop, wood mill, cabinet shop, pipe-fitting department, pattern shop and tinsmithing department. The building is 287 ft. x 238 ft., two stories high, and is of brick and steel construction. It is adjacent to the machine and truck shops and is connected with them by a transfer table permitting the switching of cars from one building to another. The floors of the building are of concrete with a surface of creosote blocks and the roof is constructed of concrete slabs. The east and west walls are practically of glass with mechanically operated windows. The fourth unit to be erected will be a brass foundry. A modern and permanent power and heating plant will complete the layout. More than \$1,000,000 will have been expended on the plant when all construction work is completed.

Interborough Rapid Transit Company, New York, N. Y.—Bids will be received by the Interborough Rapid Transit Company at the office of the chief engineer, 165 Broadway, New York City, until May 24, for completion of the passenger station electric lighting and electric heating systems for portions of the Seventh Avenue line, routes 4 and 38; Pelham Bay Park branch of the Lexington Avenue line, route 5, section 15, and routes 19 and 22, sections 1 and 1-A, Lexington Avenue line, route 5. Drawings, proposal blanks, etc., may be obtained at the above office. George H. Pegram, chief engineer.

POWER HOUSES AND SUBSTATIONS

Burlington Railway & Light Company, Burlington, Iowa.—The erection of several transmission lines this year, it is reported, is contemplated by the Burlington Railway & Light Company. One of the proposed lines will connect Burlington with Mediapolis, Morning Sun, Wapello and Winfield; another line will be erected from Burlington to Middletown. Energy will be supplied from the plant at the Keokuk dam to the cities and towns north of Burlington.

Gulfport & Mississippi Coast Traction Company, Gulfport, Miss.—A report from this company states that it will place contracts as soon as possible for equipment to convert boilers now using coal to wood burning. The company is also in the market for machinery to handle slabs and other saw mill refuse.

Kansas City (Mo.) Railways.—This company is considering the construction of a one-story substation, to cost about \$7,000.

Butte (Mont.) Electric Railway Company.—This company plans the immediate construction of two substations in Butte, one at the southeast corner of Florence and Major streets; the other at 218 East Center Street. Permits have been issued to the company for putting up both buildings.

Northern Ohio Traction & Light Company, Akron, Ohio.—Fire recently destroyed the Wooster Avenue carhouse and three cars of the Northern Ohio Traction & Light Company. The loss is estimated at about \$50,000.

Youngstown & Sharon Street Railway, Youngstown, Ohio.—This company will extend its transmission lines to East Palestine at once.

Reading Transit & Light Company, Reading, Pa.—This company has doubled the coal storage capacity at its West Reading power plant. With the added facilities, the plant will be able to store between 20,000 and 30,000 tons of coal. New fuel-handling machinery of the latest type has been installed. The company has also purchased two new 1000-hp. boilers.

North Star Electric Railway, Belle Fourche, S. D.—This company, which has been organized to construct an electric railway from Belle Fourche to Dickinson, via Scranton, plans to construct a power plant in connection with the project. C. A. Johnson, Scranton, N. D., is interested.

Appalachian Power Company, Bluefield, W. Va.—This company will construct an electric transmission system between Norton, Esserville, Wise and other towns in this section.

Manufactures and Markets

Discussions of Market and Trade Conditions for the Manufacturer, Salesman and Purchasing Agent
 Rolling Stock Purchases Market Quotations Business Announcements

Present Business and Economic Conditions*

How War Will Affect Business—What the Manufacturers Should Do—Governmental Support to Assist Manufacturers

BY FRANK BAACKES

Vice-President and General Sales Manager American Steel & Wire Company, Chicago, Ill.

We are confronted at this time with a very intense political and economical condition, and the two are so intimately connected that they cannot any longer be treated separately as to their consequences. Our political condition has been somewhat clarified by our entrance into the war, but our economical condition has become more intensified than ever. Heretofore, we were confronted with one condition, namely, that we sold to the Allies what we felt we could spare. That, however, is absolutely changed to-day, because our entrance into this war makes us immediately an ally to the Allies.

