

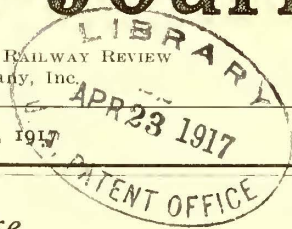
Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW
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The President's Message

IN his proclamation of April 15, which is published in full elsewhere in this issue, President Wilson declares clearly that every individual has a duty to perform in the present emergency. The railways and their personnel are particularly mentioned. "They are the arteries of the nation's life," says the President, and he continues that upon the men who run these roads "rests the responsibility of seeing to it that these arteries suffer no obstruction of any kind, no inefficiency or slackened power." This work of transportation is the primary duty of the electric railway companies and their employees. It is necessary not only for the movement by the war department of troops and their supplies, but also for the transportation of the great industrial "service army," as the President calls it, which is working behind the lines. But there is much else that can be done by both companies and by their officers and employees. Some of these we have already mentioned, and we shall speak of others as opportunities for new means of service become apparent. Whatever plans are ultimately adopted for national defense and offense, much will depend, and in fact now depends, upon individual initiative. Let every company and individual do all that can be done to support the country in this emergency.

THE RIGHT MAN IN THE RIGHT PLACE

Even though we have now definitely engaged ourselves in the business of war, the period of "preparedness" is by no means concluded. It is clear, from the President's proclamation, that what is needed now is the organization and co-ordination of our resources in men and supplies. It is equally apparent that any man who is specially fitted for some place in the non-combatant organization should not be in the fighting line. It is still more obvious that even if he should be over the age from which recruits are likely to be drawn, his services should not be denied to the nation because of its lack of knowledge of his qualifications. In brief, the primary need of the hour is to get the right man into the right place. As a means to this end censuses of members have been taken by several national technical societies with the object of providing classified lists of specialists who will be available for the coming multitudinous activities of the government, and this phase of the preparedness movement has now extended to associations of less general scope than the technical societies, the plan of registration adopted by the Yale Engineering Association being the most complete and practical one that has come to our attention. Consequently, it seems proper to say that, in view of the vital importance of prompt organization of all of our country's resources—both men and material—every citizen who is worthy of the name should see that he is enrolled with some organization through which, if need be, the government may ascertain his qualifications and utilize them to the greatest benefit of our country. Several electric railways have already formed such registration bureaus, and it would be well if every one of them established qualification lists of their numerous employees.

\$1,000,000 FOR JITNEY DAMAGE

The Winnipeg Electric Railway believes that there is a limit to which patience can be stretched. During the past two years it has paid to the city \$545,747 for general taxes, percentage of gross revenue and pavement charges. It has also paid to keep the streets occupied by its tracks free from snow and a license fee of \$20 per car—all this for the privilege of exclusive rights to carry passengers on the streets of the city. But the city has not kept its part of the agreement. It has permitted jitney competition, and the loss already suffered by the company amounts to \$1,000,000. For this sum the company has just notified the city that it expects to be reimbursed for damages already suffered. It has also told the city that unless immediate steps are taken to stop further jitney competition the company will be obliged to consider refusing to pay any further sums as percentages of gross revenues, as taxes on its cars or as pavement charges. We are glad to see the company take this definite position. Of course these payments are only a part, and a very small part, of what a transportation company does for a municipality. If, because of jitney competition, a railway company is unable to make needed extensions or has to reduce its service in the outlying parts of a city, the injury to the community is much greater than would be the loss of the taxes paid by the company. But the enumeration of these taxes furnishes a very concrete statement of what the company is paying the city in cash and emphasizes the extent to which it is being injured by jitney competition. The city cannot reasonably expect both to tax privileges and at the same time not to grant them. We hope that the company will actually bring suit and that it will win its case.

THE MASTER MECHANIC'S CORNER

Through the "Billy" Sunday campaign the song "Brighten the Corner Where You Are" has been made very popular. This advice has been applied too literally to the master mechanic, who is frequently expected to brighten up a very dingy corner. Although no longer subordinate, on many properties, to the transportation department, he receives a cubbyhole between the storeroom and the wheel pit for an office, far away from the company of his fellow department heads. The theory seems to be that as "master" mechanic he should always be on the job to show how much better he can handle a wheelpress or wash a window than any of his workmen. It is time for this view to be scrapped. The master mechanic should be a man who can discard the overalls, assume the title superintendent of equipment and apply his experience and intelligence to the analysis of costs in a modern office located in the building occupied by the other executives of the company. It is a financial crime that the men who are most responsible for great equipment expenditures should so often lack direct control of all vital upkeep statistics, of the power to decide what cars shall or shall not stay on the lines. The superintendent of equipment is too important in reality to be kept brightening some corner miles away from the office.

COST OF LOCOMOTIVE GEAR LOSSES

Losses through friction in the gears used for increasing armature speed and reducing weight and cost of motors for electric locomotives seem generally to be estimated at 5 per cent, assuming a reasonably heavy loading. An approximately equal loss is accorded to the side rods which have been installed also on some American locomotives, both in direct-connected form and combined with a geared jackshaft. Based upon these figures, it would seem that a rather high price is being paid for the advantages that the respective constructions bring, although it may well be, of course, that the gains more than offset the extra expenditure for power. In round numbers it is possible for an electric locomotive to consume an amount of energy during one year whose value is just about half of the locomotive's first cost. To do this something like 100,000 engine-miles must be covered under load, and though none of the American electric locomotives has done this as yet, indications are that the figure will eventually be reached on the Chicago, Milwaukee & St. Paul Railway. Granting this possibility, the annual saving of the gearless type of locomotive over the plain geared type, when capitalized at 15 per cent, would permit an increase in first cost of 17 per cent, and about twice this figure when compared with the geared jackshaft type. This, of course, does not take into consideration the element of special track construction presumably required with the gearless machine. However, with the plain geared and geared jackshaft types, which seem to be about the same as regards track requirements, the former may cost 17 per cent more and still be on an equal basis, or say 10 per cent more under figures for annual locomotive mileage that have actually been recorded to date.

REGULATING THE HOLDING COMPANY

Holding companies owning a controlling interest in a group of scattered properties have thus far escaped the close scrutiny and regulation of public service commissions, which have confined their activities almost entirely to the subsidiary properties. Whatever effect state regulation has had upon the holding company has been the indirect result of the control exercised over the subsidiaries. Recent decisions of public utility commissions, however, have shown that this matter is receiving their attention, particularly as regards what should be considered a reasonable charge for expert management, one of the latest of these decisions being that of the Illinois Public Utilities Commission in the case of the City of Lincoln vs. Lincoln Water & Light Company (P. U. R. A., 1917 B., 1). In this case the corporation is controlled by a holding company which had imposed an annual charge upon its subsidiary for expert service in supervising operation and new construction. These payments were defended on the ground that they were a reasonable and proper operating charge, that they were not excessive in amount, and that they resulted to the direct advantage of the consumer through better service and high operating economies.

The Illinois commission held that the fundamental reason for the organization of a holding company is primarily for the protection of the financial interests involved. A considerable proportion of its expenses must be recouped out of the income which it receives from the dividends upon the stock of the subsidiaries which it manages. Such expenses constitute the cost of safeguarding the capital investment, and this cost cannot properly be saddled upon the utility's consumers. It must be borne by the owners. A holding company could collect from its subsidiary a reasonable charge for engineering and legal work, planning new construction and promptly instituting the latest practices in management and operating methods. How great this charge may be is a question of fact which will not be inferred by the commission but must be affirmatively established by conclusive proof based upon actual results. The burden of proof, in other words, is to be upon the holding company. It must show that it has rendered real service and that this service has resulted to the direct and unmistakable advantage of the public. No general rate can be established. Each case must be judged upon its own merits. In no event, however, will a larger charge be authorized than the expense to which the local utility would be put to secure similar expert advice and assistance in dealing upon a free, independent, competitive basis with outside engineering firms or management associations.

Heretofore little attention has been paid by holding companies when any of their subsidiaries went before the commission in rate cases, to presenting affirmative proof of the value of the service of a holding company and to the exact extent of the operating savings which it has effected. The commissions, in most states, have held that the public has a right to expect efficient operation and that the utility could not ask for an un-

usually favorable allowed rate of return merely because it was giving efficient service at reasonable rates. Where holding companies are charging utilities for services rendered, it would appear to be necessary to establish affirmatively, by comparison with other properties similarly situated in the same territory, and by such other methods as may be suitable, that the holding company has brought about unusual economies in operation and unusual advantages to the consumer. If this can be substantiated, it would appear that a reasonable charge will be sustained. Public utility managers must not infer, however, that the commissions will make inquiry on their own behalf as to whether such charges are justified. The burden of proof is on them, and if proof is not forthcoming the action of the Illinois commission would seem to indicate that regulatory bodies will not, on their own motion, collect proof to substantiate the equity of such payments.

A POSSIBLE WAY OUT OF THE FIVE-CENT FARE QUAGMIRE

There was probably never before a time when managers of electric railways were as perplexed as they are to-day. They see prices of rails, copper, of all materials, going up by leaps and bounds; they see the supply of labor becoming constantly more restricted and the stern necessity facing the men who are available to earn additional pay in order to meet their own increasing cost of living; they see taxes mounting upward in order that municipalities, and indeed the nation itself, may be able to meet the rising tide of expenditure. And, on the other hand, these managers see the 5-cent fare standing like a stone wall in any pathway toward a method of meeting the extraordinary burdens of the time.

The electric railway manager sees steel companies raising the wages of their labor, raising the dividends to their stockholders, and raising the prices of the products which they sell. They see even steam railroads applying to the Interstate Commerce Commission for an increase in freight rates, with considerable likelihood of obtaining it. And all the while that 5-cent fare remains—a source of despair and a barrier to hope.

When managers talk of reducing the number of transfers, the public protests. When an effort is made to be relieved of taxation, the public authorities object on the ground that street railroads should bear their proper share of the current burdens. The manager feels himself ground between the upper and nether millstones of an inexorable public sentiment, a sentiment which considers the 5-cent fare almost as sacred and inviolable as the Constitution of the United States.

This is an editorial of optimism. Everyone recognizes the difficulties. They are difficulties which are apt to become worse before the situation is greatly improved; they are difficulties which call for real statesmanship and for the exercise of an entirely new point of view in dealing with the public in street railway matters.

Street railway managers are doing the best they can against extraordinary odds. They know what these odds are, but the public does not. The public worships the

5-cent fare because it has always done so. It has come to believe that it has a right to street railway service at 5 cents a trip. The public hasn't seriously considered anything else.

How many railroad executives have made up their minds in this exigency really to put all the cards on the table and to trust the public? Continuance of the present situation means bankruptcy to very many companies. Such companies have therefore nothing to lose, they have everything to gain, by throwing aside the cloak of reticence and telling the public their whole story as they see it.

Street railway companies want to give service. The public must have the service. It is absolutely impossible that 6 or 7 cents' worth of service should be given for 5 cents, at any rate for long. The public has every reason and every desire to prevent companies from becoming bankrupt. The American people can be trusted to be fair, once they know the facts. The facts in every case are different. There are perhaps some episodes in the life of every company which its officers would prefer not to have ventilated. But this is not the time for personal preferences; it is a time when a man who expects to accomplish anything real must dare. He must dare to do the right thing because it is right, and out of his knowledge that only by the public appreciating the facts as he appreciates and understands them, can a grievously menacing situation be rectified.

While fully recognizing that great halo of habit which has clustered around the 5-cent fare, we refuse to believe the American people will not agree to a 6 or a 7-cent fare, to the relinquishment of taxation, and to the alleviation of transfer burdens, where such can be justified by an examination of all of the facts. Conditions must be met as they are to-day, not as they might have been; not always, perhaps, as they ought to be; but as they are. It is a very practical situation confronting alike the companies and the public which they serve.

Let us make a concrete suggestion: Most of the companies would have to obtain alleviation from any burdens through the action of some regulating commission. Such commissions obviously could not do much in the face of an aroused and hostile public sentiment. Let the companies tell their stories to the public in advance of any appeal to the public service commissions for relief. Invite committees of representative citizens, representatives of the press, and people of complete independence of thought from different walks of life, to come into your office, examine your books and the facts surrounding your business, and report their conclusions to the public.

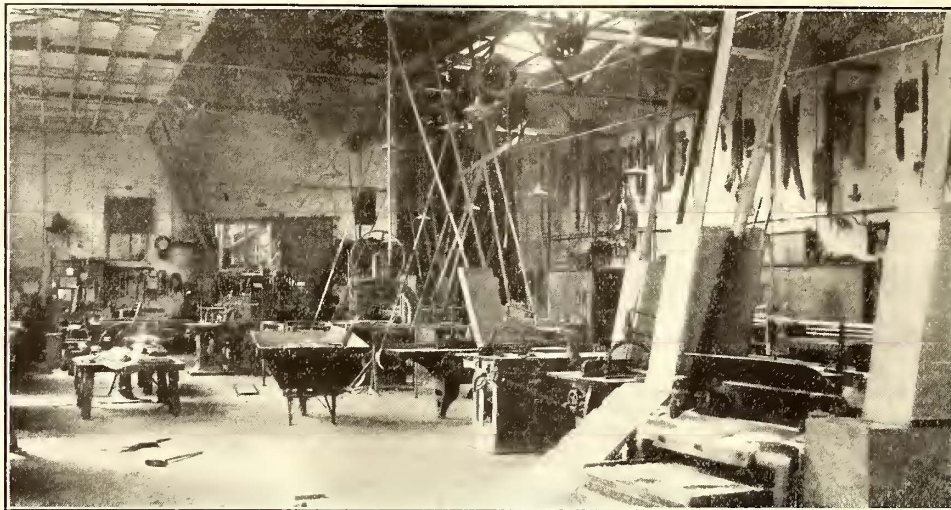
Let everybody see just what the conditions are which you face and how those conditions react upon the public which you serve. Then, having laid all the cards on the table, having told your story to the public as best you know how, go before your regulating bodies and ask for the relief which you feel in the interest of your service your company ought to obtain. We venture to believe that any such policy carried out boldly, frankly and aggressively will achieve results which will be as astonishing as they will prove effective.

West Penn Shops and Shop Methods

Inter-communicating Telephones, Color Scheme for Shop Furniture, Adequate Provision for Use of Compressed Air and Numerous Shop Kinks Add to the Efficiency of the Connellsville Shops of This Railway

By DANIEL DURIE

General Superintendent of Railway Operation, Territory A, West Penn Railways



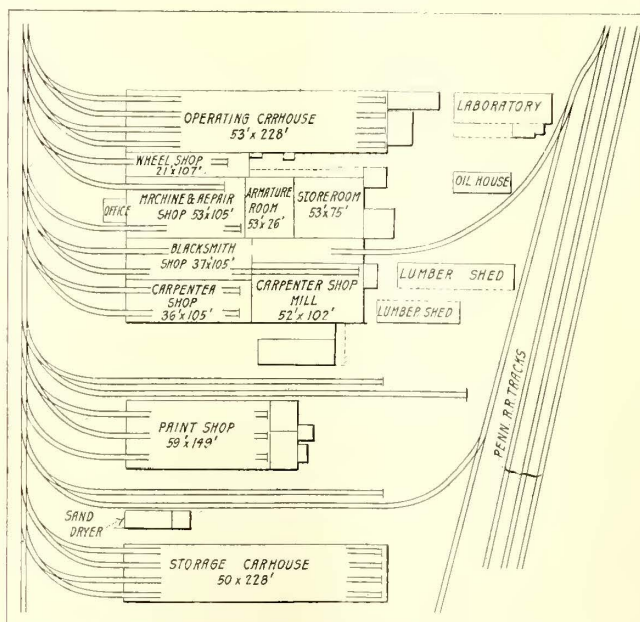
CONNELLSVILLE SHOPS—FIG. 2—GENERAL VIEW OF MILL OF CARPENTER SHOP

THAT part of the West Penn Railways system in southwestern Pennsylvania in the vicinity of Pittsburgh comprises approximately 240 miles of track and operates about 215 cars. The principal repair shops are located at Connellsville. Here some of the cars have been built, and the rebuilding and overhauling of the cars of the entire system are handled at these shops. The accompanying diagram, Fig. 1, shows the general shop layout. This consists of a paint shop, a carpenter shop, a blacksmith shop, a repair and machine shop, an armature repair shop, a storage carhouse and an operating carhouse. The shops are wired throughout with 110-volt a.c. extension cord plug sockets, so that by using a 25-ft. cord it is possible to get a light at practically any part of the shop. This also provides a means of driving small portable machines equipped with alternating-current motors. All the shops and the general foreman's office are connected with an inter-communicating telephone system which has proved to be a great timesaver.

Another practical idea that has been carried out is the shop color scheme. All the walls are painted white or gray, but the furniture, that is, the ladders, wooden jigs, patterns and the like, are painted a different color

in each shop. A great deal of the furniture is hung on the wall when not in use. This apparatus is all numbered, and the corresponding numbers are placed on the wall so that it is an easy matter for a workman to return an article to its proper place after he has finished

with it. To keep the material off the floor and facilitate transfer from one shop to another, standard factory trucks are used. These trucks are also painted to indicate the shop in which they belong. This does away with a great deal of unnecessary labor, as the trucks are kept in their proper places, and when not in use are always within easy reach of the workmen. It will be noted that the storeroom is centrally located so that it can be conveniently reached from all the shops.



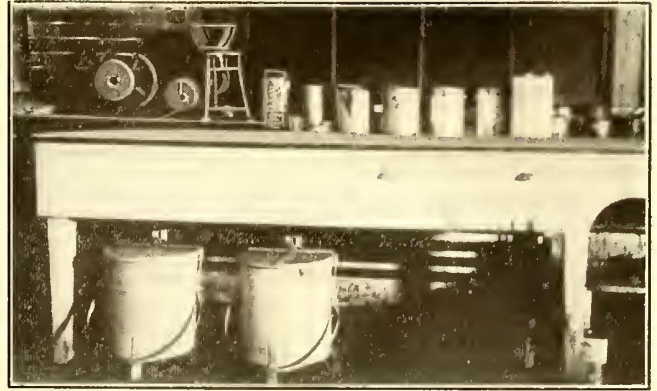
CONNELLSVILLE SHOPS—FIG. 1—LAYOUT OF TRACKS AND BUILDINGS

PAINT SHOP

The paint shop was designed and built during the summer of 1912. It is a modern building 54 ft. x 153 ft., of brick and reinforced concrete construction and arranged to accommodate six 55-ft. cars. It is divided into three sections, one for cleaning, painting and varnishing cars, one for varnishing doors, sashes and other parts, and the third for an office which is also used as a mixing room. The interior of the entire shop, in-



CONNELLSVILLE SHOPS—FIG. 3—WASHING TANKS



CONNELLSVILLE SHOPS—FIG. 7—PAINT-MIXING ROOM

cluding the furniture, is painted white, and it is well lighted by large windows and eight skylights. Artificial illumination is provided by Mazda lamps, there being two rows of 100-watt lamps arranged in clusters of seven, and two rows of 250-watt lamps arranged in clusters of eight. The walls have numerous hooks on which ladders, planks and the like are hung. The floor is of concrete and so graded that all the water will drain toward the track along which sewer drops are located every 30 ft. The arrangement permits washing cars in any part of the shop.

The ship I-beams which support the roof are used as the upright supports for the scaffolding which is necessary when painting or washing the sides of a car. This arrangement is shown in Fig. 12. There is a casting which fits around the I-beam and holds an arm which in turn supports the planks of the scaffolding. When not in use the scaffolding can be pushed up out of the way so as not to interfere with the other work in the shop. All planks which are not in use are kept on a rack built along the wall especially for this purpose.

The door and sash-washing tanks as shown in Fig. 3 are large enough to permit the washing of a complete door without changing its position. The water in these tanks is heated by steam from the steam-heating system, and the tanks are arranged so that the water from them drains directly into the sewer. The window sashes are taken out of a car and put into a portable sash rack designed for the purpose. This rack, shown in Fig. 4, is permanently mounted on one of the standard shop trucks, so that it can easily be moved to any part

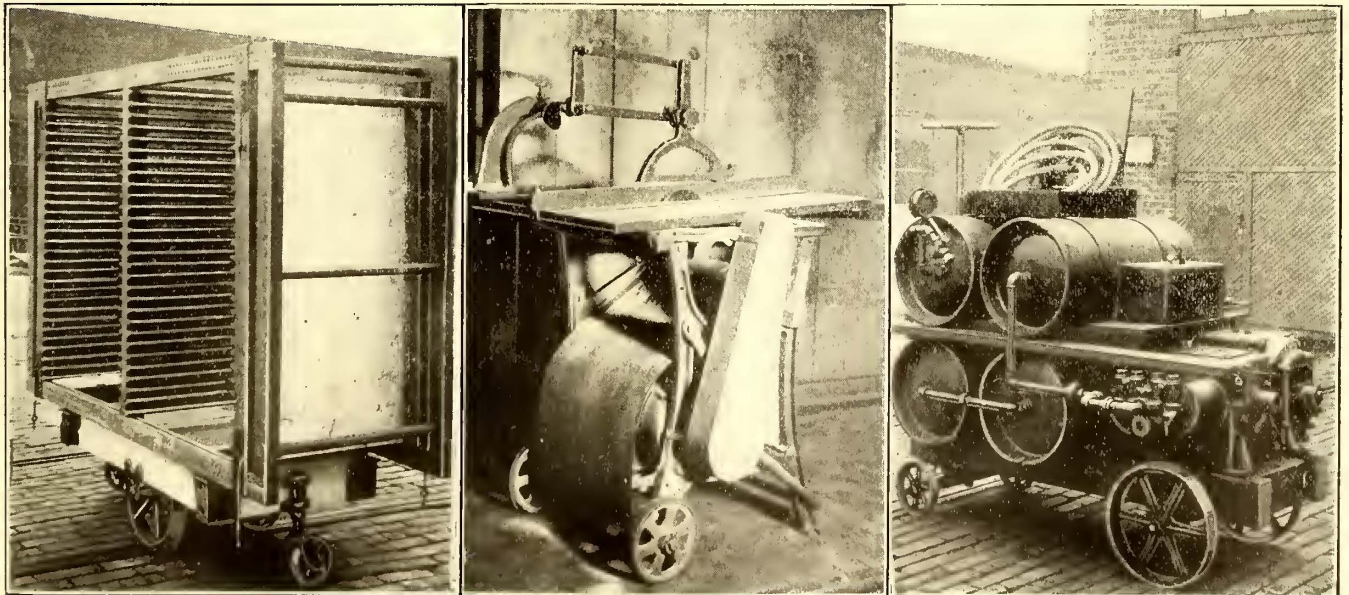
of the shop. The sashes are kept in this rack until they are placed back in the car.

The heating system in the door and sash-varnishing room is so arranged that enough heat can be turned on to dry the varnish very rapidly, it being possible to get as high as 100 deg. Fahr. when the temperature outside is 10 deg. above zero. All the small parts are varnished on the bench shown in Fig. 9, which has a rack arranged so that the long pieces can be left to dry on the top section, the shorter lengths on the next section and the shortest on the lower section. As soon as a piece is varnished it is placed on the rack and thus the bench is kept free to work on at all times.

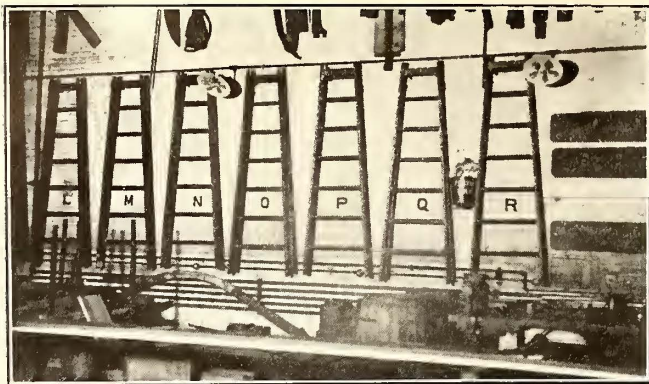
In the mixing room, shown in Fig. 7, supplies for each day's work are kept, while the remainder of the stock is stored in a small fireproof paint storage house directly back of the paint shop. To complete the paint-shop equipment there is a portable air compressor, Fig. 6, which was designed and built in our shops, an old air compressor and tanks from a car being used. This portable compressor has been found very convenient in the paint shop and yard. All the other shops are supplied with air from a large air compressor and storage tanks.

CARPENTER AND BLACKSMITH SHOPS

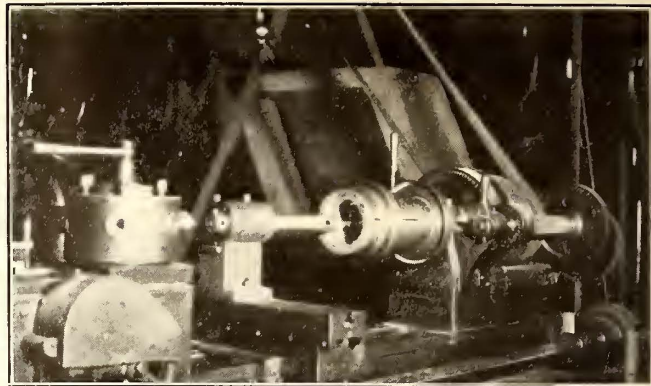
The carpenter and erecting shop is used for the purpose of building new car bodies and overhauling and rebuilding cars that have been in service. The interior of this shop is painted white, while the furniture is red. The building is divided into two sections, the front part being an erecting shop, and the rear section a mill.



CONNELLSVILLE SHOPS—FIGS 4, 5 AND 6—PORTABLE SASH RACK, BUZZ SAW AND AIR COMPRESSOR



CONNELLSVILLE SHOPS—FIG. 8—PORTION OF ERECTING SHOP WALL



CONNELLSVILLE SHOPS—FIG. 11—BEARING BORING LATHE SHOWING SPECIAL CHUCK

A portion of the erecting shop wall is shown in Fig. 8, where the manner of storing the furniture when it is not in use will be noted. A general view of the mill is shown in Fig. 2. It is equipped with all machines necessary in the building of new car bodies, and the machines help considerably in reducing the cost of repairs and overhauling work. It should be noted how carefully the belts, buzz saws, etc., have been safeguarded.

In addition to other portable machines in this mill, there is a trimming saw, shown in Fig. 5, which is driven by 1½-hp. single-phase motor. This saw can be used in any part of the shop and can be operated by plugging into any extension light socket, 110-volt alternating current being used. It is equipped with an approved guard, and all sizes of saws up to 10 in. in diameter can be used in it. It is used on all new car work and on most repair jobs and saves a great deal of hand work.

A screw cabinet located in the mill is shown in Fig. 10. Each different class of screw is kept in a compartment by itself, the shelves being carefully marked and the screws kept in tin boxes made up in the shop for the purpose. These tin boxes are marked to show the size of the screws, and it is the duty of the supply boy always to keep the boxes filled. In order to facilitate this the backs of the boxes are painted red. When a workman empties one he turns this around with the red side showing, so that it is an easy matter for a boy to find the empty boxes. This cabinet is locked at night by sliding an iron bar into position which catches the top of each door. The bar is locked in position by a padlock secured to one end.

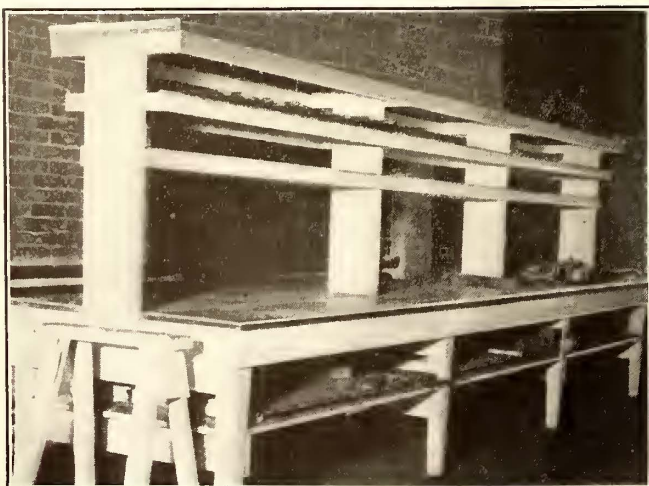
The blacksmith shop is located between the repair and carpenter shops. Its walls are painted white and

the furniture is black. It is equipped with three forges, a mechanically operated hammer, emery wheel, lathe, metal-cutting saw, large punch, shears and a steam hammer which is served by two gib cranes, each supplied with a 1-ton quick-acting chain block. Most of the electric welding is done in the blacksmith shop. It consists in building up armature shafts and axles, welding new ends on armature shafts, repairing gear cases and worn places on brake rigging and doing numerous other jobs. New gear cases are also made here and the electric welder is used in fastening the sections together. There is a portable oil tempering-tank and a fireproof annealing box in this shop, both being mounted on wheels so that they can be moved out of the way when not in use.

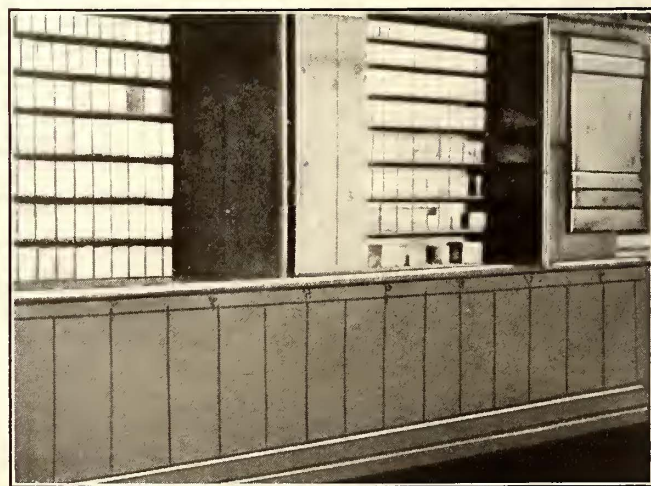
REPAIR AND MACHINE SHOP

The color scheme in this shop is gray. The pits are arranged so that most of the apparatus can be removed from a car and trucks and handled on the floor adjoining. Over one pit there is installed a hydraulic car-lifting hoist which will lift a complete car at one time, or it can be used to lift a truck in order to remove the wheels. The shop is also equipped with gib cranes which have air lifts.

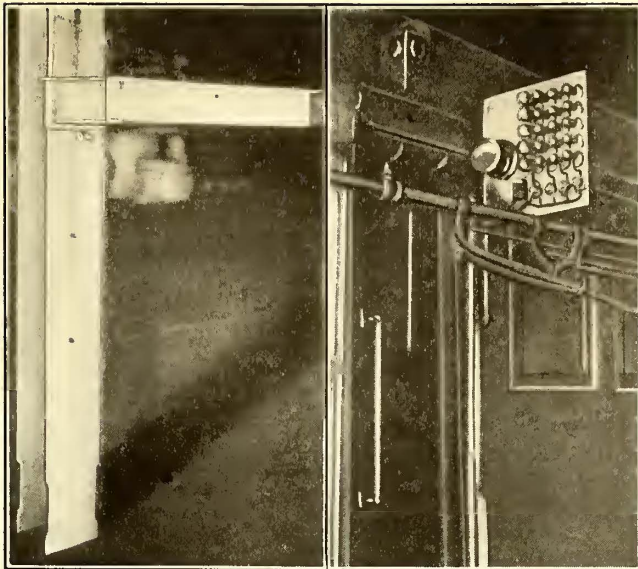
All bearings are bored in the boring machine shown in Fig. 11 which was made from an old turret lathe. To tighten the special chuck which is used to hold the bearing it is necessary only to turn the collar which runs on a tapering thread on the outside of the chuck. Two sizes of chucks are used, one 5 in. and the other 6 in. in diameter. Bearings under 5 in. in diameter and those between 5 in. and 6 in. in diameter are held by using a split bushing between the bearings and



CONNELLSVILLE SHOPS—FIG. 9—VARNISHING BENCH WITH DRYING RACK



CONNELLSVILLE SHOPS—FIG. 10—CABINET CONTAINING THE SCREW SUPPLY



CONNELLSVILLE SHOPS—FIG. 12—SUPPORTS FOR PAINT-SHOP SCAFFOLDING ATTACHED TO BUILDING COLUMN.
FIG. 13—CIRCUIT-BREAKER TESTING BOARD IN OPERATING CARHOUSE

the chuck. These chucks, which have saved a great deal of time in boring bearings, were made in our own shops according to the design of the writer.

ARMATURE ROOM AND OPERATING CARHOUSE

The armature room, located back of the repair shop, has a green color scheme. All the motor and armature repairs for the entire system are taken care of here, and in addition the transformers used by the West Penn Power Company are repaired and rebuilt in this shop. There are several winding machines of West Penn design used in winding armature coils, transformer coils, and other coils that are sent to be rewound. This room is also provided with a lathe for turning commutators, a slotting machine, a large bake box and a banding machine of West Penn design. There are two gib cranes placed in close proximity to the lathe and armature horses so that very little work has to be lifted by hand.

The operating carhouse has four tracks and a capacity of 900 track-feet. It is equipped with an overhead motor-driven hoist for lifting cars. By means of worm gears an old railway motor drives a long shaft on each end of which is located a rope drum. Each of these drums is equipped with two rope blocks by means of which the car body is raised.

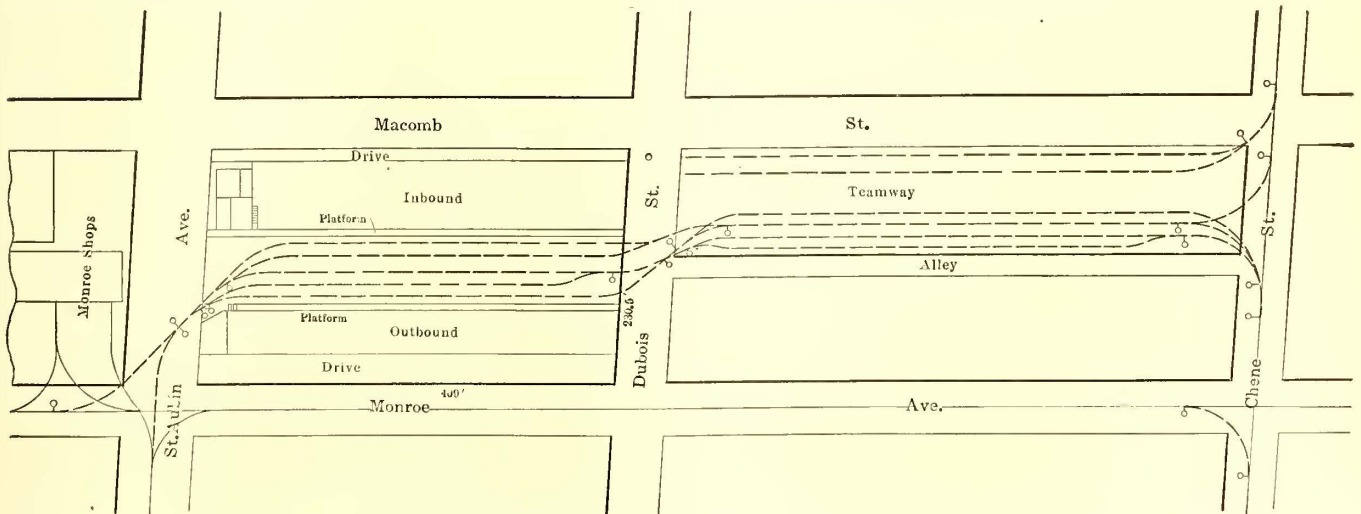
A circuit breaker testing board located in this operating carhouse is shown in Fig. 13. The current used in testing is taken from an old 6-volt electroplating machine. The leads from the field of this machine are brought to the bank of lamps mounted on the testing board, and by varying the field current with this bank of lamps it is possible to get a line current of from 200 to 1000 amp. for testing the circuit breakers. It is standard practice to test all circuit breakers at least every six months.

D. U. R. Begins Construction of New Freight Terminal

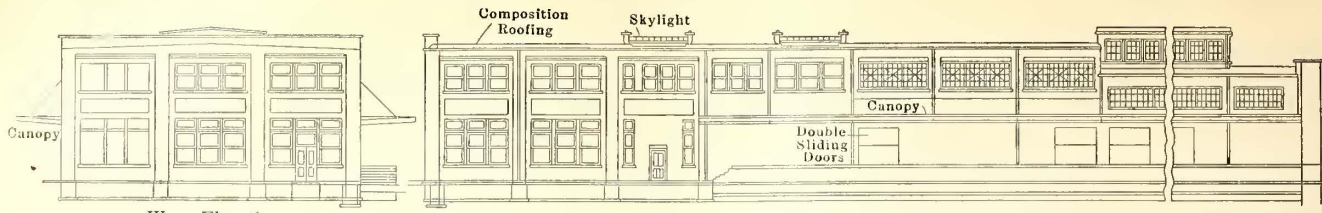
Increased Facilities Required by Large Growth of Business—Plans for Future Freight Terminal Expansion Also Provided

FACING the necessity during the last six months of placing embargoes on certain classes of shipments and of refusing more freight than could be accepted owing to the lack of terminal facilities and equipment adequate to handle the volume of traffic presented, the Detroit United Railway has begun work on a new freight terminal on the East Side at Monroe Avenue and St. Aubin Avenue, which will increase the present facilities about 400 per cent. This includes the construction of an inbound and an outbound freight house, 409 ft. long, with tracks between and driveways on the street sides of the two buildings and, in addition, several team tracks where loading from wagons or trucks directly into cars or vice versa may be facilitated. The layout covers one city block and one-half of another, as shown in the accompanying drawing. The space between the two buildings allows for five tracks, the center one of which will be used for the switching of cars, leaving two inbound and two outbound service tracks. The six tracks for team-track service adjacent will be utilized, three tracks for loading and unloading and three for car storage. The total capacity of the layout will approximate 150 cars in and 150 cars out a day, whereas the present facilities will accommodate only ninety cars in and out a day.

The new terminal is to be located on property adjacent to the old Monroe shops of the company, which, following the recent removal of the carpenter shop to the new Highland Park shop location, will be used as an interurban inspection station. This property will ultimately be used, however, for the expansion of the freight terminal. In addition to this new terminal, the company has just purchased two city blocks



DETROIT FREIGHT TERMINAL—GENERAL PLAN OF TERMINAL



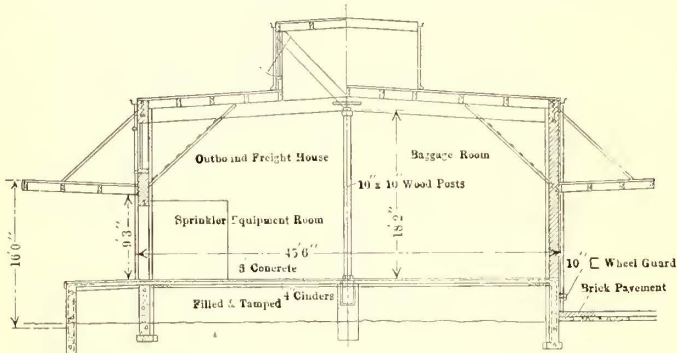
DETROIT FREIGHT TERMINAL—ELEVATIONS OF INBOUND FREIGHT HOUSE

containing 6½ acres between Fort and Lafayette and Fifteenth and Seventeenth Streets for a future West Side freight terminal. Probably no buildings will be erected here for two years, or until the present new terminal is overloaded, and no definite plans for the layout are yet drawn up.

BUILDINGS AND EQUIPMENT

The two buildings at the new Monroe Avenue terminal designed by Smith, Hinchman & Grylls, Detroit, will be of mill-type construction with brick walls and monitor roof, and with mastic asphalt on concrete floors. The west 145 ft. of the inbound building will be two stories high and will be used for office purposes. This portion of the building will also contain a locker and wash room and a lunch room for the employees, a 30-ft. x 46-ft. hot and cold room, record storage room, etc. The west end of the outbound freight house is to be used for a 20-ft. x 45-ft. baggage room and a 26-ft. x 28-ft. hot and cold room.

Each building will be equipped with a monorail and hand-operated chain hoist across the building, and each will have three 3500-lb. platform automatic weighing scales installed. A dry-line sprinkler system will pro-



Half Section Through Freight House Half Section Through Baggage Room
DETROIT FREIGHT TERMINAL—SECTION THROUGH OUTBOUND FREIGHT HOUSE

tect the buildings and contents from fire. An 8-ft. platform will be built along the team sides of the two buildings, leaving a 30-ft. strip between this and the property line along the outbound house and a 9-ft. strip along the inbound house for driveways.

Along with these new terminal facilities which will greatly increase the efficiency of handling freight and make very prompt release of teams and trucks possible, the company is also providing more rolling stock. Fifteen new freight trail cars and two freight locomotives with large motor equipment, two freight cars equipped with motors, and four freight drawing locomotives are on order.

The Southern Public Utilities Company after trying out two one-man cars on the lines of the Anderson (S. C.) Street Railways, has found that the average total operating expenses for the first five months of one-man car operation were only 5.7 cents per car-mile as compared with 13.2 cents for the same period of the previous year when the two-men cars were operated.

Trolley Freight Would Reduce High Cost of Living

Massachusetts Commission Recommends Extension of Trolley Electric Freight Service to Reduce Living Expenses

SEVERAL interim reports as well as a final report on the cost of living have been presented to the Governor of Massachusetts by the committee of five appointed to consider the means for reducing living cost in Massachusetts. Among the other causes for the present conditions the commission finds the lack of facilities for freight transfer and distribution, and it devotes one of its preliminary reports to the relation of transportation to prices. In this report it says, in part:

“Along with other transportation matters trolley freight has also been neglected. The only trolley freight terminals that exist in Boston to-day are inadequate. We recommend, therefore, that in any plan which is adopted for dealing with the transportation of freight, provision be made for trolley freight terminals. The development of our trolley freight service has been slow. Our fish trade, for example, has been handicapped by the delay in the development of trolley freight service. We ought to have trolley express carrying fresh fish daily from the Commonwealth Flats fish pier back through the main lines of travel, all the way across the State of Massachusetts to New Hampshire and down into Rhode Island and Connecticut.

“To promote our trolley service for the transportation of all sorts of merchandise a change in our legislative policy is essential. Because of obstacles placed in the way of the street railway companies, the expansion of our trolley freight service has been carried on in a piecemeal and petty way. The development of the steam railroad in its early days was hampered and delayed by the theory of local rights. Presently it was discovered that the rights of everybody were more important than the rights of anybody. Local authorities to-day cannot block, delay or in any way control steam railroad operations. The contrary is the case in trolley freight matters. It has been a long, harassing and disheartening process to get local permission to do any trolley freight business at all. We have been told there are places in northeastern Massachusetts that still refuse permission. The obstacles put in the way of spur tracks, sidings and other facilities have added greatly to the delays in developing the field. Apparently there are members of city and town governments who do not yet appreciate that whatever makes transportation and distribution more costly than it need be for the individual is ultimately a cost to all of us—for the consumer pays the bills.

“The time has come to treat trolley freight service like any other freight service, by putting all its details, except the construction of terminals, under the control of the Public Service Commission, and we advise legislation to that end. We also advise such change in the statutes as may give the Public Service Commission power to authorize and foster, with due regard to public convenience, the carriage on electric railways of any and every form of merchandise and material.”

Practical Results in Publicity Campaigns

Two More Incidents Which Demonstrate the Value
of the Personal Touch in Relations with the Public—
That Personal Touch Is the Real Miracle Worker

By CHARLES T. HEASLIP
New York City

The cases of Cooper and Brown described this week show clearly that the public is reasonable if reached directly and apprised fully of the facts. The personality of the executive head of the utility is the key to the solution of the problem of public relations.

IN last week's issue of the ELECTRIC RAILWAY JOURNAL the writer related some instances illustrating his contention for a realization of the above-mentioned principles. Bancroft, the reader will remember, was a man who had the personal touch, Smith on the contrary lacked it. In the little town of Bridgeville, which is located about 300 miles west of Smith's town, is another lighting and traction company that is operated by a general manager of a distinctly different type. We will call him Cooper. Cooper is of the modern school and believes in the same principles as Bancroft does. But he is handicapped by many things—inadequate equipment, watered stock, inability to get money out of his stockholders for needed improvements except by threatening to resign, and a community that has more natural-born "kickers" in it to the square foot than any town I've ever visited. Yet when you go out riding with Cooper, your arm gets tired responding to the friendly salutes that greet him from all sides. And when his company needs anything from the public—a new right-of-way, a franchise renewal, etc.—it gets it. That is, Cooper gets it!