WHERE THE MANUFACTURERS MUST STAND

Now, that is going to make the situation very acute. It is said that this will require only 5 per cent of the steel, 3 per cent of the leather goods, and 30 per cent of other goods. But when that 5 per cent is required during a time that the demand is 150 per cent and the capacity 100 per cent, then it is evident how far-reaching that condition must be to this nation. This situation is going to affect our domestic business, and the slogan of every manufacturer and of every merchant from now on must be the Allies and our own government first, domestic trade second, and export trade third. That will mean that we must be passive. Also, that this is a time to control our selfishness. And if we are all going to use common sense and distribute our products intelligently and conservatively from what is left, we probably all can have material with which to do business. We must be very conservative, and I cannot put that too strongly before you.

I do not believe that prices should be advanced now unless it is absolutely necessary. I do not believe in a policy of selling the government on one hand at a very low price, and then trying to tax the individual at an advanced price, thereby making the other fellow pay for your patriotism. We have permitted a great many infractions of our usual customs of doing business, but in war time, when everything is tense, when everything is high, everyone must make preparations to shoulder his own burden and not try to shove it on to others.

WHAT BUSINESS NEEDS

We have also to look at the future and what we must do to hold our prosperity, and that means an industrial preparedness, because industry is the life and backbone of a nation, and the greatest boon to its people. That means that our government henceforth must become linked absolutely with business. This country must become one vast business organization. That means that government and business absolutely have to work together for national development and the uplift of the people.

Another thing that we need for the future is an amendment or an abolishment of our Sherman anti-trust law—and all of the anti-trust laws. And I insist and demand that for the reason that if co-operation, which is desired to-day by the government and by the people, is an absolute necessity in case of war, it must be of great benefit in time

of peace. I do not want business not to be regulated, I do not want business to do as it pleases, but I do want business to have liberty within the freedom of the law.

LET'S HELP THE RAILROADS

There is another thing we need, and that is our railroads. Our railroads have been legislated to death. Our railroads need the support of our government and the trade, and they have not got it. And surely if you could not make any money in your business, and it wasn't paying satisfactory dividends to your stockholders, you would not invest any more money in it. Therefore, can you blame the railroads, and can you blame the people for not investing their money in railroads when the return is so much fraught with dangers? Let us help the railroads get proper recompense so that they can be with us in the development of the country.

GOVERNMENTAL ASSISTANCE IS NEEDED

Another thing we need in this country in the future is export trade. We have had a taste of it and we like it. But in order to keep that export trade we need also governmental assistance, and we need it quickly. We must not fool ourselves, just because we are enjoying a large export trade to-day which was forced upon us by circumstances, that these same circumstances will keep it with us. Far from it. And unless we prepare and fortify our manufacturers with the necessary instruments to do this export trade we won't have any. The first thing we need is the passage of the Webb bill, because it legalizes co-operation. Of course, we have many large factories in this country that are strong enough to undertake to seek export markets, but we do not want only conditions that large concerns can enjoy. We want conditions that are equal to all.

Ties Purchased in 1915

Oak, Including Red and White, Supplied More Than 50 Per Cent of Total Reported Purchased

Statistics that have been compiled by the Government Forest Service on the ties purchased during 1915 in the United States by the steam railroads, electric railways, light, heat and power companies, show that fewer ties were purchased in 1915 than in any year since 1907.

Table I shows the number of ties purchased each year from 1907 to 1911, and for the year 1915, classified according to kinds of wood and arranged in the order of number purchased during 1915. Statistics were not obtained for the years 1912, 1913 and 1914.

Five kinds of wood supplied over 81 per cent of the total number of ties reported purchased in 1915. These were the