HOW COOPER GOT HIS FRANCHISE

When I first met him he had just taken charge of the recently-merged traction and lighting companies of Bridgeville, and he was campaigning for a new right-of-way and a franchise for a street car line that contained big possibilities because of the factories and mills which were opening up in the territory it proposed to tap. The right-of-way was being acquired easily, because of the promised increase in value to the property through which it ran, but the granting of the franchise was being fought by a group of citizens in another part of town who had been clamoring for years for an extension through their territory. They wanted their extension built first.

Cooper had called me in to run an educative advertising campaign in the local papers that would enable him to get the facts in the case before the public, and he gave me strict orders to see that nothing but facts were presented.

"These kickers in the northern end of town have some justification for 'hollering' because we are trying to build this other extension first," he said, "and I want them to know that we are not degrading them. I simply want to show them that it will be to the mutual benefit of the city and the company to have this other extension built first."

It was along those lines that our newspaper campaign was conducted. But Cooper did not stop there. He organized meetings right in the heart of the kickers' district and addressed them personally. These meetings were a revelation as to what can be accomplished with an unfriendly public by a street car manager who

is "on the square." Yet Cooper was no orator; he did not attempt to harangue his audiences. He just told them in a simple man-to-man way what the company's position was and what it would like to do. And he succeeded in working up a personal sympathy for his own aims and ambitions that eventually won the day for him. Here is a sample of one of his talks:

"I have been brought here to help build up the street car company so that its service will eventually become adequate to the demands which the rapid growth in population here is making upon it. But that is a job that cannot be done over night; neither can it be done by me alone. I need your co-operation.

"I appreciate the rights of you citizens of this district for an extension of the Fourth Street line, and I want to give it to you. But I shall be better able to get the necessary money for that extension from my company if you will first permit me to build the extension through the new factory district, for that is a sure money-maker. Once in operation its receipts will help make up the deficit which an extension in your district here would be certain to show for the first year or two. But I pledge you my word that if you will withdraw your opposition to this new line, I will have your line built and opened within a year."

No one could listen to Cooper as he made that pledge without believing him, and this faith was justified later when, immediately following the opening of the factory line, he had ground broken for the "kickers'" extension.

GOOD RESULTS FROM THE CLAIM BUREAU

But that is only one phase of Cooper's power. He keeps a complaint bureau open day and night for both his traction and lighting companies. And no one is ever sent away dissatisfied. Along in October, when the daylight hours become appreciably shorter, electric light bills naturally begin to grow bigger. Perhaps Mrs. Jones hasn't thought about that; anyway, her October bill of \$2.55 looks a whole lot bigger than her September bill, which was only \$1.70. So she hustles over to Cooper's complaint bureau with it.

Does the affable young clerk there "jump on her" and suggest that she ought to be glad that her bill isn't \$5, what with all the entertaining she has been doing and the new electric washing machine she has been using? He does not. He just smiles pleasantly and says: "That is a jump! Let's investigate."

Then he takes down a chart showing the total amount of electricity used by the company's consumers for the month of September, and also one for the month of October. A comparison of the totals shows that there has been an average increase of about 15 per cent in the amount of "juice" used during October as compared with September.

"Longer nights, you know," he explains. "But at that your bill ought not to have jumped 50 per cent. Suppose I send one of our inspectors around to see if your meter is registering properly."

By that time Mrs. Jones herself has usually remembered the extra entertaining done in October or the regularity with which the new washing machine has

been used, and she is reconciled to her bill. But if she isn't, the inspector goes around and tests her meter, and if he can get Mrs. Jones or her husband to watch the test and listen to his explanation of it, he does so. For it is the general manager's orders that the public shall be educated into the mysteries of the electric lighting business on every possible occasion. His theory is that the more they know about it the less cause they will find for complaints.

There is one step more in Mrs. Jones' case. If by any chance her meter is running too fast an estimate is made at once of the extra current for which she has been charged, and if she has already paid her bill a refund check for the difference is sent to her by the next mail. When I have told some general managers of this scheme they have held up their hands in holy horror and branded Cooper as an extravagant fool for wasting a 2-cent stamp on a check that may amount to only 15 or 20 cents.

"Why not take it off next month's bill instead?" they chorus.

But Cooper, who has not studied the psychology of the public in vain, does not worry about the extra 2-cent stamp, nor the additional trouble in making out the check.

"Those little checks make us friends," he says, and then adds with a chuckle, "and as an advertising medium they're in a class by themselves!"

Cooper's friendship-building plans also include lunches every week or so with the leading business men, politicians and newspaper men of the town. Sometimes he is host, and sometimes he just drops in at a table around which they have congregated at the City Club. But always he manages to get in a word or two about what the company is doing—why the new track is going to be laid on Third Street; when the new cars are coming, or just what benefit the double-tracking of Main Street will accomplish.

Occasionally (for service on certain of his street car lines is not consistently good, owing to lack of funds to maintain the equipment) a group of "kickers" will get together and "raise a howl" for more cars during the rush hours. On two occasions of which I know there was no chance of giving them the extra cars, but that fact did not induce Mr. Cooper to crawl into his shell and maintain a dignified silence. Instead, he got permission to use the schoolhouse in the district affected for a "neighborhood meeting," at which he addressed the "kickers" and told them just what he was up against.

A REAL TEST OF THE MANAGER'S HOLD ON THE PUBLIC

Now there are some general managers who could not get away with such a stunt. But Cooper has built up such a reputation for honesty and frankness in the community that, as one of his admirers put it, "he could get away with murder!"

He did once—that is, it was "murder" from the street car man's standpoint. He induced about 100 of the property owners along one of his lines to let him tear up the tracks along four whole blocks and transfer them to another street for the betterment of service to the other patrons of the line, who were in the majority. When people will consent to such a proposition, which meant walking a block out of their way to get a car that formerly ran in front of their doors, you may be able to get some slight conception of Cooper's power in that community. And the miracle of it is that he accomplished it merely through the agency of two "neighborhood meetings."

Just one word more concerning Cooper. He appreciates the power of the press and realizes the value of a newspaper man's friendship. Consequently, when

there is any news concerning his company—whether it be an accident or something of a favorable character—he always sees that the reporters are taken care of. No newspaper man has ever knocked at his office door in vain or been turned away without having all of his questions answered fairly, fully and frankly. The result is that no newspaper article "roasting" the company has been published since he took hold.

He also uses the advertising columns of the newspapers occasionally. But he is not a wasteful advertiser. He leaps into print only when he has something to say that is of real interest. For instance, if he has to rebuild a half mile of track in the business section, and the work promises to result in some delays and inconveniences to the public, he buys a quarter-page in the local papers and explains the situation to the public. He tells them why the track has to be rebuilt just at that time, and the benefits that will result from it. And he concludes by apologizing for whatever annoyance it may cause. Sometimes he adds the whimsical request that the public be "as considerate as possible" in its opinions of the company while the repair work is in progress.

It would be foolish to assert that all of Cooper's and Bancroft's ideas would work out as promptly and effectively in a metropolis as in the small cities in which they operate. In big cities there is a wider gulf between the public and the public utility official who is striving to serve it. It is not so easy for him to go out and rub shoulders with the people. Moreover, because of the activities of the sensational press in all big cities, the public utility man there is looked upon with more intuitive distrust and suspicion than his brethren in the smaller towns. He represents the capitalistic class and it is harder for him to work up a friendly audience.

Yet there are a number of public utility officials, even in the larger cities, who have learned that at heart the public means to be fair. To be sure, it is brutally unreasonable at times and will work up a grouch against a street car company or a lighting company—or any other form of public utility—for the most picayune of reasons. But rising supreme over the grouch spirit, which is usually only temporary, is a true instinct for fair play.

Bancroft has found that out; so has Cooper. And by their "personal touch" methods they have found a way to reach it. Hundreds of other public utility men in all parts of the country are experimenting along similar lines. They are the thinkers—the executives with imagination—the ones who eventually will bring about such an ideal relationship between the public utilities and the public that the politicians will be hooted down when they try to picture the honest local utility as a "grasping monster that is trampling the rights of the dear peep-ul underfoot."

THE MANAGER NEED NOT BE AN ORATOR

Of course, not all of the thinkers and experimenters have either Bancroft's personality or Cooper's faith and self-confidence, but they are all on the right track, and sooner or later they will find the way to solve their specific problems. There is Brown, for instance. Brown is general manager for a light, heat and power company in the Middle South. While planning a franchise campaign for him recently, I told him about Cooper's neighborhood meetings.

"It's a great idea," he said, adding regretfully "I wish I could face an audience without getting stage fright. I'd do it myself on this franchise."

I argued with him that a man did not have to be an orator to make a speech, but Brown knew himself better than I did. He knew he could not make a favorable

impression upon an audience and there was no convincing him to the contrary. But the idea had taken root, and within a few days it sprouted in the form of a proposition from him that we supplement our newspaper "talks" concerning the franchise with the services of a few good spellbinders who would establish themselves in little sidewalk booths in the business district and explain the franchise to all who cared to stop and ask questions.

By advertising this "stunt" well, the men in the booths did a rushing business, and when the franchise finally went to a vote of the people, so many of the voters understood it that it was carried with a goodly majority.

Like Brown, there are probably many public utility officials in this country who are afraid to get out themselves and address their consumers or patrons. Some of them are too self-conscious, perhaps, and others too proud. Yet neither of those personal reasons should prevent them from developing some form of "personal touch" relationship with the community they serve. If they can't do it themselves—they should do it through the men in the organizations, through talks in the newspapers, or through both.

But behind all pledges which are made to the public should be the assurance of performance, for the experiences of some public utility companies have proved that if a company does not actually intend to be "on the level" it might better adhere to the old "sit-tight" policy and say nothing.

When a company places itself on record to perform a certain obligation, it will assuredly increase its enemies in the community if it comes out with blustering pledges and then promptly forgets them after it has secured the favor for which it has been campaigning.

The ideas set forth in this and preceding articles are not theories. They are based on facts garnered by one who has helped work up favorable public opinion for public utility companies in all parts of the country, who believes in the power of truth-telling and publicity.

The slogan to-day is, "The public be told!"

C. E. R. A. Committee Changes

Several Changes in Committee Membership Were Made and New Committees Were Appointed

BROWN BOOK NO. 7 of the Central Electric Railway Association, the Central Electric Traffic Association, and the Central Electric Railway Accountants' Association, has just been issued. It shows a present membership in the railway association of sixty-seven interurban lines with a mileage of 4890, and two city lines. The traffic association has fifty members with a mileage of 4314.

The following changes in the committees of the railway and traffic associations from the lists printed in full in the issue of the *ELECTRIC RAILWAY JOURNAL* for April 1, 1917, page 649, were given in the Brown Book:

Central Electric Railway Association.—Irwin Fullerton and H. H. Bullitt retire from the auditing committee, leaving a membership of three; C. L. Henry and W. S. Rodger replace C. N. Wilcoxon and G. O. Nagle on the committee on constitution and by-laws; William H. Bloss becomes chairman of the committee on hotels and arrangements, in place of L. J. Drake, who, with T. H. Henkle, retires, while W. D. Hamer, F. R. Coates and John Benham become members; James H. Drew becomes chairman of the meeting registration committee, in place of W. D. Hamer, and A. M. Wilson is added to the committee; F. I. Hardy replaces C. D. Emmons on the committee on rules governing the interchange of equipment; W. E. Rolston replaces P. J. Wood

on the standardization committee, and J. F. Layng and K. A. Simmons are added to that committee; G. G. Roberts takes the place of L. J. Drake on the supply-men's committee; J. C. Schade replaces C. F. Franklin on the transportation committee; and W. A. Carson retires from the track and roadway committee, while J. J. Geringer and L. J. Miller are added to it.

Central Electric Traffic Association.—The auditing committee changes are as in the auditing committee in the preceding list: J. F. Keys and J. H. Crall are added to the committee on joint passenger traffic; J. R. Steinbach replaces W. D. Stansifer on the joint freight tariffs committee; J. H. Crall replaces J. M. Brick on the official interurban guide committee; C. Frantz replaces F. I. Hardy on the committee on rules governing settlement of freight claims; and N. Rumney takes Mr. Hardy's place on the committee on joint weight and inspection bureau.

NEW COMMITTEE C. E. R. A.

Military Efficiency and Defense.—A. W. Brady, chairman, president Union Traction Company of Indiana; J. F. Collins, general manager Michigan Railway; F. R. Coates, president Toledo Railways & Light Company; W. A. Carson, manager Evansville Railways; George Whysall, general manager Columbus, Marion & Bucyrus Railway; W. H. Bloss, Ohio Brass Company; L. G. Parker, Cleveland Frog & Crossing Company; S. D. Hutchins, Westinghouse Traction Brake Company.

NEW COMMITTEES C. E. T. A.

Official Classification.—W. S. Whitney, chairman, general freight and passenger agent Ohio Electric Railway; J. A. Greenland, general freight and passenger agent Fort Wayne & Northern Indiana Traction Company; N. Rumney, general freight agent Detroit United Lines; F. D. Norveil, general freight and passenger agent Union Traction Company of Indiana; C. J. Laney, traffic manager Cleveland, Southwestern & Columbus Railway.

Storage and Demurrage.—C. O. Sullivan, traffic manager Western Ohio Railway; J. A. Greenland, general freight and passenger agent Fort Wayne & Northern Indiana Traction Company; N. Rumney, general freight agent Detroit United Lines.

A Remarkable Safety Record

During the last nine years the Chicago Elevated Railroads have carried 1,500,000,000 passengers without a single fatal accident on trains. The number carried last year was about 300,000,000. A recent issue of the *Elevated News* calls attention to the fact that during the nine years mentioned the Elevated Railroads have carried a number of passengers almost equal to the population of the world. The safety work of the Elevated Railroads is highly organized and the record mentioned above is being used to stimulate further interest on the part of employees.

The Chicago, Ottawa & Peoria Railway, Ottawa, Ill., on April 15 dedicated a flag and a new 50-ft. steel flagpole at the Ottawa shops to three of the company shop employees who are members of the local military company. At the time these boys were called to the Mexican frontier the company could not show its appreciation of them, and has taken advantage of the occasion of their new call to service to acknowledge its esteem for them. The local military company and the high school cadets gave an exhibition drill. The cadet band furnished the music. The public was invited to attend.



CHANGE BOOTHS AND TURNSTILES AT ENTRANCE TO PUBLIC SERVICE TERMINAL ELEVATED TRAIN FLOOR STAIRCASES

New System of Fare Collection in Public Service Terminal

Traffic in Newark, N. J., Terminal Has Doubled in Few Months Necessitating Use of Turnstiles and Change Booths

BEGINNING April 1, the Public Service Railway, Newark, N. J., has been using in the terminal on Park Place a new system of fare collection and transfer issuing. Referring to the articles describing this terminal which appeared in several issues of the ELECTRIC RAILWAY JOURNAL during 1914, 1915 and 1916, it will be noted that passengers enter the concourse floor from the street, passing from this floor to the elevated train floor and the subway floor by a number of stairways, each leading to the appropriate loading platform. Up to April 1 passengers boarding cars in the terminal paid their fares to conductors and received their transfers on entering the cars exactly as when they boarded from the street. The speed of loading was thus limited by the ability of the conductor to perform the double duty demanded of him, but as long as the traffic through the terminal was moderate this delay did not prove serious.

Traffic checks taken at intervals of a few weeks

CASH		TOTAL OR TICKETS & TRANSFERS		SECOND FARE		TERMINAL		Car No.	
FARE BOX No.	REGISTER No.	REGISTER No.	REGISTER No.	REGISTER No.	REGISTER No.	REGISTER No.	REGISTER No.	Sta. Master	
STARTING	ENDING	STARTING	ENDING	STARTING	ENDING	STARTING	ENDING		
DIFF.	DIFF.	DIFF.	DIFF.	DIFF.	DIFF.	DIFF.	DIFF.		
Ending No.	Office Use	Ending No.	Office Use	Ending No.	Office Use	Ending P. C.	Office Use	Badge No.	

NEW FORM OF CAR RECORD USED BY THE PUBLIC SERVICE RAILWAY

have indicated a rapid growth in the number of passengers entering and leaving the terminal, showing that at present between 50,000 and 60,000 use the building daily. This is an increase of about 100 per cent in eight months, and as the summer traffic increases there is sure to be even a larger use of the terminal. When the open cars begin to go through the terminal, as they will within a few weeks, passengers within easy reach of the terminal will naturally board there in order to get a first choice of seats.

After studying several possible plans for collecting fares on the concourse floor and the train floor, and with the aid of the various devices available, the management concluded to locate two turnstiles as well as two change booths at each stairway entrance, one for continuous use and the other for a few hours' use during the rush periods. These are in charge of girls during the day and of men at night. To indicate clearly the lines reached by the several staircases illuminated signs visible from a considerable distance were also installed near the entrance to each. There was no question in the mind of the management that the new arrangement would be entirely successful in the Newark terminal, as the prepayment plan had been used for years in the company's three-deck terminal at Hoboken.

In order to provide a check of the terminal traffic a special "terminal" register was installed on each car and the conductor rings up the number of passengers entering his car in the terminal. As this is all that he has to do, a car can be loaded very rapidly and there is no excuse for the missing of fares even with the long open cars. On leaving the terminal the conductor locks the "terminal" register in order that no other fares can be registered thereon. To expedite loading all openings are utilized as entrances in the terminal.

A new form of car record and day card on lines having two or more fare zones was necessary under the new plan. This form is shown in an illustration reproduced

<table border="1"> <thead> <tr> <th colspan="2">TRIP ENVELOPES RECEIVED</th> </tr> <tr> <th>NUMBER</th> <th>INITIAL</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		TRIP ENVELOPES RECEIVED		NUMBER	INITIAL									CONDUCTOR'S DAILY REPORT In case of Trouble with Power, Wire, Track or Blockade Telephone "PUBLIC SERVICE" Train No. _____ Run No. _____ _____ Line _____ 191____ Conductor _____ Badge No. _____ Motorman _____ Badge No. _____						R 403-100M-12-16. PUNCH HERE O	
TRIP ENVELOPES RECEIVED																					
NUMBER	INITIAL																				
Transfers starting No. N. or E. _____ Transfers starting No. S. or W. _____ Amount of Change starting \$ _____ Amount of Change ending \$ _____		} Must be filled in before beginning day's work.		From To From To From To From To From To		Total Cash Terminal Closing															
CAR	DIRECTION	SCHEDULE TIME	ACTUAL LEAVING TIME	CASH	Tickets and Transfers	Total Pass.	Tickets and Transfers	8¢	5¢	3¢	\$ C	\$ C	\$ C	\$ C	\$ C	\$ C	Pass.	No. of Transfers			
TOTALS																					
TOTAL HOURS WORKED _____																					
NOTE. Receiver must initial and fill in the amount of cash received in red ink on front of day card after comparing with fare box readings on back																					

FACE OF CONDUCTOR'S DAILY REPORT, PUBLIC SERVICE RAILWAY

herewith. A conductor enters in the appropriate space the number of fares shown on the "terminal" register on each trip. In making entries on the car record he enters only the ending number on the register. No transfers are issued by conductors to passengers boarding cars in the terminal, this duty being performed entirely on the concourse floor.

Among the advantages of the new plan, in addition to the quick loading and the positive collection of fares, an important one is the control of the number of people on each of the several loading platforms. If the platforms tend to be overcrowded, through excessive

Results of One-Man Car Operation

One-Man Car Operation on Fifty Railways Shows Reduction in Accidents and Maintenance of Schedule Speed

THE results of one-man car operation on fifty electric railways in the United States and Canada have been tabulated by The J. G. Brill Company and, since this number represents about 40 per cent of the companies which are operating one-man cars, it gives an excellent chance to review the results of operation of these cars.

Of the fifty companies represented in the tabulation the Hot Springs Street Railway reported the earliest operation of one-man cars, which was in 1895. In all except eight of the companies the one-man cars installed replaced two-man cars. The general operating results are reported as satisfactory, practically without exception, while public opinion has been favorable with a few exceptions. One case of adverse public opinion was reported and four cases where adverse criticism was encountered only at first. Political and labor troubles have been slight. In regard to the saving resulting from one-man operation all but one company reported a considerable saving, some gave 50 per cent in labor cost and one railway gave a saving of from \$4,000 to \$5,000 a year on five cars. On twelve railways the receipts increased, and others reported receipts from 10 cents to 18 cents per car-mile. In three out of twelve cases of jitney competition it was reported the one-man cars had been effective in overcoming this competition.

The accident report was strongly in favor of the one-man car. Platform accidents were either reduced or there were none at all; other accidents were rare and their number was reduced. No new kinds of accidents were reported. It was practically the unanimous opinion that the undivided responsibility of the motormen tended to reduce accidents, and that the absence of the conductor as a witness in case of accident was a trivial matter.

Neither the schedule speed nor the headway seemed to have been materially changed by the new operation. However, six railways reported lower schedule speeds, and a like number were giving more frequent service.

In regard to the car details, all of the companies used the front entrance and exit construction. Vestibule doors were used in all but three cases, and folding steps were used in the majority of cases. These two facts undoubtedly account for the reduction in the number of platform accidents. A mirror was provided to enable the motorman to watch the interior of the car in a few instances, and in three cases the use of the dead-man handle was reported, whereas air brakes were used on sixteen roads of the fifty reported. The majority of the roads operated cars of the double-end type.

The pay-as-you-enter system of fare collection was common to all lines except one which reported a pay-as-you-leave system. Fare boxes were reported on all but thirteen roads, and on four roads change was put up in packages. On one-half the roads the motorman was allowed to start the car before collecting the fares.

The question of the motorman seemed to raise no difficulties in the case of one-man car operation, since very few of the men prefer the two-man cars or object to collecting the fares. In many cases they get a small increase in pay and labor troubles were reported only in three cases. Some companies thought it was easier to maintain discipline and to select the good

TRIPS		1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL
LETTER CARRIERS																
Police and Board of Health																
FIREMEN																
EMPLOYEES ON BADGES																
TOTAL																

TO BE USED FOR REGISTER READING OF OLD STYLE CARS

CASH REGISTER.				TICKET TRANSFER REGISTER		
CAR	STARTING	TOTAL	ENDING	STARTING	TOTAL	ENDING

To be used for PREPAYMENT Cars

FARE BOX		TOTAL REGISTER						
CAR No.	FARE BOX No.	TYPE	STARTING	TOTAL	ENDING	STARTING	TOTAL	ENDING

ACCIDENTS.

Were there any Accidents at or near your Car this Day? _____ If any, state below:

(Place of accident or place to which accident occurred) (Place of accident or damage) (Class of accident) M.

(Place of accident or place to which accident occurred) (Place of accident or damage) (Class of accident) M.

Conductor's Signature _____ Badge No. _____ Address _____

Motorman's Signature _____ Badge No. _____ Address _____

MOTORMAN MUST SIGN HERE

.FOR OFFICE USE ONLY

Cash Register _____

Total Register _____

T. & T. Register _____

BACK OF CONDUCTOR'S DAILY REPORT, PUBLIC SERVICE RAILWAY

density of traffic or a blockade on one or more of the lines, the passengers can be held on the concourse floor where there is ample space. During the few days that the scheme has been in operation it has produced very satisfactory results, which indicate that one effect will be a very considerable increase in the capacity of the terminal.

The slight rerouting of cars through the terminal necessary in order to prevent possible misuse of the transfer privilege by passengers was put into effect without confusion.

Eighty officers and employees of the Puget Sound Traction, Light & Power Company were guests of the company at a dinner at the Washington Annex, Seattle, on April 4. Those present in addition to the officers and department heads were members of the various safety committees of the company. Discussion of the evening had to do with the educational work of the company and the safety committee in accident prevention. F. M. Hamilton, superintendent of the department of accident investigation of the company, presided at the dinner, and speeches were made by A. J. Falkner, J. Harrisberger, L. W. Henderson, J. D. Nice and A. M. Lee. Mr. Lee is assistant general claim agent of the Northern Pacific Railway. He took for his subject the work of steam railways in accident prevention.

men when using the one-man cars, but in most cases these two factors were not changed.

The practice of using two-man cars in place of one-man cars during rush hours had not been extensively adopted among the roads reporting, but this was done in a few instances and a few railways used one-man cars in residential sections and two-man cars in business districts during the rush hours. The use of fare collectors at busy points was reported only in one instance.

The following table shows the classes of service for which fifty railways use one-man cars. It indicates that the one-man car is not at all limited to branch-line service:

Class of Service	Number of Railways
All lines	21
Main lines only	10
Branch lines only	4
Shuttle service only	4
Main and branch lines	7
Main and shuttle service	1
Branch line and shuttle service	1
Main line, shuttle service and owl car operation	1
Not classified	1
	50

Regarding railroad crossings, it appears that a few are safeguarded with automatic safety devices, and in some instances a full stop only is required before proceeding across the railroad tracks, but in most cases a flagman is used or the motorman flags, these two practices being about equally common. No one reported trouble due to race prejudices, the races being separated on about half the railways reported.

While the answers to the various questions are not conclusive in most cases, they yet show the extent to which the problem is working itself out, and indicate that the railways consider one-man car operation a success as far as it has been tried. Furthermore they are trying to extend the operation where the opportunity affords itself.

Methods Used in Making Changes in Schedules

BY C. D. SMITH

Superintendent of Schedules and Time-tables Mahoning & Shenango Railway & Light Company, Youngstown, Ohio

THIS company recently made a schedule change in a manner which had some novel features. The line, 15 miles in length, for which the new schedule was made was one on which the traffic has increased at an enormous rate. The line serves a people whose industrial activities are in the steel mills, the unprecedented boom of which has taxed the transit facilities of all of the company's lines. Conditions on all these lines have been closely studied and the service readjusted to relieve the congestion as rapidly as analysis of the traffic could be made.

In the case of one line, the larger portion of which operates on single track, the analysis proved that in order to provide proper local service in the territory contiguous to the city and mill districts, and at the same time offer attractive interurban transportation, it would be necessary to divide the service into limited and local operation.

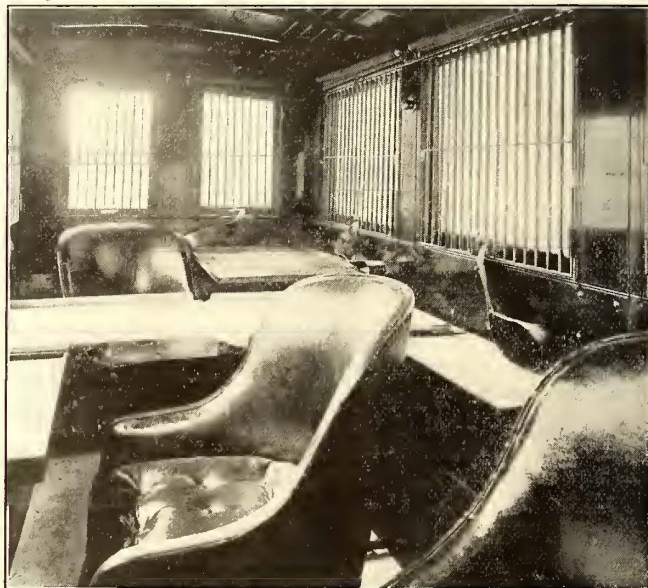
The inauguration of limited service necessitated the elimination of stops in the territory where local service was to be provided, the limited stops being spaced about a half mile apart for a distance of 5 miles in local territory. It was anticipated that such an elimination of stops might cause claims of personal inconvenience, but the superior and more frequent service eliminated such complaints, and the line now operates in the rush hours on schedule time and without congestion.

It was desired that this new service be put in operation in the shortest time possible after the decision as to the character of service was made. A function of this routine was the provision of operating schedules for the trainmen who previously have received blueprints of effective schedules. The new schedule was of such a size that if it was reproduced in blueprint form it would be both cumbersome for the trainmen to carry and expensive for the company to provide.

It was found that to have the schedule printed would cost \$65, though it did not contain the detailed typesetting necessary on some interurban schedules. It was estimated that blueprints of the new schedule would cost \$22, even if it was desirable to print such bulky schedules. So it was finally decided to have the original copy of the new schedule photographed, and a reduced-sized zinc plate made, from which prints could be obtained. The original schedule was about 18 in. x 50 in. and the prints made from the zinc plate were 8 in. x 28 in., the cost being only \$18 for 150 prints.

Chicago Surface Lines Have Safe and Convenient Pay Truck

THE Chicago Surface Lines are using a motor truck with a specially designed body to carry the pay envelopes to its employees at the carhouses and outlying districts. In some cases the truck merely transports paymasters and large sums of money from one carhouse to another, but trips of several miles are often made into the country to pay off line and track men and gangs



PAY TRUCK OF CHICAGO SURFACE LINES

engaged in special construction work such as the building of new bridges, tunnels, buildings and general track work.

Accommodations are provided for four paymasters, a chauffeur and a guard, all of whom go heavily armed. The body contains all office conveniences. The paymasters are provided with swivel chairs and work at tables which hang on hinges so that they can be dropped down when not in use. The table in the center of the office is used for making up payrolls while the truck is en route. Within easy reach on either side are shelves for money trays.

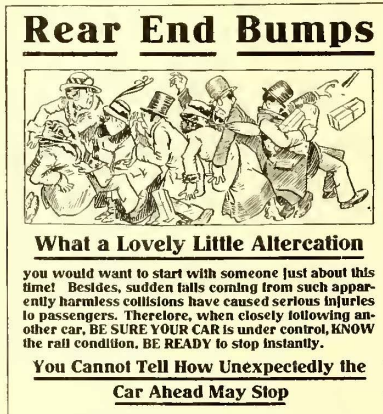
In paying direct from the truck the chief paymaster sits at the extreme end of the office, takes the pay envelopes from the shelf and passes them out to the work-

men through a wicket in a window on his left. While the men are receiving their money the guard stands on duty in the rear of the office and the chauffeur guards the front. The windows are protected by iron bars and are connected with an alarm system. When the truck is traveling through the streets all money and other valuables are carried in a special steel vault in the body of the truck behind the rear seat. The truck was built by the White Company, Cleveland, Ohio.

N. S. C. Safety Poster

The accompanying illustration, which tells its own story, is reproduced from a recent poster prepared by and issued under the auspices of the electric railway section of the National Safety Council. The principle illustrated in the cartoon applies not only to the case cited in the lettering below the drawing, but also to less urgently sudden stops and to starts as well.

The lesson taught by this poster is one of the most important and apparently the most difficult for motormen to learn. Having knowledge of an approaching quick stop or start, they can brace themselves, whereas the passengers, not having this knowledge, who happen to be standing, are apt to be thrown violently.



ATTENTION-COMPELLING POSTER OF THE NATIONAL SAFETY COUNCIL

Railway Builds Tunnel to Reduce Grade

The Caracas (Venezuela) Electric Tramway, operating in the city of Caracas, has also a short interurban line running to the small town of El Valle. It leaves the city on a heavy grade ranging between 6 and 8 per cent for a distance of about 1650 ft. followed by a descent for 980 ft. In order to reduce this gradient, the company is constructing for the exclusive use of cars a tunnel about the length of the heavy grade which will give a uniform ascending gradient of 2 per cent.

To obtain the necessary height for the trolley wire and at the same time prevent the use of the tunnel by foot passengers, the section chosen is that of an elongated oval. The geological formation along the line of the tunnel is schist, limestone and compact clay, all of sufficient cohesion to enable the excavation to be made without timbering. Exposure to the air, however, causes disintegration, and it is necessary to line the arch above the point of the greatest width. After the arch has been lined the remainder of the core can be removed without danger.

The excavation is being made on the Belgian system, commencing with a top heading which extends to the lower limit of the lining. The bench thus formed serves as a platform where all the work of mixing the concrete and building the forms is carried on. The sectional area of the inside of the tunnel is 19.75 sq. yd. and about 1.2 cu. yd. of concrete is required per linear foot of lining. Electric cars, taking direct current from the 500-volt trolley, haul the excavated material to a near-by low-

lying property owned by the company, and power for a hoisting crane for the concrete is also taken from the trolley. The use of power from the same source is contemplated for running concrete mixers and compressors for rock drills.

Reducing the Auditor's Worries*

Denver Tramway's Auditing Department Explains to Platform Men the Difficulties Arising from Lax Recording Methods

BY C. E. BUEHLER

Auditing Department, Denver (Col.) Tramway

IN order that platform men may appreciate fully the close relation that exists between Ohmer sheets,[†] trip sheets and transfer envelopes, it is necessary for them to comprehend the daily routine of the auditing department, beginning with the return of a car after its final trip. If care is exercised in carrying out recording instructions, a great percentage of the auditing difficulties will be obviated. However, the careful keeping of records appears to be of secondary consideration on the part of platform men, and the problem of lessening this evil should be met by systematically instructing these employees and thereby gaining their good-will.

The Ohmer sheets are removed from the registers after the final trips and sent to the auditing department. An impression is taken of an old sheet before removing from the register and also of the one for the next day so that the conductors' sheets may later be checked.

When the sheets arrive at the auditing department they are sorted according to lines and car numbers. This is the beginning of the auditor's difficulties. The sorter then looks over each sheet to find the changes in line numbers. If at each line change double readings have been taken, one with the original line number and a second with the following number, the sorter may readily separate the sheets between the two readings. If, on the other hand, only one sheet is taken and a conductor registers a few fares on the new line before noting his error, the trip sheets must be referred to with a corresponding loss in time. When the records are correctly kept, the trip sheets are gone over independently and checking with the Ohmer sheets is only necessary at the end of a run. It is, therefore, very important that Ohmer sheets and trip sheets correspond as to time, line and line number, and also that sheets for trailers check with those of the motor cars.

Accurate recording in the fare columns is important, as otherwise an "end reading" may not correspond with the "commencing" of a relief man. This laxity in recording may lead to "shortages" that are frequently adjusted only with difficulty and with inconvenience to the employee.

There are many other details of record keeping which are equally important, such as notes on trip sheets and envelopes, and coasting envelopes. Platform men should be made to realize the need of careful recording and their co-operation should be won by systematic instruction. A false impression that the auditing department is their natural enemy should be removed, but this may only be accomplished by first explaining the difficulties arising from lax recording and the reasons for the necessity of making more legible records.

*Abstract of a paper read before the local company section of the American Electric Railway Association.

[†]The Ohmer Universal register by which the records mentioned by Mr. Buehler are produced was described in the issue of the ELECTRIC RAILWAY JOURNAL for July 17, 1915, page 113. The record sheet gives the date, time, direction, car and line numbers, total number of passengers, tickets, transfers and passes, total cash collected and identification number. Each conductor and inspector uses his identification key, the number of which is recorded on the record sheet. When an inspector at night, or a conductor assuming charge of a car, takes a duplicate reading with a different key, the printing counters turn to zero with the exception of the total passenger and total cash counters.

War-Time Conditions and the Electric Railways

The Entry of the United States Into War Raises a Wholly New Set of Problems for the Electric Railway Industry to Face—Some of These Questions and the Solutions That Have Been Adopted in Certain Cases Are Discussed

UNTIL the question of the manner of recruiting the new armies for the United States has been settled by Congress the problem of maintaining the personnel of electric railway service is probably the most vital one that faces this industry. In Europe the large number of withdrawals from service on the part of electric railway employees, either to enter the active military forces or to become munitions workers, has created unprecedented conditions, and although the percentage of the national population in the services of the British and French governments is now greater than it is likely to be in this country, the experiences of these two nations serve as a guide to possible future conditions in the United States.

WOMEN EMPLOYEES IN GREAT BRITAIN

While readers of this paper are familiar with the general use of women conductors abroad, some additional information may be of interest. The last issue of the *Tramway & Railway World* is authority for the statement that women have also been employed as motormen on more than a dozen tramways during the past eighteen months. Among these is the Glasgow Corporation Tramways where there are now some 250 women as drivers. The practice was begun in October, 1915, and has been gradually extended without serious accidents, and the general manager, Mr. Dalrymple, has urged every woman conductor to undergo training at driving with a view to meeting any contingency. In fact, almost the majority of the tramway staff now

consists of women. In a recent address Mr. Dalrymple said he would not hesitate to have the whole service run by women.

Experience of other British companies, however, according to the same paper, does not entirely bear out this favorable verdict. The statement is made that women conductors do not seem to be so enamored of their employment as was the case during the first year of the war, and in most towns the tramways have been obliged to shorten the hours of the women's staff. The London General Omnibus Company reports that it has been obliged to engage about 150 new women conductors every week to fill vacancies caused by resignations from a staff of about 2500 women collectors. Women employees also entertain less regard for discipline and punctuality. In one important town at least, they played on the sympathy of the public by declaring the work was of too hard a nature.

TRAMWAY CONDITIONS IN FRANCE

Tramway conditions in France, according to newspaper reports, seem to be very similar to those in England so far as the employment of women for motormen and conductors is concerned. Women are also employed as inspectors and in the subway as ticket agents and collectors, but men beyond the military age are used as starters. The traffic on the tram lines and subway in Paris is larger than before the war, one reason being that the auto buses, of which there were many in Paris, were requisitioned by the government early in the war



WAR-TIME CONDITIONS IN UNITED STATES—FENCED-OFF SECTION OF CITY SIDEWALK BESIDE A POWER STATION THAT IS EXPOSED TO ATTACK; SENTRY-BOX WITH SEARCHLIGHTS TO GUARD RAILWAY PROPERTY

for military purposes. The Metropolitan, or chief Paris subway, which operates forty-eight miles of track, shows gross receipts of \$110,000 more in 1915 than in 1914. The operating expenses, however, were much higher, especially for coal.

EARLY MORNING RUNS BY BUSINESS MEN

In Newcastle, England, some runs, especially the early morning runs, are being taken by men engaged in other lines of business or professions who, for various reasons, have not been called on to don the khaki. Many of them are beyond the military age, but able and willing to serve in this way as auxiliary motorman for a few hours daily. In a recent address on tramway conditions, the chairman of the Corporation Tramways Committee said that he suggested to the Council some time ago that many ministers in the city, who are exempt from military service, might take this work on. He added laconically that as yet, none had volunteered.

TRANSIT FACILITIES FOR MUNITION WORKERS FEATURED IN BRITISH REPORTS

Attention has been drawn, by the entry of the United States into the war, to the remarkably complete reports on non-technical features of munitions manufacture which were made in Great Britain during the first year of the war and which have been made available in this country through distribution to public libraries. A feature of several of these reports is the emphasis that is laid upon the need for readjustments of transportation facilities for munitions workers, who work long hours at a fast pace to produce a maximum output. The establishment of new industries required for military purposes in Great Britain has brought practically insoluble problems of housing workers near such plants, and local transit facilities have been overtaxed in providing for movement of employees between their homes and their work places. Cases are cited in England where workers have had to leave home at 4 a. m. and do not return until 10 p. m., thus giving insufficient sleeping time to maintain even reasonably good health. Consequently, the principal factories in each district have in many cases furnished data as to the number of employees, the various destinations for their daily trips

to and from work and similar data to permit co-operative arrangements on the part of transportation companies for the extraordinary service. This duty of looking to transit facilities seems to have been generally placed under the departments of welfare supervision that the war has brought so generally to British factories.

AIDS RECRUITING IN UNITED STATES ARMY

The Shore Fast Line (Atlantic City & Shore Railroad), Atlantic City, N. J., is probably the first traction line in the country to contribute the use of one of its buildings to Uncle Sam's recruiting forces. The "S. P. 64," the first private yacht tendered to the federal government to be equipped and used as a "submarine chaser," arrived at the shore resort recently carrying officers who sought recruits to the Naval Coast Reserve. The Shore Fast Line promptly provided a berth for the craft alongside its wharf at Absecon Inlet and then turned over one of its summer buildings to the officers as a recruiting station. The company has also been carrying recruiting posters and Red Cross posters on its cars.

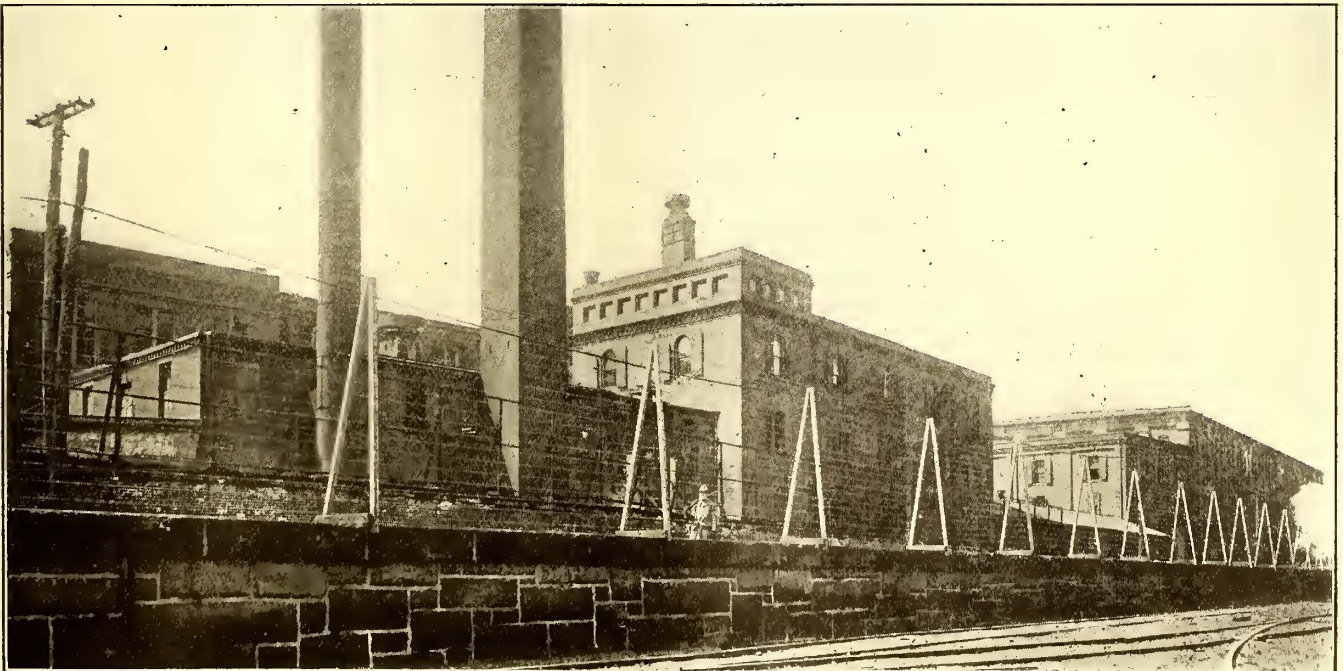
CENTRALIZED CONTROL FOR ENGINEER TROOPS

Engineers throughout the country are being asked to take up with their respective Congressmen and Senators at Washington the vital need for keeping all new engineer troops under the centralized control of the War Department rather than under many different state organizations. The plan of centralized control has the indorsement of the military engineering committee of New York, representing in its membership the National Engineering Societies of the United States.

PATRIOTISM ENCOURAGED BY ELECTRIC RAILWAYS

The Boston Elevated Railway conductors are wearing little red, white and blue bows on their coats. They were presented by President Brush with the request that they be worn in plain sight.

A number of electric railway companies have announced that they will carry without charge on their cars soldiers and marine men in uniform. The Brooklyn Rapid Transit Company, the Public Service Rail-



WAR-TIME CONDITIONS IN UNITED STATES—TEMPORARY BUT EFFECTIVE TYPE OF BARBED-WIRE FENCE ERECTED TO SAFEGUARD A POWER STATION

way and the International Railway of Buffalo are among those which have issued such an order. In Buffalo the plan has been followed of issuing tickets good for transportation to the army headquarters to be distributed to the enlisted men and officers as they are needed.

WASTE GROUND TO BE CULTIVATED IN BROOKLYN

President Williams of the Brooklyn Rapid Transit Company has assigned definite parcels of land, belonging to the company and not now covered by tracks and buildings, to the different divisions of the company for cultivation. Any employee may apply for a plot to be

cultivated by himself individually, or several employees can form a club to cultivate together a larger piece of ground. In making the announcement Colonel Williams said, in part:

"It is earnestly urged upon employees to take advantage of this opportunity, not solely on account of the benefit to themselves in reducing their own living expenses, but principally because to the extent that they thus feed themselves, more food is left in the market of the world for others who cannot help themselves. It is also urged that children of employees be encouraged to take an interest in the work and to assist their parents."