TABLE I—NUMBER OF CROSSTIES REPORTED PURCHASED, 1907, 1909 TO 1911 AND 1915, BY KINDS OF WOOD

Kind of Wood	1915	1911	1910	1909	1907
All kinds....	*97,106,651	135,053,000	148,231,000	123,751,000	153,703,000
Oak	49,333,881	59,508,000	68,382,000	57,132,000	61,757,000
South'n pine	14,115,681	24,265,000	26,264,000	21,385,000	34,215,000
Douglas fir..	6,950,910	11,253,000	11,629,000	9,067,000	14,525,000
Cedar	5,122,103	8,015,000	7,305,000	6,777,000	8,954,000
Chestnut ...	4,548,352	7,542,000	7,760,000	6,629,000	7,851,000
Cypress	4,478,612	5,857,000	5,396,000	4,589,000	6,780,000
E. tamarack	2,606,794	4,138,000	5,163,000	3,311,000	4,562,000
W. yellow p.	1,402,836	2,696,000	4,612,000	6,797,000	5,019,000
Lodgepole p.	1,316,819	.....	.....	.....	.....
West'n larch	1,251,304	.....	.....	.....	.....
Beech	1,173,490	1,109,000	798,000	195,000	52,000
Maple	1,069,547	1,189,000	773,000	158,000	.....
Hemlock ...	859,662	3,686,000	3,468,000	2,642,000	2,367,000
Redwood ...	563,685	1,820,000	2,165,000	2,088,000	2,032,000
Gum	485,466	1,293,000	1,621,000	378,000	15,000
Birch	465,815	.....	.....	.....	.....
All other....	1,361,694	2,682,000	2,895,000	2,603,000	5,574,000

*Abstract of address recently presented before a joint assembly of the National Hardware Manufacturers' Association and the Southern Hardware Jobbers' Association.

*Mileage of railroads reporting ties represent 78.46 per cent of total mileage. Mileage represented for former years not obtainable.

oaks, southern pine, Douglas fir, cedar, and chestnut. While there appears to be no trend toward the use of any one species, more oak was reported than any other kind of wood. This is doubtless due to the fact that oak has the requisite strength and hardness for ties and is available in many localities in large quantities. Oak, including both red and white, supplied 49,333,881 ties, or 50.8 per cent of the total number reported purchased. Yellow pine was second in importance, contributing 14,115,681 ties, or 13.43 per cent of the total number reported. This species is largely used because of its availability and cheapness, and in the case of longleaf pine, because of its durability, also the strength of longleaf pine adds to its desirability.

Table II shows the number of crossties reported purchased by the steam railroads, electric railways, and light, heat and power companies. The total number of crossties reported

TABLE II—NUMBER OF CROSSTIES REPORTED PURCHASED IN 1915, BY CLASSES OF PURCHASERS AND KINDS OF WOOD

Kind of Wood	Total	Steam Railroads	Electric Railways and Power Companies
All kinds	97,106,651	88,498,655	8,607,996
White oak	32,461,555	30,160,316	2,301,239
Red oak	16,872,326	15,989,605	882,721
Southern pine	14,115,681	13,226,654	889,027
Douglas fir	6,950,910	6,308,685	642,225
Cedar	5,122,103	4,121,570	1,000,533
Chestnut	4,548,352	2,666,402	1,881,950
Cypress	4,478,612	4,375,012	103,600
Eastern tamarack	2,606,794	2,520,475	86,319
Western yellow pine	1,402,836	1,183,535	219,301
Lodgepole pine	1,316,819	1,254,420	62,399
Western larch	1,251,304	1,196,415	54,889
Beech	1,173,490	1,139,457	34,033
Maple	1,069,547	1,062,086	7,461
Hemlock	859,662	829,924	19,738
Redwood	563,685	270,694	292,991
Gum	485,466	485,466	0
Birch	465,815	462,462	3,353
All other	1,361,694	1,235,477	126,217

purchased during 1915 by the steam railroads was 88,498,655, or 91.1 per cent of the total reported by all classes of purchasers.

The number of ties purchased by the electric railways and light, heat and power companies amounted to 8.87 per cent of the total, a decrease of 281,000 ties in comparison with the number purchased by these companies in 1911. The greater part of those reported were white oak, cedar, and chestnut. Southern pine and red-oak ties were purchased in nearly the same quantities, while fewer birch ties than any other were separately reported.

New Hydroelectric Construction in France

William H. Cole in This Country to Place Orders for the Required Machinery

William H. Cole, engineer for the Union Passenger Railway Company of Richmond at the time of its electrical equipment in 1888, but for most of the time since practicing engineering abroad, is in this country, in charge of three undertakings in which the French government is indirectly interested.

One of these projects is in connection with proposed hydroelectric work in the French Alps and Pyrenees, a development made desirable at this time by the scarcity of coal in France. This work will be undertaken by the Société d'Hydraulique Foncière et Industrielle, recently organized in Paris with a paid-up capital stock of 25,000,000 francs. According to Mr. Cole, most of the hydroelectric machinery required in the developments now to be undertaken by this company will be purchased in America. Allied with this company is a second corporation, the Société Centrale d'Industrie, whose purpose will be to distribute and use this power. The water power first developed will be in the Alps, and part of it will be used for the operation of sections of the Midi Railway. Both of these companies hold franchises for 100 years, granted by the French government.