American Association News

At a Meeting of the Engineering-Transportation Committee in Chicago the Discussion Centered on Power-Saving Devices and Two-Car Interurban Trains—Recent Company Section Meetings Were Devoted Largely to Discussion of War Problems

Power-Saving Devices and Two-Car Interurban Trains Discussed at Chicago

Power-saving devices and two-car interurban trains were discussed by the Engineering-Transportation committee at its Chicago meeting on April 17 and 18. There were present G. H. Clifford, chairman, Fort Worth, Tex.; J. W. Allen, Boston Mass.; E. F. Gould, Cleveland, Ohio; R. F. Carbutt, Toledo, Ohio, members of the joint committee, and also by invitation, C. C. Chappelle, Railway Improvement Company; C. H. Koehler and C. H. Hurtt, Sangamo Electric Company, and H. L. Andrews, General Electric Company, Schenectady. The meeting lasted two days. On the first day Mr. Clifford outlined the topics to be treated in this year's report and stated that preliminary investigations were being made by subcommittees. He then called upon Mr. Koehler to describe the recent developments in connection with the manufacture and use of the Sangamo Economy car meter.

Mr. Koehler recited the experiences of a number of roads which in the early days had installed ampere-hour meters and did not obtain the best results. Based on these experiences, the Sangamo Company now favors the installation of watt-hour meters rather than ampere-hour meters. The new watt-hour meter gives more complete and more accurate information than an ampere-hour meter. It is insulated for 3000 volts and each meter is given a factory breakdown test at 10,000 volts. With the earlier meters some difficulty was experienced in obtaining full accuracy in reading the four dials, and the company designed and manufactured a printing attachment. Later the cyclometer dial with a large magnifying lens mounted before it was adopted as standard and is preferred by operators because of its ease of reading. Mr. Koehler described the essential features of his type of meter, pointed out that all of the parts are interchangeable and that the meter element can be removed from the case and a new one put in service in less than five minutes whenever checking is desired. The accuracy of the meter, he said, was guaranteed within a range of plus or minus 2 per cent. Mr. Koehler also described briefly the follow-up and record system recommended by his company for obtaining the best results in a power-saving campaign.

Mr. Chappelle had prepared for the committee an extended description of the Railway Improvement Company's coasting recorder, a part of which he read and discussed in detail. He also outlined in a thorough manner the basic principles involved in a solution of the problem of economic car operation. Then he made several observations on the possibilities for savings that exist on practically every road, and emphasized the fact that no power-saving device was fully effective without a thoroughly studied record system.

Mr. Andrews, at the request of the chairman, discussed the data obtained in a series of motor-car and trailer, and motor-car multiple-unit tests made at Fort Worth. The committee had been instructed to investigate trail-car operation in high-speed interurban service and to report upon the relative merits of trailers versus multiple-unit trains. Mr. Gould described the experience of the Aurora, Elgin & Chicago in the use of four-motor cars, two-motor cars and trail cars for making up its trains for high-speed main-line and branch-line service. He also set forth the most important factors to be considered in the choice of the type of equipment for two-car interurban trains.

The work of the committee on the second day of its meeting was largely devoted to the preparation of the details of the report.

Army Rifle Described to Section No. 1

On the program for the meeting of the Milwaukee section, held on April 12, was a paper by M. Gass on "Our Army Rifle." Mr. Gass sketched briefly the history of the modern rifle, mentioning the types used in foregoing wars, explaining their mechanisms, and pointing out their good and bad points. He also exhibited and explained the construction of the cartridges used with the several rifles.

Another feature of the meeting was the "Current Events" paper from the way and structures operating department, presented by Sid C. Cherrill. He described a number of jobs, showing lantern slides illustrating the equipment used and the methods of construction and reconstruction. He also told how the work of the different divisions of the department is organized. In addition to the formal proceedings there was a musical program and luncheon was served. The attendance was sixty.



CAST IN "THE GARDEN OF ROMANCE," WRITTEN AND PRODUCED BY EMPLOYEES OF THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY

"Find the Way—or Make One"

At a meeting of Public Service company section, held in Newark, N. J. on April 19, more than 300 men assembled to hear Martin Schreiber, chief engineer Public Service Railway, discuss the principles underlying success in railway and other lines of work. An abstract of the talk will be given in a later issue. The burden of this was that the opportunities ahead of ambitious men now are greater than those which earlier presented themselves to the men who at present occupy positions of leadership. The problems which must be solved are difficult but in every case there is a way out. The paper was discussed by representatives of a number of departments all of whom, like the principal speaker, quoted instances to show that success depends upon "finding the way out." W. R. Ricker, shop foreman Central Division, "brought down the house" by reading some original verses, proving by the experience of executives of Public Service that intelligent, hard work will in the end bring success.

Capital Traction Patriotic Rally

The March meeting of Section No. 8 developed into a patriotic rally during which the members pledged themselves to do their duty in the present emergency. Patriotic songs were sung and great enthusiasm was shown by the audience of more than 100 men.

The principal speaker was Col. Chauncy B. Baker, U. S. A., his subject being "The Function of Electric Railways in Transporting Troops During the War." Colonel Baker spoke first of the progress that had been made by steam railroads in transporting troops, comparing the results obtained during the Spanish-American war with the expeditious movement of the army units to the Mexican border last year. He stated that the general public was not familiar with the excellent work that had been accomplished, and attributed the results to the full and hearty co-operation of the railroads, through the American Railway Association, with the army officials.

Colonel Baker stated that the officials of Germany had given much consideration to whether it would be the better policy to build a system of railroads, giving direct communication from border to border, to insure the quick transportation of her armies, or to devote her resources to the construction of fortifications along her frontiers, and that she had finally done both. He pointed out that while up to the present her fortifications had been heard of very little, as the fighting had been done on foreign soil, her railroads had been of inestimable value.

The speaker said that during emergencies such as the one existing at present, in order to obtain proper results, the railroads of the country must be treated as a unit, and that this result had been accomplished dur-

ing the recent Mexican trouble through the medium of the American Railway Association.

Bringing the subject nearer home, Colonel Baker explained that time is a very important element to consider in military operations at the present day; that the result of battles often hinges upon hours and minutes; that every means must be availed of in the transportation of troops to strategical points, and that here the electric railways are a very important link in the transportation chain.

J. H. Hanna, vice-president of the company, gave assurances that the company and every individual connected with it realized the importance of Colonel Baker's remarks and were ready to do their full duty. G. T. Dunlop, counsel for the company, voiced his opinion that so many men would want to go to the front and be in the thick of it, that the company might find it difficult to get enough men to operate its cars.

COMMUNICATION

Brooming of Poles

THE LINDSLEY BROTHERS COMPANY

CHICAGO, ILL., April 18, 1917.

To the Editors:

Your attention has been called to an item in your issue of March 17, page 505, relative to the brooming of poles, especially Western red cedar poles, at the ground line. We have investigated the source of this item and, after looking into the matter carefully, believe that the statement in your paper referred to above is not quite clear enough and works something of an injustice to the Western red cedar poles.

We find that the particular poles complained of were set in one of the government irrigation projects in the Western states, and that the "water surface at this location is at or very near the ground level throughout the entire irrigation season."

We may say that this is the first time that we have ever heard of any such complaint as this against the Western red cedar and, while undoubtedly the complaint is a true one in this particular case, we do not believe it can be used as a criterion. We note further that the poles in question have been set in the ground for some fifteen years and it is natural to expect that under the severe conditions mentioned there would be some effect on the poles after that length of time.

Furthermore, comparison has been made in this item of the Western red cedar with cottonwood and, according to your article, pine. We find that the correct name for this wood should be pinon. As neither this nor cottonwood is used to any extent for pole purposes we do not believe that this comparison is any reflection on the Western red cedar pole.

R. L. BAYNE.

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.

Truck Equalization

The Author Discusses the Use of Equalizer Bars for Trucks in Various Classes of Electric Railway Service

BY S. A. BULLOCK

Manager Electric Truck Department The Baldwin Locomotive Works

It is desirable that all trucks be equalized.

Equalization is the provision of means for distributing equally the center-plate load on the wheels by applying parallel members, resiliently connected, so that they may form, in a vertical plane, an angle with each other, without producing undue stress upon either member.

Truck equalization may be of two kinds; first, side-frame equalization, which is the so-called truck equalization; and second, bolster equalization.

In side-frame equalization the top member is the frame, while the lower parallel member is the equalizer,

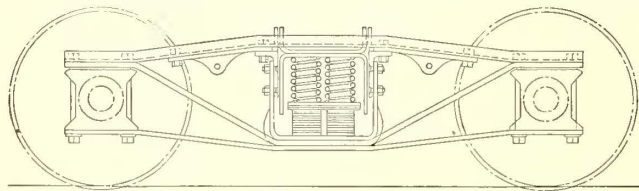


FIG. 1—PLAIN ARCH-BAR TRUCK WITHOUT SWING LINKS, USED FOR LOW-SPEED CITY SERVICE

this being commonly called, in consequence, the equalizer bar. Bolster equalization is exemplified by the construction in which there is supported from the transoms a spring plank or other means for carrying the springs which support the ends of the truck bolster, so that the truck bolster and transoms may form an angle with each other in a vertical plane without undue stress on either the transoms or bolster. Bolster equalization is invariably provided for all passenger trucks, without exception.

The combined equalization of side frame and truck bolster produces double equalization, that is, equalization in vertical planes parallel to and transverse with the rail. Thus the car body may be supported on center plates, which act as universal joints, permitting one or more wheels to move out of the normal horizontal plane without producing undue pressure at any one wheel, but equalizing the pressure on all.

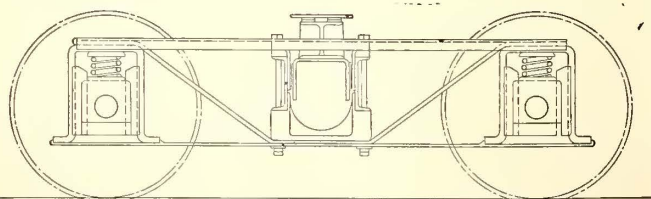


FIG. 3—HIGH-SPEED DESIGN HAVING SPRINGS OVER BOXES INSTEAD OF EQUALIZER BARS

The first truck to be made consisted of a body mounted on an axle and a pair of wooden wheels. The motive power was man or ox. When the horse became the prime mover, the element of speed thus introduced brought four-wheeled vehicles, and a flexible board, or buckboard, was designed to absorb the irregularities of the uneven road. This was primitive equalization but it serves as an excellent example of a means for evenly distributing a load over four wheels.

During the past few years, for trucks in passenger city service, there has been a demand for minimum weight and minimum height, and conforming to this appeal from railway operators, the manufacturer has in some cases eliminated the equalized construction, and substituted a frame of rigid design, similar to the old "arch-bar."

Such an arch-bar truck may or may not include the spring plank with swing link supports that is common on freight-car trucks, but in either case the design pro-

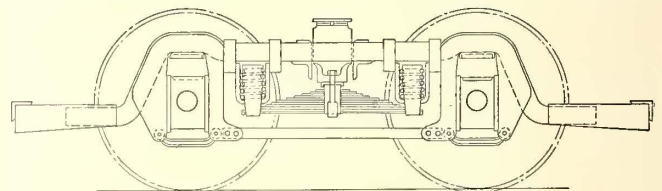


FIG. 2—DESIGN FOR CITY SERVICE PERMITTING FREE TRANSVERSE MOVEMENT OF BOLSTER

vides only for bolster equalization, transverse with the track. If we accept noise, reduced flexibility, light loads, low speeds, and abnormal box play, under tolerable track conditions, this non-equalized type of truck, either motor or trailer, may be said to perform the functions of city service. As to the costs, we must offset the lower first cost by the greater distress to the track, truck and body, due to the rigid hammer blows of the truck on the track, this being the effect of non-equalized side-frame construction. In Fig. 1 is illustrated an arch-bar truck without swing links.

An equalizer may be of rigid or flexible construction. In case it is rigid, additional springs must be introduced; in case it is flexible it possesses the double function of equalization and resilience. In the first instance, we have the equalization of high-speed interurban trucks; in the second, the equalization of low-speed city trucks.

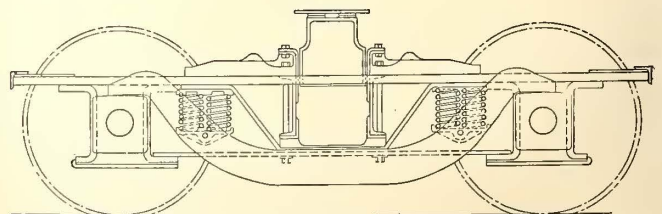


FIG. 4—TYPICAL EQUALIZER-BAR CONSTRUCTION FOR HIGH-SPEED INTERURBAN SERVICE

If it is essential to produce easier riding with its accompanying increase in weight, the so-called spring-equalized truck comes next in order. This truck is built with semi-elliptic plate springs parallel to the side frames, having spring and link suspension as shown in Fig. 2. This gives greater freedom of transverse movement for the bolster than the truck illustrated in Fig. 1. It should be noted that the longitudinal plate spring acts as a side-frame equalizer because its ends are resiliently connected to the side frame by links and springs.

Some truck designers are endeavoring to eliminate the need for equalizer bars, which are used in side-frame equalization, by introducing coil springs over the journal boxes. There are two objections to this design; first, it is not properly equalized; and second, it requires undue space over the journal box for its application. Fig. 3 displays such a design which, it may be said, is provided with a spring plank and long swinglinks to give the bolster the relatively slow transverse movements of considerable amplitude, that are essential in high-speed service. This type of side-frame construction is light and possesses moderately easy riding qualities, but it does not give the flexibility which is produced by equalizing beams, nor does it adequately distribute the center-plate load over the four wheels.

Efficient equalization requires a spring base less than the wheelbase, and an equalizer which acts as a lever, transmitting any vertical force that is exerted on one wheel through the spring system to the upper parallel member, thus equalizing the load and gradually absorbing the shock. In the design shown in Fig. 4 these qualities are provided, this truck being equipped with a commonly used type of equalizer bar.

Summing up the matter, we should have in all cases the most effective equalization consistent with safety, comfort and weight. Therefore, interurban passenger trucks should be as perfectly equalized as is possible, city passenger trucks should be equalized to make good riding qualities, and it would even be well to improve the equalization of freight trucks.

Car Overhang on Curves

BY S. L. FOSTER

Chief Electrician United Railroads of San Francisco, Cal.

It is often desirable in order to avoid striking fences, poles, walls, etc., to know how far the corner or side of a certain type of car will overhang the gage line of the rail as it goes around a curve of a known radius when, on account of lack of car or curve, it is not possible to run the car around the curve for a practical test.

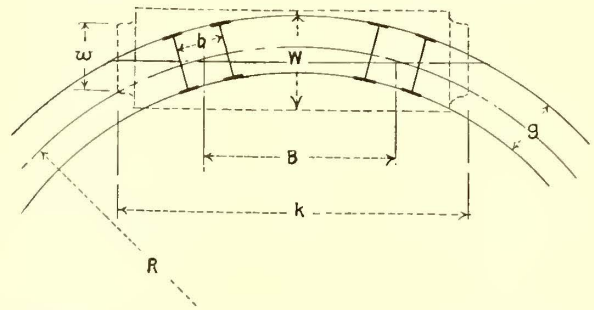
Mutilated obstructions, crushed car fronts and worse are occasionally seen, due to lack of foresight in this matter. A company once entered into a contract to lease a 25-ft. meandering double-track right-of-way without considering this feature, but when it was shown that the corners of the proposed, though unbuilt, cars would not pass the side poles on some of the as yet unbuilt curves, a 30-ft. right-of-way had to be secured.

The usual method is to construct a transparent tracing-cloth manikin of the essential measurements of the floor plan of the car to the same scale as that to which the drawing of the track curve is made. This manikin is superimposed on a drawing of the curve at the point where the amount of car overhang is to be determined and its extent marked and scaled off the drawing.

The same dimensions that are used in the following simple arithmetical expressions must be obtained for the construction of the manikin. By transforming these dimensions into improper fractions with a common

denominator and then referring to tables of squares, the employment of these expressions is not any more laborious, and is more exact, than the tracing-cloth figure method.

The accuracy of the computations can readily be checked by another, the calculations can be made anywhere and without the necessity of taking the work to the drafting table, and this method obviates the neces-



NOTATION USED IN COMPUTING CAR OVERHANG ON CURVES

sity for a set of these manikins for each of the many different types of cars on a large system.

The derivation of these expressions is simple, and as it is similar to that of the one for the location of the trolley wire on curves as published in the *ELECTRIC RAILWAY JOURNAL* of Jan. 2, 1914, page 63, it need not be given here.

The expression for the inside overhang of the middle of the side of car beyond the gage line of the inside rail of the curve is

$$\frac{W - g}{2} + R - \sqrt{R^2 - (b/2)^2 - (B/2)^2}$$

and for the outside overhang of the further projecting corner of the front fender beyond the gage line of the outside rail of the curve is

$$\sqrt{\left(w/2 + \sqrt{R^2 - (b/2)^2 - (B/2)^2}\right)^2 + (k/2)^2} - (R + g/2)$$

in which

R = radius of center line of track curve,

b = wheelbase of one truck.

B = distance from center of one truck to center of other truck,

w = greatest width of car body at front of car or, if fender projects in front of car, width of fender,

W = greatest width of car body at center,

k = length of car along its side or, if its fenders project in front of car, length over both fenders when down,

g = gage of track—distance between rails of one track.

All these measurements are in feet.

Example: An actual case where a pole had to be set before a loop track was in place.

R	Radius of curve	42 ft. 7½ in.	2046/48 ft.
b	Wheel base of truck	4 ft. 6 in.	216/48 ft.
B	Center to center of trucks	20 ft. 10½ in.	1002/48 ft.
w	Width of fender	5 ft. 11 in.	284/48 ft.
k	Length of car plus both fenders	54 ft. 4 in.	2608/48 ft.
g	Gage of track	4 ft. 8½ in.	226/48 ft.

Answer. Outside overhang—6.92 ft. or 6 ft. 11 in.

Subsequent measurements taken on three successive cars gave an average overhang of 6 ft. 10 in., which was as close agreement as could be expected.

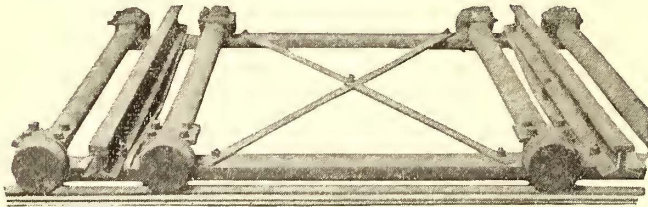
Transfer Table Facilitates Truck Changing

Small Shop Requires a Design of Transfer Table Which Does Not Detract from the Available Floor Space

BY HENRY MEYER

Master Mechanic Beaver Valley Traction Company, New Brighton, Pa.

Our shop in which trucks are removed and repaired is narrow and the amount of floor space is small for the work which is handled there. For this reason when we decided to build a transfer table to speed up the exchanging of trucks, especially those of low-floor cars, it was

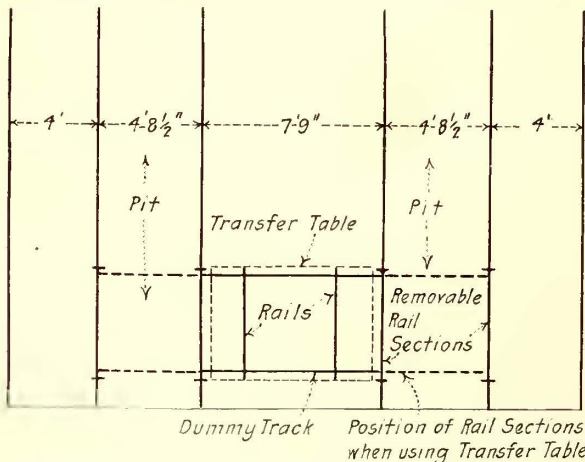


TRANSFER TABLE WITH TOP FLOORING REMOVED

desirable to use some scheme by which the table would not detract from the available floor space.

The accompanying sketch shows how this was accomplished. The shop has two pit tracks. These are connected at one end by a dummy track, the rails of which are at such a height that the floor of the transfer table which runs thereon is just flush with the floor. The illustration of the transfer table shows it with its top or floor removed, in order that its construction can be seen. As it is the same length as the dummy track, it serves the purpose of a floor, and the floor space is not reduced when the table is not being used. The rails of the pit are cut so that the sections that are opposite the dummy track are removable.

To change a defective truck the pit rails are lifted out and placed across the pit at the proper level, so that



METHOD OF USING TRANSFER TABLE IN EXCHANGING TRUCKS

they form an extension of the dummy track. The transfer table is then pushed into position so that its rails form an extension of the pit track.

The car with the defective truck is run up until the truck is on the table. The car is then jacked up, leaving the defective truck on the table and the latter can then be pushed over to the other pit, where the defective truck is replaced by a good one. By simply pushing the transfer table back, the good truck is placed under the car and the operation is complete. In this manner a

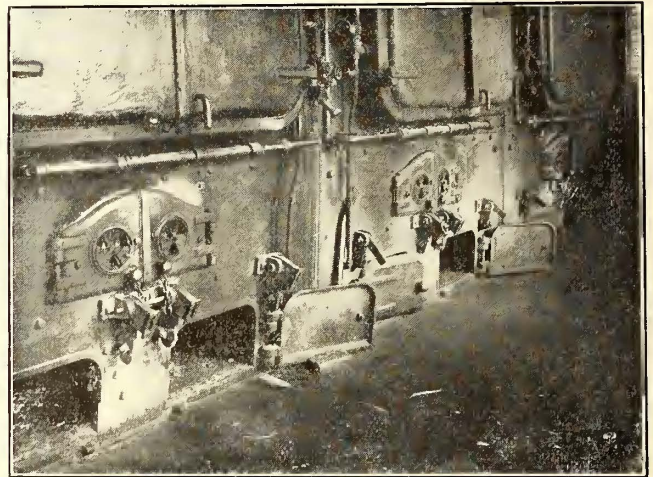
truck can be changed in about thirty minutes, thus effecting a considerable saving in time and labor.