A third mission being undertaken by Mr. Cole on this trip is in connection with the rehabilitation of the portions of northern France and Belgium retaken from the Germans. This undertaking will be carried out by an organization known as the American Bank Franco-Belgique.

Mr. Cole is a member of the A. I. E. E., and his professional work in the past has included active connection with electric railways in Rio de Janeiro, Buenos Ayres, Mexico City and Singapore.

Large Size Catalog Favored

By F. V. BURTON

Eastern Sales Manager Byrant Electric Company, Bridgeport, Conn.

I am glad to see so much interest in the discussion which is going on in your columns with reference to standard catalog sizes because it indicates very clearly that a standard is desired, and the more agitation on the subject there is the sooner standardization will come.

Our standard catalog is 8 in. x 10½ in., which is the size recommended by Mr. Rice, manager of the publication bureau of the General Electric Company in his article on page 808 of your issue of April 28. The reasons which he sets forth are among those which influenced us in dropping the 6-in. x 9-in. size in favor of the 8-in. x 10½-in. size. Then there is an additional reason, which is important with those manufacturers who, like ourselves, make shelf goods. This is that the same plates used for printing a bound 8-in. x 10½-in. catalog can be used satisfactorily for printing on the 8-in. x 10½-in. sheets of the loose-leaf catalog that is issued by the Electrical Supply Jobbers' Association to its members. As the catalog would probably have a border, it is possible, by omitting the border, to leave a 2-in. margin at the binding edge, which is necessary in a loose-leaf book of this character to prevent the reading matter from being concealed or difficult to read in the fold of the book.

Of four manufacturers in our line of business who have issued catalogs during the past year, three have for the first time used the 8-in. x 10½-in. size, so that it looks as if the industry was standardizing on this size quite rapidly.

President Names Economy Board

President Wilson has named a commercial economy board of the advisory commission of the Council of National Defense. The members of this board are Edwin F. Gay, professor of economics at Harvard; Wallace D. Simmons of St. Louis, George Rublee of New Hampshire, Henry F. Dennison of Massachusetts, Dr. Horace Godfrey and A. W. Shaw of Chicago, chairman. The board is organized to assist the readjustment of distribution during the war by securing the voluntary co-operation of business men in adopting more efficient methods and in cutting down waste. One of the chief objects is to assist commercial houses in releasing employees for the government service without dislocating business.

Electric Properties Corporation

The Electric Properties Corporation, at a special meeting of the stockholders held on May 7, approved the action of the board of directors in taking over the property and business of Westinghouse Church Kerr & Company. The changing of the name of the Electric Properties Corporation to that of Westinghouse Church Kerr & Company, Inc., was also approved. The notice calling the special meeting of stockholders stated that the change in name was for the purpose of effecting economies, particularly in the saving of payment of double federal income and surplus profits taxes.

Gear Manufacturers Meet

The American Gear Manufacturers' Association, the organization of which was noted in the ELECTRIC RAILWAY JOURNAL of April 7, held its second meeting at the Hotel Schenley, Pittsburgh, on Monday and Tuesday, May 14 and 15. The meeting was well attended, there being about twenty gear manufacturers represented.

Papers were presented by the following: S. L. Nicholson, Westinghouse Electric & Manufacturing Company, on "The Ins and Outs of an Industry Organization"; James E. Gleason, Gleason Works, on "The Spiral or Curved Tooth Beveled Gear"; Frank Burgess, Boston Gear Works, on "Industrial

Mill or Job Gearing," and William Ganschow, William Ganschow Company, on "The Advantages of Gear Standardization."

Steel Orders Piling Up

The books of the United States Steel Corporation show that on April 30 there were unfilled orders amounting to 12,183,083 tons. This total makes a new high record and is an increase of 471,439 tons over the tonnage shown at the end of March. The increase in the figures for April was more than was expected. The total of unfilled orders on hand at the end of last month compares with a finished steel capacity of 16,080,000 tons annually. The following table gives the unfilled tonnage at the close of the first four months of each year for 1915, 1916 and 1917:

	1917	1916	1915
January	11,474,054	7,922,767	4,248,571
February	11,576,697	8,568,966	4,345,371
March	11,711,644	9,331,001	4,256,749
April	12,183,083	9,829,551	4,162,244

NEW YORK METAL MARKET PRICES

	May 3	May 19
Prime Lake, cents per lb.	31	31 1/2
Electrolytic, cents per lb.	31	31 1/2
Copper wire base, cents per lb.	36	36
Lead, cents per lb.	9 7/8	10 1/2
Nickel, cents per lb.	50	50
Spelter, cents per lb.	9 1/2	9 3/4
Tin, Straits, cents per lb.	58 1/2	65 1/2
Aluminum, 98 to 99 per cent, cents per lb.	60	60

OLD METAL PRICES

	May 3	May 19
Heavy copper, cents per lb.	24 1/2	25
Light copper, cents per lb.	21 1/2	22
Red brass, cents per lb.	18 1/2	18 1/2
Yellow brass, cents per lb.	17 1/2	17 1/2
Lead, heavy, cents per lb.	7 3/4	8
Zinc, cents per lb.	7	7
Steel car axles, Chicago, per net ton	\$41.50	\$41.50
Iron car wheels, Chicago, per gross ton	\$24	\$25.50
Steel rail (scrap), Chicago, per gross ton	\$31.50	\$31.50
Steel rail (relaying), Chicago, per gross ton	\$39	\$39
Machine shop turnings, Chicago, per net ton	\$11.00	\$11.50

CURRENT PRICES FOR MATERIALS

	May 3	May 19
Rubber-covered wire base, New York, cents per lb.	36 1/2	36 1/2
No. 0000 feeder cable (bare), New York, cents per lb.	36 1/2	36 1/2
No. 0000 feeder cable stranded, New York, cents per lb.	33 3/4	33 3/4
No. 6 copper wire (insulated), New York, cents per lb.	33	33
No. 6 copper wire (bare), New York, cents per lb.	36	36
Rails, heavy, O. H., Pittsburgh, per gross ton	\$40	\$40
Rails, heavy Bessemer, Pittsburgh, per gross ton	\$38	\$38
Wire nails, Pittsburgh, per 100 lb.	\$3.50	\$3.50
Railroad spikes, 9/16 in., Pittsburgh, per 100 lb.	\$3.85	\$3.85
Steel bars, Pittsburgh, per 100 lb.	\$4.00	\$4.00
Sheet iron, black (24 gage), Pittsburgh, per 100 lb.	\$6.35	\$6.70
Sheet iron, galvanized (24 gage), Pittsburgh, per 100 lb.	\$7.55	\$7.55
I-beams over 15 in., Pittsburgh, cents per lb.	10	10
Galvanized barbed wire, Pittsburgh, cents per lb.	\$4.35	\$4.35
Galvanized wire, ordinary, Pittsburgh, cents per lb.	\$4.15	\$4.15
Cement (carload lots), New York, per bbl.	\$2.12	\$2.12
Cement (carload lots), Chicago, per bbl.	\$2.16	\$2.16
Cement (carload lots), Seattle, per bbl.	\$2.60	\$2.50
Linseed oil (raw, 5 bbl. lots), New York, per gal.	\$1.21	\$1.28
Linseed oil (boiled, 5 bbl. lots), New York, per gal.	\$1.22	\$1.29
White lead (100 lb. keg), New York, cents per lb.	10 3/4	11 1/4
Turpentine (bbl. lots), New York, cents per gal.	52	47

ROLLING STOCK

North Kankakee Electric Light & Railway Company, North Kankakee, Ill., is reported to be in the market for two cars.

Carbon Transit Company, Mauch Chunk, Pa., is reported to be in the market for cars.

Halifax (N. S.) Electric Tramway Company, Canada, is in the market for additional rolling stock, rails, ties and general construction material.

Tampa (Fla.) Electric Company is having fifteen double-end pay-as-you-enter one-man safety cars built for it in the shops of the American Car Company, St. Louis, Mo.

Gary & Interurban Railroad, Gary, Ind., is expected to place an order for two motor and four trail cars within the next week.

Cedar Rapids & Marion City Railway, Cedar Rapids, Iowa, noted in the April 21 issue as being in the market for fifteen city cars, has placed this order with the American Car Company.