As shown in the illustration the transfer table is made of four car axles mounted in a rectangular truck frame, which in turn supports two sections of 4-in. T-rails set at the standard gage of the pit track. These T-rails are trussed underneath with 1/2-in. x 5-in. flat iron. The material which had to be purchased for this truck cost about \$50, and all the labor thereon was performed in our own shops.

A Simple Smoke Consumer for Boilers

An effective smoke consumer of original design has been used for some time at the Cold Spring shops of the International Railway, Buffalo, N. Y. The device employs jets of compressed air controlled by valves at the front of the furnace. The jets catch the smoke formed in the front of the furnace, blowing it against the bridge wall and back into the fire, where it is burned.

The nozzles are formed by four 1/2-in. pipes flattened on the end. They project through the front of the furnace just below the boiler tubes and are T-connected



VIEW SHOWING SMOKE CONSUMERS INSTALLED ON BOILERS

to the 2-in. pipe which may be seen in the illustration just above the fire door. The air is drawn from a large storage reservoir into which it is pumped by means of a motor-compressor, an automatic governor keeping the pressure between 50 and 60 lb. per square inch.

Keep the Section Gang on the Track

At the recent meeting of the American Railway Engineering Association, discussion on the report of the signs, fences and crossings committee brought out opposition to the generally prevailing idea that the section gang may be used for all manner of work along the right-of-way. One railway man said that the section gang was the most expensive labor on the railway property when it was used off the track. He said that on many properties the gangs were expected to paint the signs, repair buildings, mow lawns at stations, repair telegraph lines, do signal maintenance work, etc. The place for the section gang is on the track, and if it is required to do all this other kind of work, it cannot be expected to do, and does not do, efficient track maintenance work. So strong was the sentiment supporting this idea that a motion to strike out from the proceedings a sentence in the committee's progress report which stated that the painting of crossing signs could be cheaply handled by the section gangs, prevailed.

Single-Truck Cars for Binghamton

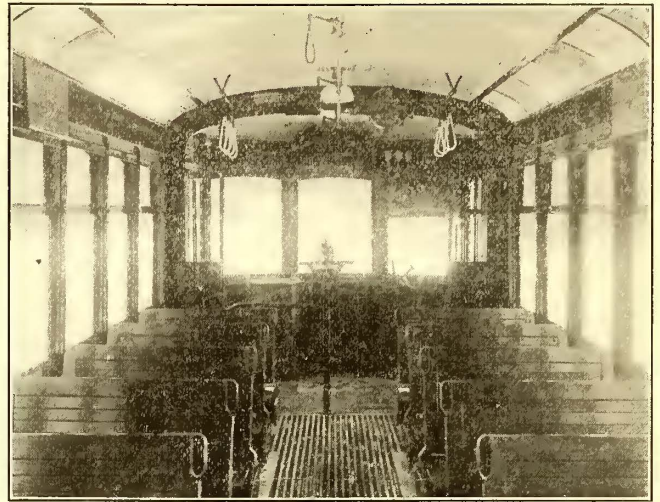
These Equipments Are 30 Ft. 6 In. Long and Have 9-ft. 6-in. Wheelbase, 24-In. Wheels and Flush Platforms

The Binghamton (N. Y.) Railway has recently placed in service sixteen all-steel single-truck cars that possess the unusual features of a 9-ft. 6-in. wheelbase and flush platforms. The weight complete is 19,000 lb., and the over-all length is 30 ft. 6 in., giving a seating capacity of twenty-eight. Two-man operation is provided for, but the right-hand front doors are wide enough to permit the establishment of separate entrance and exit passageways, so that one-man operation can be adopted in the future if it appears to be desirable. The platform floors are flush with the main floor of the car, this being made possible by the use of 24-in. wheels which, it may be said, also make possible the unusually long, rigid wheelbase that has been adopted for the single truck. This truck design was adopted after an extended service trial on all of the Binghamton lines under the direction of C. S. Banghart, vice-president Binghamton Railway Company. The general dimensions of the new car are as follows:

Length over all.....	30 ft. 6 in.	First step to platform..	11 1/2 in.
Length over dash.....	29 ft. 6 in.	Width of seats.....	35 in.
Length over body.....	18 ft. 6 in.	Width of aisle.....	25 in.
Length of platform over dash	5 ft. 6 in.	Post centers.....	29 in.
Height to trolley boards..	10 ft. 3 in.	Door opening.....	50 in.
Extreme width	8 ft. 3 in.	Wheel base	9 ft. 6 in.
Rail to first step.....	15 in.	Diameter of wheels....	24 in.
		Seating capacity.....	28

An all-steel continuous tee-bar construction of the type practically standardized by the Cincinnati Car Company—the builders of the equipment—has been used for the car body. This includes a plain arch roof of steel combined with steel letterboards whose beam strength is sufficient to support the platform by hanging them from the extensions of the roof beyond the corner posts. In consequence, nothing equivalent to the customary platform knees has been required, and there have been provided only longitudinal members sufficient to support the platform flooring and to withstand the buffing stresses of collisions. This materially increases the space available for equipment below the platforms. In fact, with ordinary constructions it would have been impossible to have installed the track scrapers and other apparatus required by the purchaser.

Insulation for the No. 18 gage steel roof is provided

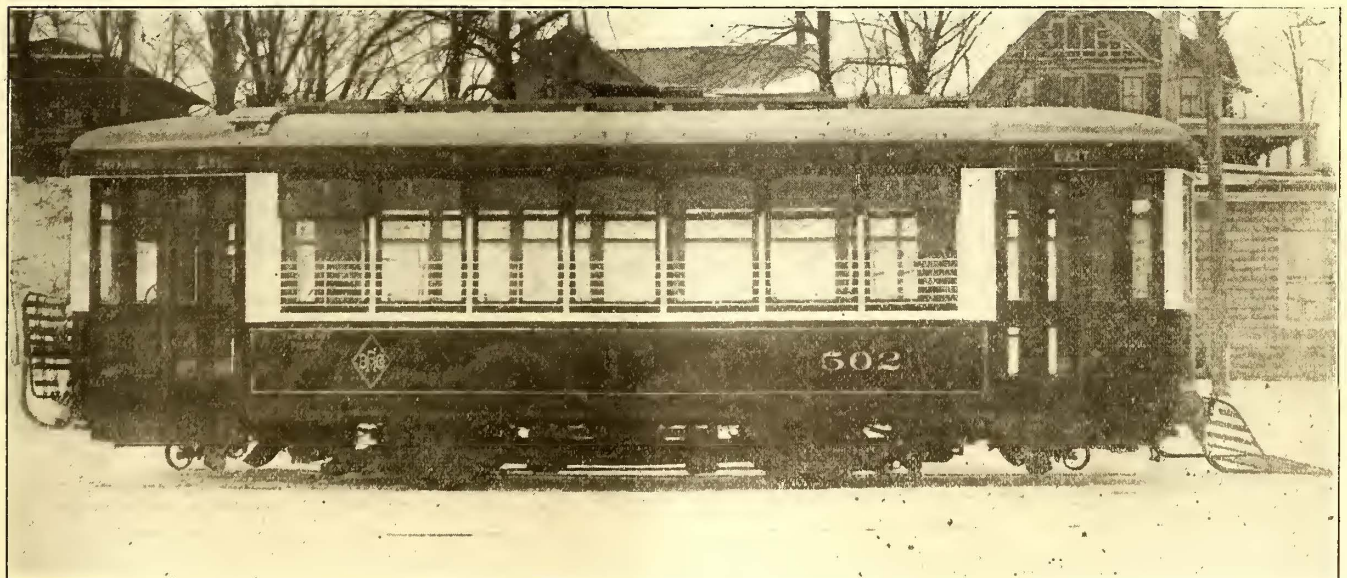


INTERIOR VIEW OF NEW CAR FOR BINGHAMTON

in the form of an outside layer of compressed cork 1 in. thick covered with No. 8 canvas. Inside, the carlines are exposed except for the advertising-card moldings, and the whole ceiling surface is painted with Pratt & Lambert's Vitrolite high-gloss white enamel, producing a brilliant finish. For the floor a base of yellow pine is installed with the customary surface of maple, and Mason safety treads at the edges of steps. For the wainscoting below the windows there is a 1-in. lining of compressed cork which is covered with 1/16-in. linoleum. Sash, doors and moldings are of ash painted with Valentine's green. Interior trimmings are of polished bronze.

For the lighting system there are three Dayton combination ventilating registers and lighting fixtures along the center line of the ceiling, the registers connecting with Railway Utility Honeycomb ventilators. Alba shades are fitted on the lighting fixtures and the lighting circuit is controlled through a Nicholls-Lintern selector switch. At all side windows double Pantasote curtains with Curtain Supply Company's ring-type fixtures are installed, together with the usual vertical flap curtain to shield the motorman from the light within the car.

Slat-type seats have been provided, these being of the Heywood Brothers & Wakefield Company's reversible type. They are made of birch with mahogany finish and have a length of 35 in., the backs being 17 in. high.



EXTERIOR VIEW OF BINGHAMTON SINGLE-TRUCK CAR

Other features of the equipment are vestibule window cleaners made by the Clear-Vision Cleaner Company, National Brake Company's MacWhirter-type staffless hand brakes, Cincinnati buzzer system with Consolidated buzzers at each side post, Westinghouse air sanders, Johns-Manville sand hose, Ohio Brass air traps, Rico hand straps, Crouse-Hinds flush headlights, Consolidated electric heaters with thermostat control, Ohio Brass tail-light system, a Sterling-Meeker single register, a Johnson fare box, Berg folding fenders, Hunter route and destination signs, Root air-operated track scrapers, Earll trolley catchers and T & B bushings and jam nuts for connecting conduit to junction boxes.

A sheet-steel transfer box of the Binghamton Railway Company's standard design is provided for each car, and the railway's design is also used for the flush-type motorman's climbing steps that are installed at diagonal corners of the car.

The propulsion equipment consists of two Westinghouse 506-A motors with double-end K-10-H controllers. The trucks are Brill 21-E. For the air-brake equipment National Brake Company's DH-5 compressors and PV motorman's valves are used, together with National Tube Company's piping and Keewanee unions.

High-Tension Line Repair Work Made Safer

Tag with Carbon Copy Feature Used in Carrying Out Ten Safety Rules of Pittsburgh (Pa.) Railways

Ten safety rules governing work on high-tension lines have been put into effect on the Pittsburgh Railways. The rules require the use of the tags shown in the accompanying illustration. Tags are placed on the handles of high-tension oil switches which have been opened to allow repair work to be done. The tag is so designed that a duplicate record is made of each tag used. Each tag has a slip of paper fastened to it which

clear and all phases have been short-circuited and grounded at each point where work is being done.

3. Each foreman, lineman, substation operator or repairman when advised by the load dispatcher that a line may be cut out and before doing any work on the high tension, must report to every station on the line and get the word of each operator that the line is clear at his station. When work is completed each man who has reported on must report off as quickly as possible to each station on the line.

4. No man, even though knowing that a line has been cleared for others, shall work on this line without reporting on and off as in Rule 3. Remember, a line may be hot from one station even though it has been cleared at other stations.

5. Each station operator in order to clear a line must open both the oil switches and the hook switches on that line. When a man reports on a line it must be cleared and a danger sign and a tag showing name of line, time, person reporting on line, and operator's signature placed on the switch handle.

6. When a man reports off of a line, the tag bearing his name must be removed. When all men have reported off, the danger sign must be removed and the line or equipment may be used as directed by the load dispatcher.

7. In emergencies to save life or property operators may open circuits without instructions from the load dispatcher. When the load dispatcher cannot be reached and in order to maintain service, circuits may be put into commission at the discretion of the operator provided these rules have been complied with.

8. To avoid misunderstanding, all telephone orders relating to working on high tension should be repeated back by the person receiving same.

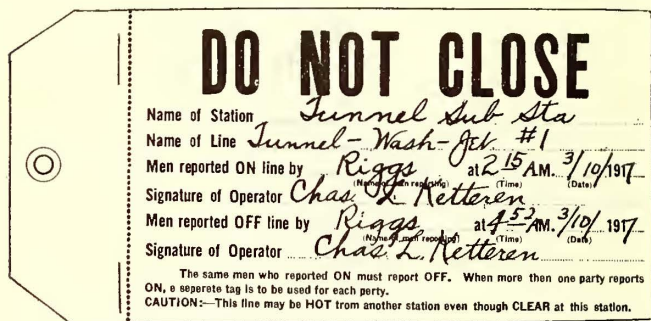
9. Except in emergency the load dispatcher must have twenty-four hours' notice previous to the time any high-tension line is to be taken off.

10. The words "line" and "high tension," as used in these rules refer to all high-tension lines and equipment inside as well as outside a station.

It will be noted in Rule 3 that each man who is about to work on a line must report the fact to each station on the line, and the operator at each station must place a tag on the controlling oil switch for each man so reporting. As each man reports that he is off the line, his tag is removed, and as the switch is not to be closed until all tags are removed, this will no doubt avoid accidents which occur where misunderstandings are not so well guarded against.

With the installation of these rules and the use of the tags a station operator has been given the power to close the switch on a line when all the men who have reported on have reported off again, whether these men have reported off to the other stations on the line or not. In other words, with permission from the load dispatcher, a line may be made hot from any station to which all men have reported off the line. This was done so that in case telephone lines are down and all the stations cannot be reached readily, service may be restored without the delay which would be necessary if all stations had to be advised that the men were off the line. When a line is off, all station operators treat it as if it were hot, unless they themselves have reported on the line to all stations to which it connects.

The Des Moines City Railway is utilizing an asbestos-lined tin cabinet fitted with a glass door and measuring about 16 in. on a side for the purpose of baking the small armatures of the heater motors after repairing. The box is equipped with five 32-watt lamps and will handle one armature at a time. It is possible thoroughly to bake an armature in twenty-four hours by this means.



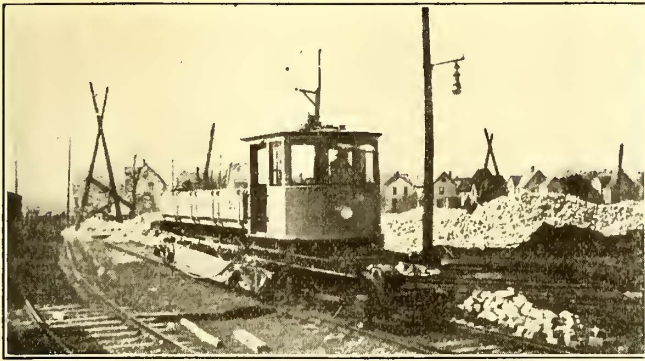
SWITCH TAG WITH CARBON-COPY FEATURE

is the same size as the tag. This paper is coated with carbon on the back and is printed on the front the same as the tag. When the operator fills out the blanks the tag itself becomes the carbon copy, and the operator tears off the paper slip and keeps it as his own record for reference in case of any future controversy.

On the back of the tag are the following instructions: "Attach firmly to the switch handle so that the tag will be conspicuous and the switch cannot be closed without noticing it. Return this tag to the load dispatcher when report is complete."

The ten safety rules are as follows:

1. All high-tension circuits are to be considered "hot" under all circumstances except when specifically cleared in accordance with these rules.
2. The load dispatcher cannot clear a line. The responsibility for self-protection when working on high tension rests entirely with the men doing the work and the station operators. Under no circumstances shall men work on high tension until it has been reported



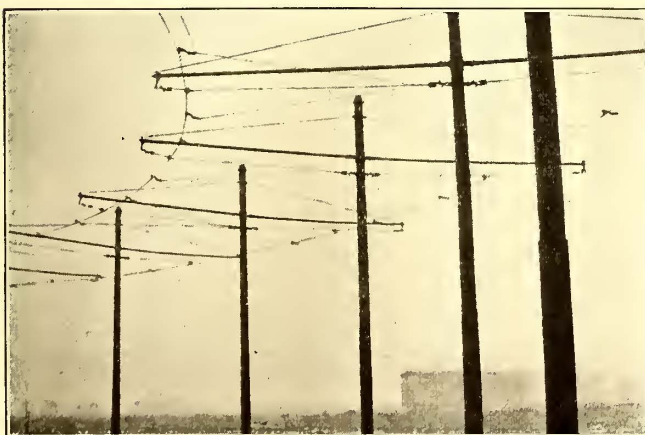
WORK CAR EQUIPPED TO CLEAN RAILS IN WINTER WEATHER

Machine for Clearing Rail Groove of Ice and Snow

A machine has been constructed and used successfully by Charles H. Clark, engineer maintenance of way Cleveland Railway, for cleaning snow and ice from girder groove rail during particularly bad weather conditions in the winter. It consists of an 18-in. steel wheel with seven 1-in. teeth around its circumference. The wheel is suspended from the framework on the front of a work car and is driven at 1800 r.p.m. by a motor which is also mounted on the framework. Any ice or snow accumulation can be thoroughly cleaned from the rail with the car running at any speed up to 8 or 12 m.p.h.

A Center-Pole Double-Trolley Overhead Loop

An unusual piece of overhead construction has been installed over the loop at the D. & C. boat dock in Cleveland by James Scott, superintendent of overhead, Cleveland Railway. Owing to the possibility that poles supporting the customary span loop construction might frequently have to be moved for city construction and other building work, it was decided to use center poles, and thus keep the entire railway construction within the limits of the track way. In the loop are seventeen National Tube Company 8-in., 7-in., 6-in. extra heavy steel poles, which are set in concrete 8 ft. in the ground. The 2-in. bracket pipes are set in sockets fastened to the pole by set-screws. The bracket extends entirely through the socket and rests against the pole, but can be adjusted and held with the set-screw if desired. The arms are 12 ft. long on either side of the pole. The method of supporting the trolley wire is clearly shown in the photograph reproduced below, the pull-over cables being fastened to the trolley about every 6 ft., thus making a smooth curve.



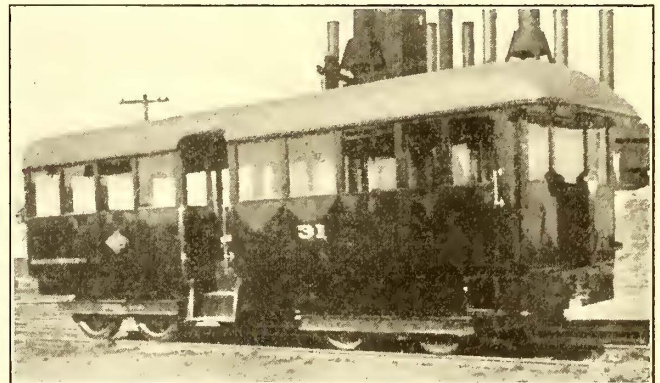
METHOD OF SUPPORTING TWO WIRES WITH CENTER POLES

One of the advantages of this construction was the practicability of putting up the entire overhead and of making all adjustments from the top of the company line car. It was thus possible to construct the entire loop in two days with a gang of four men. This construction holds the trolley wire in better shape than is possible with the outside-pole construction, and produces a rigid trolley wire instead of the long, sloppy span which would have resulted with poles set across the street from the line as would have been necessary in this case. The more rigid construction probably saves something on trolley-wheel wear as well.

As Mr. Scott said, the construction looks very expensive, but the saving in the construction cost and in reduced maintenance offset the extra material cost.

Car with Oil-Engine Drive for San Diego

The San Diego & Southeastern Railway has recently placed in service a light-weight motor car designed and built by the Hewitt-Ludlow Auto Company of San Francisco, Cal., for use on the 18-mile run between the cities of San Diego and Santee, Cal. The car weighs 20,400 lb., is 25-ft. long and seats thirty-two passengers. Its equipment includes a 70-hp. oil engine that drives both pairs of rear truck wheels by means of worm gears. Gearing for four speeds is provided, including reverse,



NEW 10-TON MOTOR CAR FOR SAN DIEGO

the maximum speed being 40 m.p.h. The car has two four-wheeled swiveling trucks, the wheels at the front being 24 in. in diameter while those on the rear truck are 36 in. in diameter. Westinghouse air-brake equipment is used. Since Feb. 23 the car has been in service on a regular schedule, and it has met with the unqualified approval of the officials of the railway as well as the company's patrons who have ridden in it.

The car takes the long grades which obtain upon the interurban route that it serves, and which range from three-fourths of 1 per cent to 2½ per cent, at 25 m.p.h. on the third gear connection and it holds the rails very well, the operators finding it unnecessary to slacken speed through any of the curves on the main line. In the business district of San Diego the car goes around curves of 55-ft. radius and over all kinds of special track work with perfect ease.

B. M. Warner, general superintendent San Diego & Southeastern Railway, states that while the car has not yet been in operation long enough to arrive at operating costs, except that of fuel, it has fulfilled all requirements to the company's satisfaction. With regard to the cost of fuel, he states that straight distillate is used, costing 9.5 cents per gallon. About 5.5 miles are run by the car for each gallon of fuel. The new car makes even less noise than the electric cars running on the city lines of the same districts.

News of Electric Railways

Traffic and Transportation

Financial and Corporate

Personal Mention

Construction News

Rhode Island Investigation Provided

Special Commission Will Report in 1918 on Possible Changes in Fare and Modification of Taxes for the Rhode Island Company

An investigation of the affairs of the Rhode Island Company, Providence, R. I., to be followed by relief from taxes and other financial burdens if such relief is found fair and just, has been provided by the General Assembly of Rhode Island. The act creating a special commission to conduct the investigation was passed on April 17 in the House and on April 18 in the Senate. Governor Beeckman, it is expected, will approve the measure.

WHAT THE SPECIAL COMMISSION WILL CONSIDER

The bill authorizing the investigation creates a special commission composed of the chairman of the Board of Tax Commissioners, the chairman of the Public Utilities Commission and the Bank Commissioner. They are directed to investigate the finances, management, property and mode of operation of the company for the purpose of determining whether the company is furnishing proper transportation and whether the net income is a fair and equitable return upon the property owned and controlled by the company and devoted to the public service.

Upon the completion of the investigation the commission is authorized to determine and certify to the Public Utilities Commission what modification of rates of fare or changes in the transfer system seem to it to be just and equitable. The Public Utilities Commission in turn is authorized and directed to order the company to make the changes in accordance with the recommendations of the special commission. The right is reserved by the company, however, to appeal from such finding. Any modifications ordered to be put into effect are to be subject to change from time to time by the Public Utilities Commission. The special commission is authorized to investigate fully into taxes or payments made by the company to the State or to any city or town in the State with a view to determining whether it is just and equitable to require such payments or whether they should be modified or suspended.