Mahoning & Shenango Railway & Light Company, Youngstown, Ohio, has placed an order with the G. C. Kuhlman Company for three Peter Witt cars.

Mason City & Clear Lake Railroad, Mason City, Iowa, noted in the April 21 issue as being in the market for three cars, has placed this order with the American Car Company.

Houston (Tex.) Electric Company, noted in the May 12 issue as having eighteen single-end pay-as-you-enter one-man safety cars built for it by the American Car Company, has specified the following details for this equipment:

Number of cars ordered	18	Door mechanism	Safety Car Devices Co.—air-operated
Builder	American Car	Hand brakes	American Car—
Type	One-man safety	with Pittsburgh ratchet	drop handles
Seating capacity	36	Headlights	Golden Glow S-M-95
Length over bumpers	27 ft. 9 1/2 in.	Journal boxes	Brill
Length over vestibule	26 ft. 9 1/2 in.	Sanders	Keystone air sanders
Width over all	8 ft. 0 in.	Sash fixtures	O. M. Edwards
Rail to trolley base	12 ft. 6 in.	Seats, style	Heywood Bros. & Wakefield 57-S-P
Body	Semi-steel	Seating material	Mahogany wood, steel and canvas lined
Interior trim	Statuary bronze	Arch	rattan
Headlining	None, rafter finish	Springs	Brill
Roof	Arch	Step treads	Feralun
Air brakes	Safety Car Devices Company	Trolley catchers	Keystone
Axles	Brill	Trucks, type	Brill 78-M-1
Bumpers	American Car channel iron	Ventilators	Utility Ventilators
American Car channel iron	Car trimmings	Wheels	24 in. diam., 2 1/2 in. tread, 5/8 in. flange
Car trimmings	Brill	Special devices	Faraday high voltage push button system
Couplers	None, pull bars used		
Curtain material	Pantasote		
Designation signs	Hunter		

New York State Railways, Rochester Lines, Rochester, N. Y., noted in the March 24 issue as purchasing twenty-five 50-ft. Peter Witt cars from the Cincinnati Car Company through W. R. Kerschner, has specified the following details for this equipment:

Number of cars ordered	25	Designation signs	Hunter
Date of delivery	September, 1917	Door mechanism	National Pneumatic
Builder	Cincinnati Car	Fare boxes	Cleveland
Type	Peter Witt	Fenders	Eclipse
Seating capacity	53	Gears and pinions	GE, grade M.
Weight (total)	31,900 lb.	Hand brakes	Cincinnati Car
Bolster centers	26 ft. 0 in.	Heaters	Peter Smith hot air
Length over bumpers	50 ft. 0 in.	Headlights	Trolley Supply Co.
Width over all	8 ft. 4 in.	Journal Boxes	Taylor
Rail to trolley base	11 ft. 1/4 in.	Lightning arresters	GE.
Body	Steel	Motors	Four GE, No. 258 inside hung
Interior trim	Cherry	Registers	None
Headlining	Steel	Sanders	Railway Co.'s standard
Roof	Arch	Sash fixtures	Edwards
Air brakes	Westinghouse DH-10	Seats, style	Transverse at read end, longitudinal front
Axles	Forged annealed steel	Seating material	Fabrikoid
Bumpers	Channel irons	Springs	Taylor
Car trimmings	Railway Company standard	Step treads	Metal
Conduits and junction boxes	Alphaduct	Trolley catchers	Not yet ordered
Control	GE-K-12 with magnetic line switch	Trolley base	GE.
Couplers	Drawheads with bars	Trolley wheels	Lumen
Curtain fixtures	Curtain Supply, grooved ring fixture	Trucks, type	Taylor RH.
Curtain material	Pantasote	Ventilators	Not yet decided
		Wheels	26 in., cast iron

Puget Sound Traction, Light & Power Company, Bellingham, Wash., noted in the March 24 issue as having had four double-end one-man pay-as-you-enter safety cars purchased for it by Stone & Webster, Boston, Mass., has specified the following details for these cars. Details for twenty-eight single-end cars ordered for the Tacoma properties were reported in the April 28 issue.

Number of cars ordered	4	Gears and pinions	GE.
Builder	American Car	Hand brakes	American Car, with Pittsburgh ratchet drop handle
Type	One-man safety	Headlights	Golden Glow, S. M. 95
Seating capacity	34	Journal boxes	Brill
Length over bumpers	27 ft. 9 1/2 in.	Lightning arresters	GE.
Length over vestibule	26 ft. 9 1/2 in.	Motors	Two G.E., 258 C., inside hung
Width over all	8 ft. 0 in.	Sanders	Keystone air sander
Rail to trolley base	12 ft. 6 in.	Sash fixtures	O. M. Edwards
Body	Semi-steel	Seats, style	Heywood Bros. & Wakefield
Interior trim	Statuary bronze	Seating material	Mahogany wood, steel and canvas lined
Headlining	None, Rafter finish	Springs	Brill
Roof	Arch	Step treads	Feralun
Air brakes	Safety Car Devices Company	Trolley catchers	Keystone
Axles	Brill	Trolley base	GE.
Bumpers	American Car channel iron	Trolley wheels	GE.
American Car channel iron	Car trimmings	Trucks, type	Brill, 78-M-1, special
Car trimmings	G.E. K-10	Ventilators	Utility ventilator
Control, type	None, pull bars used	Wheels	24-in. diam., 2 1/2 in. tread, 5/8 in. flange
Couplers	None, pull bars used	Special devices	Faraday high voltage push button system, ESS, Co.
Curtain material	Pantasote		
Curtain fixtures	Hunter		
Designation signs	Safety Car		
Door mechanism	Safety Car		
Devices Company, air-operated			
Fare boxes	Johnson, Model D		
Fenders	Furnished and installed by railway		

TRADE NOTES

Philadelphia (Pa.) Holding Company has received an order from the Hutchinson (Kan.) Interurban Railway for one radial truck.

George W. Neff has taken charge of the Eastern management of the John H. McGowen Company of Cincinnati, Ohio, with offices at 50 Church Street.

General Electric Company, New York, N. Y., is moving its entire offices from 30 Church Street to the Equitable Building, 120 Broadway, where it will occupy the entire twentieth floor.

A. W. Burchard was elected an additional member of the board of directors of the General Electric Company at the annual meeting of the stockholders held on May 8. All of the retiring directors were re-elected.

Frank M. Hawkins, since 1897 managing representative of the New York territory of the Crouse-Hinds Company, will hereafter devote most of his time to export trade. For the present he will investigate the West Indian and the South American trade.

Electrose Manufacturing Company, Brooklyn, N. Y., is distributing a report rendered to the company on a high-voltage test of its insulated connectors, ordered for the W. S. Barstow Company. The tests were made by the Electrical Testing Laboratories.

Packard Electric Company, Warren, Ohio, has established a district office on the fourth floor of the San Fernando Building, Los Angeles, Cal., in charge of J. G. Monahan, district manager. This office will handle all of the territory south of Fresno and also the State of Arizona on all products of the transformer department.

Electric Service Supplies Company, Philadelphia, Pa., recently had a flag raising at its factory which was attended by several hundred employees of the company. The flag, which is illuminated by three Golden Glow floodlighting projectors, was raised after appropriate ceremonies in which all participated.

Bound Brook (N. J.) Oil-less Bearing Company has awarded a contract for a new foundry to be erected at plant No. 2, Lincoln, N. J., which is located 2 miles east of the Bound Brook plant. The new two-story, steel-and-brick building will be 80 ft. x 180 ft. and will be completed by Aug. 1, 1917.

McHenry & Murray, New Haven, Conn., announce that this engineering firm has been dissolved by mutual consent of the partners. Mr. Murray will hereafter devote his entire time and attention to the interests of the Housatonic Power Company, of which he is president, and Mr. McHenry will retire to private life.

Frank W. Marvel, with headquarters in Philadelphia, has been appointed special representative in the Eastern territory for the Indianapolis Switch & Frog Company, Springfield, Ohio. For the past seven years Mr. Marvel has been identified with the Buda Company as sales engineer with headquarters in Chicago.

Railway Track Tamping Machine Company, Lewiston, Me., has recently been organized for making railway track bed machinery. The company is capitalized for \$75,000. William P. Barrell is president and C. L. Emerson, treasurer, and these two with Nicola Talarico and H. C. Barrel are directors.