COMMISSION TO REPORT IN 1918

The special commission is to report in print to the General Assembly by Feb. 15, 1918, a summary of the results of its investigation with its recommendations. The expenses of the investigation are to be shared equally by the company and the State. The sum of \$20,000 was appropriated by the State toward the cost of the work. The special commission is empowered to retain such experts as it may deem necessary to the proper conduct of the investigation.

Springfield Purchases Power

C. V. Wood, president of the Springfield (Mass.) Street Railway, has confirmed the report that the company has entered into a contract with the Turners Falls Power & Electric Company under the terms of which the latter will provide the entire power supply of the former. Philip Cabot, president of the Turners Falls company, stated that within the next two or three years about \$3,000,000 will be expended in the extension of the generating and transmission facilities of the Turners Falls system, a considerable part of this outlay being required for the erection of a large steam plant in the Connecticut Valley which will operate in conjunction with the existing hydroelectric station at Montague City and other plants affiliated with the system. The Margaret Street engine-driven railway plant

in Springfield will be shut down and a modern substation system provided, with motor-generator sets and suitable transformer and switching equipment. Mr. Wood said that it is hoped to complete the entire installation with respect to the Springfield system by the end of 1918 and that it is planned to inaugurate a part of the service during the present year.

Cincinnati Transit Ordinance Passed

City Votes 30,028 to 14,186 in Favor of the Rapid Transit Loop Lease

The rapid transit loop lease ordinance was ratified by the voters of Cincinnati, Ohio, on April 17 by a vote of 30,028 to 14,186, with one precinct not counted. Approximately 40 per cent of the total vote was cast on the ordinance. The opposition to the measure came from the residence districts of Clifton Heights, Madisonville, Hyde Park and Oakley. The ordinance had been approved by the Cincinnati Traction Company.

Chief Engineer Krug of the Rapid Transit Commission stated that everything is in readiness to begin the detail plans for the loop. The commission will meet soon to employ engineers, draftmen and others with technical ability. Mr. Krug thinks that the commission will be ready to award contracts by Jan. 1, 1918. The contracts will be let in sections, but the engineering work will be completed and all contracts will be based on the system as a whole.

PRESIDENT SCHOEFF PLEASSED

W. Kesley Schoepf, president of the Cincinnati Traction Company, which will operate the loop under the grant, said:

"I am gratified that the people have approved the ordinance proposed by the city and accepted by this company. It is my intention and that of the other officials of this company to carry out the spirit of the contract in every way and to make it possible for the people to realize their highest hopes in connection with the building and operation of the rapid transit line, both for interurban and for local service.

"I am not afraid of the working of that part of the ordinance, referring to the machinery for control of service and extensions by the city. With proper co-operation between the city officials and the officials of this company there will be no trouble on this score, and I am determined, as far as I am concerned, to see it worked out this way."

E. W. Edwards, chairman of the Board of Rapid Transit Commissioners, said:

"I am convinced that all can now with good grace get together in carrying out this project. The members of the Board of Rapid Transit Commissioners invite the advice and co-operation of all, and they feel confident that those who before the election opposed some of the terms and conditions of the ordinance will be among the first to give support and lend counsel in completing this big work."

WHAT THE ORDINANCE MEANS

The approval of the ordinance is the last step needed to accomplish surface franchise revision and permit rapid transit development and the entrance of the interurban lines to the city. Under the grant there will be unified operation of all lines in the city, city control over service and extensions, protection of the existing railway investment, and a division of the surplus earnings between the Cincinnati Traction Company and the city. The new rapid transit lines proposed will cost \$6,000,000. An extended review of the terms of the grant was published in the ELECTRIC RAILWAY JOURNAL for April 7, page 633.

President Addresses Employees

Head of Bay State Street Railway, in Personal Message to His Co-workers, Recites How Costs Have Been Jumping Upward

The first issue of *Bay State Triangle Talks*, published weekly to acquaint the employees of the Bay State Street Railway, Boston, Mass., with the business of the organization of which they are a part, was devoted entirely to a personal message from President P. F. Sullivan to his co-workers. Mr. Sullivan called particular attention to the upward tendency of street railway operating costs and asked the men to lend their best efforts toward increasing the company's income and decreasing its expenses. He said there were three ways in which the company could get money. First, it could increase its income by increasing its business; second, it could save money by using care, by being economical and by saving not only dollars but cents; and, third, by persuading people to invest in the company. To drive home the fact that people could not be persuaded to invest money in an enterprise which did not promise to pay a fair return on the investment and insure the safety of the principal, he said that the Public Service Commission had authorized the company to sell \$2,500,000 of 6 per cent notes, but that there was no market for them at present. The big job of all connected with the company was to make the property so attractive to investors that they would lend the use of their money without persuasion. He promised to tell the men in detail in other letters later on how they could help to better the company's credit.

HOW COSTS HAVE JUMPED

The properties that now compose the Bay State Street Railway were consolidated in 1899. Some of them were then making money, but their owners saw that the ever-increasing cost of improvements was eating into the profits at an alarming rate. The organizers of the company felt sure that by combining the small companies great savings could be effected. These savings were made as planned. Then came changes in the art of electric railroading that no one could foresee. The public demanded double-truck cars, more speed, more comfort, everything that cost money, and in replacing the old rails the money invested in them only a few years before was lost. Since 1899 more than \$5,000,000 had been spent for new cars and equipment, more than \$4,000,000 on power stations, and \$13,500,000 to build or rebuild 562 miles of track and overhead. Maintenance costs had increased from \$785 a track-mile in 1901 to \$1,683 in 1914. In 1915 the company paid in wages \$4,419,768 and in 1916 it paid \$4,911,223, an increase of 11 per cent. It would cost the company nearly \$300,000 more for coal in 1917 than it did in 1916. Steel axles, of which the company used 100,000 lb. a year, now cost \$5.68 per hundredweight as compared with \$3.98 formerly. Window glass, of which the company used 1600 boxes, had jumped from \$3.66 per box to \$6.10. Trolley wheels that were formerly 65 cents each were now 82 cents. The company used 85 miles of trolley wire every year, or 180,000 lb. Whereas this material formerly cost 13 cents a pound it now costs 31½ cents. The operating revenue of the company in 1916 was \$9,996,484. The operating expenses were \$7,764,880. The increased revenue over 1915 was only \$458,077, whereas the increased operating expenses amounted to \$867,128, or almost twice as much as the increased revenue. Despite all this fares had not changed except recently in districts where the result to the company was almost negligible.

Mr. Sullivan said there were 33,000 privately-owned automobiles in the territory in which the company operated. He estimated the annual loss of revenue to the company on account of their competition at \$1,200,000. In addition the loss to the company through the operation of jitneys totalled \$290,000 annually. The company now paid out \$438,000 a year for accidents. One of the jobs of all the men connected with the company was to cut down the number of preventable accidents. Mr. Sullivan promised to tell in detail later how this could be done.

Mr. Sullivan also gave some helpful advice to the motor-men and conductors in regard to selling transportation.

No M. M. and M. C. B. Exhibit

To Conserve Country's Resources Exhibit Is Abandoned This Year—Definite Plans About Exhibit to Be Announced Later

In view of the declaration of war and the proclamation of the President urging citizens to take all steps possible to conserve the resources of the country, there will be no exhibit of railway supplies this year at the time of the annual convention of the American Railway Master Mechanics' and Master Car Builders' Associations which were scheduled to meet at Atlantic City June 13 to 20. Whether the associations themselves will meet this year, or, if they do, whether they will meet at Atlantic City, has not yet been decided. It is expected that early announcement will be made on this point.

The circular letter of Edmund H. Walker, president of the Railway Supply Manufacturers' Association, to the members of the association, making this announcement was in full as follows:

"The annual exhibition that was to have been held by our association in Atlantic City, N. J., June 13-20, this year, in connection with the conventions of the Master Mechanics' and Master Car Builders' Associations, has been postponed for one year.

"The unanimity of opinion among our members that we should, as patriotic citizens, conserve our time and resources, holding them subject to the call of our country's necessities, impels this action.

"The probability is, from the best information I have been able to obtain, that the two railroad associations with which we are allied will not hold their conventions this year, and if held, it will be in such limited time, with limited attendance, and at such place (not necessarily Atlantic City) as the exigencies warrant.

"Anticipating the possibility and the probability of the necessity for this decision your president some time ago stopped all work on exhibition preparation, and while, necessarily, some money has been spent, we are not financially obligated as in normal years, when at this date the major portion of our expense is incurred.

"Further notice will be given relative to refund for exhibit space when the expenses incurred in connection therewith have been totalled and your committee takes the necessary action."

N. E. L. A. May Not Convene

Necessity of Mobilization of Industries Makes Change in Character of Meeting Probable—Suggested Conference on War

As this paper goes to press news is received that the proposed annual convention of the National Electric Light Association, scheduled for May 28 to June 1 at Atlantic City, may also be postponed. A feeling that a convention of the usual character should not be held under the stress of war conditions is now uppermost in the minds of those who are guiding association affairs, and it appears probable that, owing to matters of national importance requiring the earliest possible consideration, the meeting will be advanced to an earlier date and curtailed materially in scope.

The reason for this position is that the officials and employees of member companies who would attend the convention in normal times cannot be spared from their regular duties under present conditions. Their services are felt to be needed within the organizations at home.

There is also, however, a strong feeling that an opportunity should be furnished for the executives to confer on questions of public policy created by the war, and it is thought that great advantage would result from a free discussion by officials in executive session. For this reason it is suggested that such a conference may be arranged for a date early in May.

The plan to hold a great patriotic meeting on the evening of May 30, Decoration Day, will of course be held in abeyance until a final decision is reached on the question of the main convention. A patriotic gathering, however, may be arranged.

Philadelphia Program Held Up

Public Service Commission Refuses to Act Until Legislative Program Is Decided

The Public Service Commission of Pennsylvania on April 14 not only again withheld authority for the construction of the proposed rapid-transit lines in Philadelphia, but also announced a program under which it virtually places the matter before the Legislature for solution. Under its ruling the commission will give the transit question no further consideration whatever until the transit bills now before the Legislature are disposed of. Announcement of the decision was made by the secretary of the commission after a conference between its members and Mayor Smith, Transit Director Twining and Joseph P. Gaffney, chairman of the finance committee of Councils of Philadelphia. The announcement was as follows:

"All further consideration of the subject of the applications will be suspended by the commission until after action has been taken by the Legislature on the proposed measures in reference to the transit situation in Philadelphia suggested by the Mayor."

PROGRESS ON LEGISLATIVE BILLS

Up to the time of this announcement by the commission all of the transit bills in question, with the exception of the Gans measure, had made little progress beyond their mere introduction and reference to committees. The four bills before the Assembly, all of which were drafted by Mr. Gaffney at the request of Mayor Smith and Director of City Transit Twining, give the city full control over the transit situation.

On April 17, however, the Hecht bills were reported out of committee to the House and the Salus bill reported to the Senate. The Hecht bills propose an amendment to the Constitution whereby the city could deduct from its estimated borrowing capacity indebtedness incurred for the construction or purchase of public utilities earning revenue, and provide that the city may take over through the exercise of the right of eminent domain the existing transit lines operated in Philadelphia. The measure providing for an amendment to the Constitution could have no effect until it was passed by the next Legislature and after a vote by the citizens.

Mr. Taylor Approves P. R. T. Proposal

Former Director of Transit in Philadelphia Disagrees with Conclusions of Present Director

A. Merritt Taylor, former director of transit of the city of Philadelphia, Pa., has issued an extended statement in which he disagrees with the conclusions of Director Twining, as expressed in his report which was published in abstract in this paper for April 7. Mr. Taylor says: "This proposed agreement, which the Philadelphia Rapid Transit Company is now prepared to consummate, secures to Philadelphians vast profits, adequate service and splendid facilities, upon terms which are just to all parties in interest." Mr. Taylor also thinks that the agreement is far better, from the city's standpoint, than the tentative agreement which was entered into between the department and the company in 1914.

Mr. Taylor bases these conclusions upon his belief that Estimate "B," in the Ford, Bacon & Davis report, giving the probable average yearly increase in gross earnings during the first part of the agreement, is most conservative. He also suggests that the deficit to the city under the plan could be further reduced by the temporary postponement of the construction of the Chestnut Street Subway and in other ways permitted under the contract. With these changes, the deficit to the city from 1919 to 1933, inclusive, with a 5-cent fare and free transfers, would aggregate only \$17,728,250, instead of \$47,342,000, as shown in Estimate "B," while the benefits to the city from increased real estate values will more than offset this loss. Hence, no increase in the tax rate will be necessary. In conclusion, Mr. Taylor urges the adoption of the Philadelphia Rapid Transit Company's proposal.

Armistice in Albany

Suspended Employees Will Be Reinstated Pending Settlement of Matter of Extra Runs

The recent controversy between the United Traction Company, Albany, N. Y., and its trainmen, arising from the refusal of extra men to operate extra cars, was temporarily adjusted at a recent meeting between representatives of both sides. The conference lasted two hours, and the result of it was that the seventy-two suspended employees will be reinstated, no part of the present agreement will be changed, and the matter of handling extra cars will be taken up at a conference between officers of the Amalgamated Association and officials of the company. If an agreement cannot be reached in conference some other way will be found to solve the question, but it will probably not be by arbitration, as the company refused to consider this question again unless there was something specific to be arbitrated.

C. F. Hewitt, general manager of the company, said the company wanted assurance that the extra cars would be operated, and if this assurance was received things might be smoothed out. He pointed out the expense entailed in commanding regular men to operate extra cars, and said there should be some arrangement whereby the extra men would do this work. Then the conference became deadlocked, the company holding that regular men should not be indiscriminately excused from regular duty when there were extra cars to be operated, and the men asserting that any regular man who wished to be excused should be permitted to get off, and his regular run taken by an extra man.

Finally the company made an offer to hold a conference for the purpose of reaching an equitable agreement as to the use of extra men, providing that during the negotiations extra men operate extra cars.

Tacoma Extension Decided

Extension to Line Owned by City Will Be Operated by Private Company

Definite plans for the construction by the city of Tacoma, Wash., of an extension of the present municipal tideflats car line from its present terminus to the plant of the Todd Shipbuilding & Construction Company were formulated at a meeting of the City Council recently. The city will build the line and furnish the rolling stock, and the Tacoma Railway & Power Company will operate it under an agreement similar to the one now in force covering the operation of the present line. The plan calls for an expenditure of at least \$160,000, which will be covered by utility bonds. In this total will be included the original \$35,000 of bonds the proceeds of which were used to construct the present city line. The question of raising fares will be taken up by the Council and officials of the company at an early meeting, it being generally conceded that an increase of at least 2 cents will be necessary if the line is to pay.

Amendments made to the original plan of construction call for the extension of the line 1600 ft. additional to Willapa Street. Upon the guarantee of C. W. Wiley, superintendent of the shipbuilding plant that 1500 men would be employed by Oct. 1, Commissioner Gronen's estimate of three motor cars and three trail cars was doubled.

A special committee has advised the Council to consider the extension of the proposed line an additional 1½ miles from the proposed terminus at the shipbuilding plant, at an estimated cost of \$90,000, to serve 400 employees of the Buffelin & Ernest Dolge Lumber Company.

It has been decided that the transfer arrangements between the city's line and the lines of the Tacoma Railway & Power Company will remain on the present basis until the contract which is now in force expires on Sept. 14, 1921. At present the city receives 1 cent on all transfer business, while the Tacoma Railway & Power Company receives 4 cents. The traction company has agreed to sell the city direct current at 0.75 cent a kilowatt-hour until the city can generate its own direct current. Commissioner Gronen has telegraphed an order for 12,000 ft. of trolley wire to an Eastern firm for the tideflats extension. This is the first contract to be placed for material for the extension.

Bonus for Richmond Employees

Virginia Railway & Power Company Announces Bonuses for 2000 Men on Account of Abnormal Living Costs

On account of the abnormal increase in the cost of living, due to the war, and to help its employees meet expenses incident thereto, the directors of the Virginia Railway & Power Company, Richmond, have decided to pay all their employees working on an hourly basis a bonus of 2 cents for each full hour worked. Employees on the monthly payroll, drawing salaries of \$100 a month or less, will receive a bonus of 10 per cent of their monthly salary. The payment of the bonuses will be continued until conditions are such, in the judgment of the directors of the company, as to warrant their discontinuance. The bonuses apply to the wages of men all over the company's system, embracing the street railway and light and power utilities of Richmond, Norfolk, Portsmouth and Petersburg, and the gas utilities of Norfolk and Suffolk. About 2000 men are affected.

In a statement which he made, T. S. Wheelwright, president of the company, said:

"The bonus is entirely voluntary on the company's part. It was ordered by the directors as an emergency measure to help our men to meet the extraordinary living conditions that the war has created. The paying of this bonus will mean an increase of more than \$100,000 in our payroll for the year. A year ago, on Jan. 1, 1916, the company declared a voluntary wage increase amounting to about 10 per cent, and representing an increase of \$100,000 or more over the payroll charge then in force. As far as we are informed our company is paying in wages to its employees a higher rate in proportion to fares charged than any other street railway in the country."

Co-operative Employees' Magazine

A monthly magazine designed for distribution to the employees of any electric railway is being published by the Public Utility Publicity Bureau, 30 North LaSalle Street, Chicago, Ill., under the editorship of W. F. Brashears. This magazine of thirty-two pages, 6 $\frac{3}{4}$ in. x 9 $\frac{3}{4}$ in., is now being supplied to about sixty electric railways. The body of these magazines is uniform, but covers carrying the names of the local roads are added to the copies circulated by each property. The publication carries no advertising. The object of the magazine is to furnish the companies in moderate-sized cities a company publication which will cover the desired field at a low cost. Arrangements can be made to insert local matter and thus give each road practically an individual magazine without great expense. The character of the contents is so chosen as to create a more friendly and loyal feeling between the men and the management, to foster the safety-first movement and to gain the assistance of the men in the efforts of the company in securing a more adequate revenue and the elimination of burdensome taxes and restrictions.

Detroit Commission at Work

The municipal railway commission of Detroit, Mich., in conjunction with the Common Council committee on public utilities has again tackled the subway proposition. At a joint meeting held early during the week commencing April 8 it was decided to expend \$15,000 for the purpose of bringing up to date the traffic survey made for the city three years ago by Barclay Parsons & Clapp. This report, containing comprehensive data on Detroit's needs, will be the basis of any recommendations the railway commission may make to the Common Council regarding the subway plan. The commission and the utilities committee will also investigate claims made by the Monorail Company of America, which has made two propositions to the city. One is for the city to build the monorail system and pay the company 1 per cent of gross receipts. The other is that the city make a contract with the company which would compensate investors in the enterprise. The company has installed a working model of the elevated in the Council Chamber.

Toledo Considers Supervision

That Part of the New Grant Relating to This Matter Considered on April 9

At the conference on April 9 between the Toledo Street Railway Commission and Henry L. Doherty, chairman of the board of the Toledo Railways & Light Company, Toledo, Ohio, the proposed supervision over the operation of the property by the city was discussed. It was agreed that a street railway commissioner should be appointed by the City Council, and that he should have an auditor at work in the company's office continually. He will be expected to make monthly reports of all transactions to the Council. The clause relating to this point provides that the company shall pay the expense of the commissioner's office. This the Street Railway Commission estimates at \$25,000 a year. Mr. Doherty contended the commissioner should be paid from the city tax funds.

Mr. Doherty agreed with reluctance to the provision which gives the City Council the right to approve or reject all contracts involving more than \$1,000 made by the company. He reiterated his declaration that he could not agree to the confiscation of the plant in case the Council should disapprove of anything in its management or operation, and he was firm in his refusal to approve of the provision that the stock of the proposed community company should be sold at less than par. He also objected to the provision that the city may designate a new purchaser.

At a subsequent conference between Mr. Doherty and members of the commission it was agreed that, in the event the city decides at any time to take over the railway, the company will accept a cash payment equal to 25 per cent of the agreed valuation, less the amount in the equalization fund which the city may retain as a working capital.

A number of minor points still remain unsettled, but members of the commission stated that they consider the negotiations have now been practically completed.

At a meeting of the City Council on the evening of April 16 a communication from Mayor Milroy was read in which he urged favorable action on a resolution which would open the way to the amendment of the city charter in such a way that negotiable bonds may be issued for the purchase of the street railway property. Mayor Milroy also urged the Council and the people to study carefully the community plan of settlement which has been worked out by the Mayor's Street Railway Commission and Henry L. Doherty. The commission has announced that, following the discussion of this plan, the matter of fixing the valuation of the property will be considered. The Mayor says that the Council should see that the city receives power to determine the value of the railway.

Settling San Francisco Problems

On April 6 headings met in the Twin Peaks Tunnel, San Francisco, Cal., and the successful completion of the bore became practically assured. The concreting is expected to be finished and the tunnel ready for track work by the end of June. With the completion of the tunnel in sight, careful consideration is being given to the possible extension of the Municipal Railway through the tunnel and into the territory on the far side of the ridge.

Three plans for providing transportation in the district beyond the tunnel have been proposed. One is that the city operate cars of the San Francisco Municipal Railway over the existing lines on a mileage basis; another would provide for the leasing of these lines from the United Railroads for a fifteen-year term, and the third is that the United Railroads be allowed to handle traffic through the tunnel on the city's tracks on a mileage basis.

Since the proposal of these several schemes, the broader proposition of purchasing the entire United Railroads' system has been seriously considered by the public utilities committee of the Board of Supervisors, and the committee has arranged for a meeting of city and company officials at which the possible plan of such purchase may be discussed.

Merchants on Market Street are opposing the plan to put four tracks on that thoroughfare and the United Railroads is also opposed to a duplication of the system.

Decision in Tacoma Case About May 1.—The State Public Service Commission at Olympia, Wash., has postponed for two weeks its decision in connection with the plea of Stone & Webster interests for relief from the provisions of the Tacoma city franchise relating to the payment of an earning tax and other requirements.

Strike in Lincoln.—Less than half the employees of the Lincoln (Neb.) Traction Company went on strike at midnight on April 18. The men have been negotiating with the company for several weeks for full recognition of the union. This was the principal demand of the representatives of the union, although a small wage increase was also included in the request to the company. The officials of the company have refused to recognize the union and have discharged the leaders of the movement.