Duquesne Electric & Manufacturing Company, Pittsburgh, Pa., is the new name adopted by the Service Supply & Equipment Company, dealer in second-hand electrical equipment and contractor for electrical repair work. The new company has opened a large repair shop at East Liberty, Pa. The sales offices, however, still remain in the Bessemer Building.

Casey-Moorehead Engineering Company, Pittsburgh, Pa., consulting electrical engineer, has opened offices in the Bessemer Building. The company will furnish appraisals, estimates, reports and specifications on electrical apparatus applied to industrial plants and coal mines. Both Mr. Moorehead and Mr. Casey were formerly with the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

C. P. Donahue has been appointed sales manager of the Electric Materials Company, North East, Pa., effective May

1. Mr. Donahue has been with the company since February, and prior to that he was employed by the Westinghouse Electric & Manufacturing Company at East Pittsburgh for fourteen years, during which period he had several years of practical shop work, the remainder of the time being connected with the sales department.

National Conduit & Cable Company, Inc., New York, N. Y., noted in the April 28 issue as having been reorganized under the laws of New York State with a capitalization of \$8,700,000, has elected the following board of directors: Edward S. Perot, Edward S. Perot, Jr., Morton A. Howard, George J. Jackson, Albert H. Wiggin, president Chase National Bank; C. E. Mitchell, president National City Company; Andrew Fletcher, president American Locomotive Company; Stephen Millett of Millett, Roe & Hagen; Robert Montgomery of Montgomery, Clothier & Tyler, and Hugh K. Prichitt of Prichitt & Company. Edward S. Perot is president; Edward S. Perot, Jr., vice-president; Morton A. Howard, secretary, and George J. Jackson, chairman of the board.

Railway Tie Corporation, 2007 Railway Exchange Building, St. Louis, Mo., recently incorporated, has purchased the patent rights on a combined wood and steel tie from the Illinois Railway Tie Company and also on a metallic tie from the National Tie Company. The company has decided to build its own manufacturing plant, as it is impossible to get ties made to fill several large orders now on hand, on account of the congestion in the steel mills. The company also has offices in Chicago, 1531 Lytton Building, and in Philadelphia, 810 Commercial Trust Building. J. H. Stube is president, Chicago, W. F. Sloan, vice-president, Chicago, A. L. Taylor, second vice-president, Harrisburg, Pa.; J. F. Sweeney, treasurer, Chicago; F. W. Burk, secretary, Chicago, and F. A. Swisher, assistant secretary, Philadelphia.

NEW ADVERTISING LITERATURE

American Steel Foundries, Chicago, Ill.: An attractive folder containing a poem, "The Evolution of the Wheel," by A. Trevor Jones.

Stow Manufacturing Company, Binghamton, N. Y.: Copies of miniature bulletins No. 101 and 102 on electric tools and flexible shafts.

B. S. Barnard & Company, New York, N. Y.: Booklet of conduit specialties and tools for removing obstructions in underground conduit systems.

Dielectric Manufacturing Company, St. Louis, Mo.: A catalog on insulation, paints and varnishes. Contains useful curves showing the electrical characteristics of the different insulating materials.

National Tube Company, Pittsburgh, Pa.: Bulletin No. 27 on the uses of National pipe. Contains a sixteen-page section of tables and data about the physical properties of National pipe of interest to the engineer.

John C. Dolph Company, Newark, N. J.: A catalog which will enable the users of insulating varnishes to select the type of varnish most suitable for their apparatus. All varnishes listed under trade names, qualities and characteristics.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.: Catalog 5A on insulating materials and supplies. Specifications and uses of mica, micarta, bakelite-micarta for gears and pinions; treated and untreated cloths and papers; varnishes, shellacs, cement, glue and switch oil.

General Electric Company, Schenectady, N. Y.: Bulletin No. 47,477 on 45,000 to 70,000-volt type F, form KO-26 oil circuit breakers for outdoor service. This breaker is usually mounted on framework to allow for easy removal of oil vessels with the help of a tank-lifting device. Breakers made with or without bushing type current transformers for indicating or tripping purposes.

Railway Improvement Company, New York, N. Y.—Publication which resembles in appearance a Rico coasting recorder. Explains use of comparative efficiency charts, gives efficiency records, service department figures for all roads on which recorders are installed, announces some recent accessions to the rapidly increasing number of users of coasting recorders, and explains the use of Rico efficiency service in rewarding efficient and skilled motormen.