Illinois Line Increases Wages.—The Kankakee & Urbana Traction Company, Urbana, Ill., has adopted a new scale of wages for trainmen as follows: For the first six months, 25 cents an hour; for the second six months, 26 cents; for the second year, 28 cents; for each succeeding year, 30 cents. Heretofore a flat wage of 28 cents an hour has been paid, irrespective of the length of time men have been employed. The flat scale was adopted when the road was opened in December, 1912. The new scale becomes effective on June 1.

Seattle Conference Postponed.—The conference over the matters at issue between the city of Seattle, Wash., and the Puget Sound Traction, Light & Power Company, scheduled to begin on April 12, was postponed for a week. Among the questions to be taken up is that of whether the company's tracks on Third Avenue shall be opened to the municipal car line in exchange for privileges to be granted to the company by the city. The company desires the city to fix a rental for the use of the bridges across the Lake Washington Canal at Fremont Avenue and Fifteenth Avenue Northwest. It also desires to operate one-man cars.

I. T. S. Not Subject to St. Louis Mill Tax.—The city counselor of St. Louis, Mo., has advised the public utilities committee of the Board of Aldermen of St. Louis, Mo., that it would be illegal to collect the mill tax on the interstate traffic of the Illinois Traction System into St. Louis. The traffic in the city on the system would be subject to the mill tax, but this is so small that it has been suggested it would not be worth while to attempt to collect it. The committee recently asked the city counselor for an opinion as to whether the Aldermen could order proceedings started to collect the mill tax from the company, following the company's action in obtaining from the Interstate Commerce Commission an advance of 5 cents in its passenger rate to Granite City.

Seattle Settlement Approved.—H. C. Gill, Mayor of Seattle, Wash., has signed the eleven ordinances passed by the City Council by which all differences between the city of Seattle and the Seattle & Rainier Valley Railway were settled. Concessions relating to the paving of right-of-way are granted to the company, which receives authority to reconstruct its lines on the Dearborn Street regrade, and also obtains franchises for the extension of its line on Genesee Street. There is to be an exchange of transfers between city lines and the Rainier Valley lines, under the terms of two of the ordinances. The city receives common-user rights on Fourth Avenue for the cars of its present municipally owned and operated street railway.

Program of Association Meeting

Missouri Association of Public Utilities

The entertainment committee of the Missouri Association of Public Utilities has again arranged for the annual convention on board the steamer Quincy. The dates of the convention will be May 17, 18 and 19. The boat will leave St. Louis on May 17 at 9.30 a. m. and will reach Cape Girardeau about 7 p. m. Here dinner and entertainment will be tendered by the local commercial club. The boat will remain at Cape Girardeau until noon on May 18 and will return to St. Louis about noon on May 19. On previous boat trips the association has gone outside of the State of Missouri. The round-trip fare, including meals and berth, will be \$16 for adults and \$8 for children under twelve years of age. The details of the program of papers have not yet been fully arranged.

Financial and Corporate

Annual Report

Chicago Surface Lines—Chicago City Railway

The gross earnings, expenses and distributed residue receipts of the Chicago (Ill.) Surface Line (the unified organization operating the Chicago Railways and the South Side Lines) for the twelve months ended Jan. 31, 1916 and 1917, are shown in the following statement:

	1917		1916	
	Amount	Per Cent	Amount	Per Cent
Earnings:				
Passenger cars	\$34,204,581	98.35	\$31,061,878	98.02
Chartered cars	4,671	0.01	4,175	0.01
Funeral cars	3,510	0.01	4,805	0.01
Mail carriers	24,837	0.07	24,837	0.08
Mail cars	60,673	0.19
Newspaper cars	8,361	0.02	8,291	0.03
Freight earnings	1,772	801
Garbage car service	10,497	0.03	27,499	0.09
Advertising	221,425	0.63	221,338	0.70
Rents of buildings, etc.	83,456	0.24	80,754	0.25
Sale of power	83,803	0.24	82,292	0.26
Interest on deposits	129,063	0.37	105,175	0.33
Miscellaneous	13,654	0.04	8,243	0.03
Gross earnings	\$34,789,636	100.00	\$31,690,761	100.00
Expenses:				
Maintenance	\$2,695,561	7.75	\$2,650,658	8.35
Renewals	2,783,170	8.00	2,535,260	8.02
Operation of power plants	2,728,261	7.85	2,779,718	8.75
Operation of cars	10,079,620	28.95	9,376,311	29.60
General expenses, including Board of Supervising Engineers	2,047,451	5.90	1,966,780	6.21
Taxes	1,409,456	4.05	1,732,629	5.47
Total expense of operation	\$21,743,522	62.50	\$21,041,356	66.40
Residue receipts	\$13,046,114	37.50	\$10,649,405	33.60
Divided:				
Chicago Railways, 60 per cent	\$7,827,668	22.50	\$6,283,149	19.84
South Side Lines, 40 per cent	5,218,445	15.00	4,366,256	13.76

The foregoing statement is taken from the latest annual report of the Chicago City Railway, which with the Southern Street Railway and the Calumet & South Chicago Railway, forms the South Side Lines. During the year ended Jan. 31, 1917, the gross earnings of the unified surface system increased \$3,098,875 or 9.78 per cent, this being more than double the normal yearly rate of increase. The gain stands out strongly against the results of the two preceding years, which showed an aggregate decrease in gross of a little more than \$1,000,000. Practically all of the last year's gain came from passenger earnings, which rose \$3,142,703 or 10.12 per cent.

The total expenses of operation for the last year increased \$702,166 or 3.33 per cent, the operating ratio dropping from 66.4 per cent to 62.5 per cent. Maintenance expenses rose \$44,903 or 1.69 per cent; renewals, \$247,910 or 9.77 per cent; operation of cars, \$703,309 or 7.50 per cent, and general expenses, \$80,671 or 4.10 per cent, while the expenses for operation of power plants dropped off \$51,457 or 1.85 per cent, and taxes \$323,173 or 18.64 per cent. The net result of unified operation was an increase of \$2,396,709 or 22.5 per cent in the residue receipts to be divided between the Chicago Railways and the South Side Lines.

In the year ended Jan. 31, 1916, the South Side Lines received 41 per cent of the residue receipts, but in the last fiscal year 40 per cent. In the last year the net income of the Chicago City Railway was \$1,749,710 or 9.72 per cent on the capital stock at par, as compared with a net income of \$1,413,540 the year before, or 7.85 per cent upon the capital stock. Four quarterly dividends aggregating 8 per cent, with an extra dividend of 1¼ per cent in December, 1916, were paid in the last year upon the \$18,000,000 of capital stock of the company, this total of 9¼ per cent comparing with 8 per cent the year previous. The surplus on Jan. 31, 1917, was \$187,903, while on Jan. 31, 1916, it was \$136,122.

The income statement of the Chicago City Railway for the year ended Jan. 31, 1917, showing the disposition of its 40 per cent of the residue receipts, follows:

40 per cent of the residue receipts of Chicago Surface Lines	\$5,218,445
Deduct joint account expenses, interest on capital investment of the Chicago City Railway and the Calumet & South Chicago Railway, and net earnings of the Southern Street Railway	3,616,023
Net earnings of Chicago City Railway	\$1,602,422
City's proportion, 55 per cent	881,332
Company's proportion, 45 per cent	\$721,090
Add interest on capital investment	2,558,167
Income from operation	\$3,279,257
Other income, net	88,244
	\$3,367,501
Interest on bonds outstanding	1,617,791
Net income	\$1,749,710
Surplus at Jan. 31, 1916	136,122
Total	\$1,885,832
Dividends, 9 1/4 per cent	\$1,665,000
Miscellaneous	32,929
	1,697,929
Surplus at Jan. 31, 1917	\$187,903

During the year the company built 11.31 miles and acquired through purchase from the Chicago & Western Railway 3.32 miles, making a total of 14.63 miles of single track built and acquired. It reconstructed 9.40 miles of single track. The total mileage is now 328.47.

Electric Railway Statistics

Comparison of Returns for January, 1917, with Those for 1916 Shows Unsatisfactory Conditions in Eastern District

A comparison of electric railway statistics for January, 1917, with figures for the corresponding month of 1916, made by the information bureau of the American Electric Railway Association, indicates an unsatisfactory state of affairs in the traction business of the Eastern district of the United States. This has had a depressing effect upon the returns for the country as a whole. Data for January, representing 8670 miles of line of companies scattered throughout the country, figured on the per mile of line basis, show an increase in operating revenues of 8.01 per cent, an increase in operating expenses of 14.35 per cent and a decrease in net earnings of 2.63 per cent. Data representing 6911 miles of line show an increase in the amount of taxes paid of 6.72 per cent, and a loss in operating income of 10.19 per cent.

The returns from the city and interurban electric railways, as shown in detail in the accompanying table, have been classified according to the following geographical

grouping: Eastern District—east of the Mississippi River and north of the Ohio River. Southern District—south of the Ohio River and east of the Mississippi River. Western District—west of the Mississippi River.

Of the three groups shown, returns for the Eastern representing 6035 miles of line indicate an increase in operating revenues of 8.04 per cent, an increase in operating expenses of 16.58 per cent and a decrease in net earnings of 6.18 per cent. Returns representing approximately 80 per cent of this mileage show an increase in the amount of taxes paid of 7.82 per cent and a decrease in operating income of 17.84 per cent. Returns for the Southern group representing 965 miles of line, though showing a greater percentage increase in operating expenses than in taxes, still indicate a slight increase in net earnings. There has been a 4.85 per cent increase in the amount of taxes paid by companies in this group, with 0.87 per cent increase in the operating income.

Returns for the Western group are more encouraging. Data representing 1670 miles of line indicate an increase in operating revenues of 8.79 per cent, in operating expenses of 6.88 per cent and in net earnings 12.41 per cent. Though an improvement is thus shown over the corresponding month of 1916, it must not be forgotten that the year 1916 was a poor one for the Western railways.

As has been predicted, the operating rates of the electric railways in the United States is increasing. For January it shows an increase from 62.67 in 1916 to 66.35 in 1917. The increase is largely due to the growing operating ratio of the Eastern district. The Southern district also shows an increase, while the Western district, whose operating ratio has been high, shows a slight decrease.

New Reorganization Plan Proposed

An amended plan for the reorganization of the Northern Electric Railway, Chico, Cal., was made public on April 1 by the reorganization committee, of which Frank B. Anderson is chairman. The plan provides for the issue of \$10,700,000 of securities of a new corporation in lieu of the existing securities of the component companies which form the Northern Electric system. All existing mortgages will be foreclosed and the properties bought in for the new company.

In the circular letter which was mailed with the amended plan to the security holders the statement was made that the form of reorganization agreement, as amended, had been approved by all groups of security holders and their committees except an interest of less than 1 per cent.

The new corporation to be organized as soon as the plan is approved by the California Railroad Commission will have fifteen directors, of whom twelve will be appointed

REVENUES AND EXPENSES OF ELECTRIC RAILWAYS FOR JANUARY, 1917

Account	UNITED STATES				EASTERN DISTRICT				SOUTHERN DISTRICT				WESTERN DISTRICT			
	Amount, January, 1917	Per Mile of Line			Amount, January, 1917	Per Mile of Line			Amount, January, 1917	Per Mile of Line			Amount, January, 1917	Per Mile of Line		
		1917	1916	% Increase		1917	1916	% Increase		1917	1916	% Increase		1917	1916	% Increase
Operating revenues	\$18,112,958	\$2,089	\$1,934	8.01	\$13,786,549	\$2,284	\$2,114	8.04	\$1,225,448	\$1,270	\$1,206	5.30	\$3,100,961	\$1,857	\$1,707	8.79
Operating expenses	12,018,473	1,386	1,212	14.35	9,296,706	1,540	1,321	16.58	724,230	750	695	7.91	1,997,537	1,196	1,119	6.88
Net earnings	6,094,485	703	722	2.63	4,489,843	744	793	6.18	501,218	520	511	1.76	1,103,424	661	588	12.41
Operating ratio, per cent	1917, 66.35; 1916, 62.67				1917, 67.42; 1916, 62.50				1917, 59.05; 1916, 57.63				1917, 64.40; 1916, 65.55			
Miles of line represented	1917, 8,670; 1916, 8,591				1917, 6,035; 1916, 5,981				1917, 965; 1916, 961				1917, 1,670; 1916, 1,649			

COMPANIES REPORTING TAXES

Operating revenues	\$13,446,314	\$1,946	\$1,831	6.28	\$9,796,703	\$2,024	\$1,916	5.63	\$665,892	\$1,300	\$1,238	5.00	\$2,983,719	\$1,913	\$1,763	8.50
Operating expenses	9,280,330	1,343	1,182	13.62	6,988,858	1,444	1,246	15.89	375,353	733	680	7.79	1,916,119	1,228	1,152	6.59
Net earnings	4,165,984	603	649	7.09	2,807,845	580	670	13.44	290,539	567	558	1.61	1,067,600	685	611	12.11
Taxes	880,024	127	119	6.72	600,566	124	115	7.82	55,161	108	103	4.85	224,297	144	138	4.34
Operating income	3,285,960	476	530	10.19	2,207,279	456	555	17.84	235,378	459	455	0.87	843,303	541	473	14.37
Operating ratio, per cent	1917, 69.01; 1916, 64.56				1917, 71.34; 1916, 65.03				1917, 56.38; 1916, 54.93				1917, 64.19; 1916, 63.34			
Miles of line represented	1917, 6,911; 1916, 6,836				1917, 4,839; 1916, 4,785				1917, 512; 1916, 511				1917, 1,560; 1916, 1,540			

†Decrease.

for the first year by the holders of the bonds and three by the holders of the stock.

The unsecured creditors are provided for under the plan by an arrangement that upon depositing their claims they shall be entitled to receive 30 per cent of the face value of their bills in common stock.

The amended reorganization plan has been perfected without any reference whatever to any proceeding which may or may not be taken against Leon and Louis Sloss, W. P. Hammon, E. J. de Sabla, Jr., and E. R. Lilienthal as indorsers of the notes of the Northern Electric Railway.

The new plan was outlined by the committee, which comprises Frank B. Anderson, John S. Drum, Vanderlynn Stow, I. W. Hellman, Jr., Fred W. Kiesel, John D. McKee, A. F. Jones, James K. Moffitt, M. H. Hyland, Miles Standish and A. L. Reed.

Tidewater Power Company Sold

William J. Norton of Norton, Bird & Whitman, engineers, Chicago, Ill., and Baltimore, Md., during the week ended April 14 concluded the transfer of the utility property of the Tidewater Power Company, Wilmington, N. C., from Hugh McRae, the president of the company, who owned a controlling interest in the stock, to Brooks & Company, Scranton, Pa.

The Tidewater Power Company controls the street railways of Wilmington, as well as an interurban line between Wilmington and Wrightsville Beach, on the Atlantic Ocean. The company also controls the electric and gas utilities and about 1500 acres of suburban real estate. It is understood that Mr. McRae will devote his entire attention from now on to the development of more than 70,000 acres of farm land which he owns in and around Wilmington, on a very comprehensive scheme of colonization and development.

Brooks & Company have been closely identified with the United Service Company, Scranton, Pa., which operates utilities in Ohio and Indiana, and also with the Keystone Utilities Company, which operates in Pennsylvania. L. H. Conklin, the general manager of these associated companies, assumed control of the Tidewater Power Company.

That Mr. McRae contemplated disposing of his interest in the company was noted in an article published in the *ELECTRIC RAILWAY JOURNAL* of Feb. 3, page 222.

Birmingham, Ensley & Bessemer Railroad, Birmingham, Ala.—The reorganization committee for the holders of the securities of the Birmingham, Ensley & Bessemer Railroad, of which C. H. Zehnder is chairman, has notified the holders of certificates of deposit issued under the agreement dated Sept. 15, 1914, that the reorganization of the company has been completed, that the properties sold at foreclosure have been conveyed to the new company which is known as the Birmingham-Tidewater Railway, and that bonds of that company are ready for distribution to the committee's depositors. The stock of the Birmingham-Tidewater Railway, as noted previously in the *ELECTRIC RAILWAY JOURNAL*, has been transferred to the Birmingham Railway, Light & Power Company in consideration of the guaranty by the latter company of the payment of the principal and interest of the bonds of the new company held by the committee. The committee now announces that upon surrender of the certificates of deposit, depositors will receive: (1) First mortgage 5 per cent thirty-year gold bonds of the Birmingham-Tidewater Railway, dated Jan. 1, 1916, with coupons maturing July 1, 1917, and all subsequently maturing coupons attached of a face amount equal to 50 per cent of the Birmingham, Ensley & Bessemer Railroad bonds represented by the certificates of deposit. (2) An amount in cash equal to the interest on said new bonds for the year 1916. Fractional amounts less than \$500 will be adjusted by the issuance of scrip certificates.

Birmingham Railway, Light & Power Company, Birmingham, Ala.—The stockholders of the Birmingham Railway, Light & Power Company will vote on April 26 to authorize an issue of \$2,000,000 of 6 per cent notes to mature in 1919, the proceeds to be used to pay for the Birmingham, Ensley & Bessemer Railroad, which was acquired in accordance with the terms set forth in the *ELECTRIC RAILWAY*

JOURNAL for Feb. 3, 1917, page 225, and March 3, 1917, page 410.

Bristol (Tenn.) Traction Company.—Judge H. C. McDowell, in the Federal Court at Bristol, Tenn., has adjudged the Bristol Traction Company bankrupt. Plans for the reorganization of the company are under way.

Boston (Mass.) Elevated Railway.—The West End Street Railway, operated under lease by the Boston Elevated Railway, has petitioned the Massachusetts Public Service Commission for authority to issue \$1,581,000 of bonds to refund a similar issue of bonds dated Aug. 2, 1915, and maturing Aug. 1, 1917. The new issue is to bear interest at not to exceed 6 per cent, and to run thirty years. Excess realized from the sale of these bonds will be applied to permanent improvements.

Carolina Power & Light Company, Raleigh, N. C.—According to the consolidated income statement of the Carolina Power & Light Company, and its affiliated companies, the Yadkin River Power Company and the Asheville Power & Light Company, the gross earnings for the calendar year 1916 at \$1,474,948 represented a gain of \$111,255, or 8.1 per cent over those of 1915. The gross earnings of the Carolina Power & Light Company increased 12 per cent, and the net earnings 7 per cent. The gross earnings of the Yadkin River Power Company increased 22 per cent, and the net earnings 34 per cent. The property of the Asheville Power & Light Company was considerably damaged by floods during the year, and operations were affected for a short time. In this case the increase in gross was only 3.7 per cent, and net showed a decrease. The first and last-named companies, which between them have 32.8 miles of street railway track in Raleigh and Asheville, served in 1916 a total of 7,377,789 passengers, an increase of 23,020 over the preceding year.

Eastern Texas Electric Company, Beaumont, Tex.—Stone & Webster, Boston, Mass., are offering \$600,000 of Eastern Texas Electric Company first mortgage collateral trust 5 per cent bonds at a price sufficient to yield a return of more than 5½ per cent.

Elmira Water, Light & Railroad Company, Elmira, N. Y.—The Elmira Water, Light & Railroad Company has applied to the Public Service Commission of the Second District of New York for permission to issue \$222,000 of 5 per cent fifty-year bonds under its first consolidated mortgage. These bonds are dated Sept. 1, 1906, and are due Sept. 1, 1956. The amount authorized is \$5,000,000, and the amount at present outstanding is \$3,667,000.

Gary & Interurban Railroad, Gary, Ind.—The Gary & Interurban Railroad has been authorized by the court to issue additional receiver's certificates to the face amount of \$250,000. Under this authorization the company has already sold \$114,000 of the certificates to the International Trust & Savings Bank, Gary, Ind.; the First National Bank, Hammond, Ind.; the Indiana Harbor National Bank, and the First Trust & Savings Bank, East Chicago, Ind. The certificates were issued under date of April 16, bear interest at 5½ per cent, and were authorized to be sold for not less than par. The proceeds of the issue are to be used to take up \$51,000 of outstanding certificates issued by the receiver and to provide funds for improvements, including a new substation and new cars.

Gary & Hobart Traction Company, Hobart, Ind.—The Gary & Hobart Traction Company has been incorporated in Indiana, with a capital stock of \$60,000, as the successor to the Gary, Hobart & Eastern Traction Company, the property of which was sold under foreclosure some time ago. The officers of the new company are Ora L. Wildermuth, president; Adlai T. Ewing, secretary, treasurer and general manager; Ora L. Wildermuth, Adlai T. Ewing, William Earle, Harold Stratton and Grant Crumpacker, directors of the company.

Georgia Railway & Electric Company, Atlanta, Ga.—The Georgia Railroad Commission has authorized the Georgia Railway & Electric Company to issue \$54,000 of refunding and improvement forty-year 5 per cent sinking-fund bonds to reimburse the treasury of the company for expenditures made by the company for additions and improvements to its properties during 1916.

Kansas City, Clay County & St. Joseph Railway, Kansas City, Mo.—The Supreme Court of Missouri has granted a continuance, to the October term, of the appeal of the Kansas City, Clay County & St. Joseph Railway against a judgment for \$1,500,000 in favor of the Interstate Railway. The judgment was obtained in a Jackson County Court in 1915. Senator James A. Reed is one of the attorneys for the Interstate company, and the continuance was granted because of his absence in Washington. The Interstate Railway obtained a verdict of \$1,500,000 damages for the taking of right-of-way on which it alleged it held options. Subsequently receivers were appointed for the Kansas City, Clay County & St. Joseph Railway, but they were discharged following the approval of a new bond secured by the company. The plaintiff, however, resisted the approval of the bond for a year.

Mount Vernon (Ohio) Electric Street Railway.—It is reported that the treasurer of Knox County, in which Mount Vernon is located, has petitioned the Common Pleas Court there to sell the property of the Mount Vernon Electric Street Railway and apply the proceeds on street improvement tax claims amounting in all to more than \$7,000. The company is in the hands of a receiver and the road is not now being operated.

Municipal Service Corporation, Philadelphia, Pa.—The Municipal Service Corporation is said to be negotiating for the acquisition of the Youngstown & Suburban Railway, which operates 38 miles of electric railway out of Youngstown, Ohio. The Municipal Service Corporation now operates the Chester Valley Electric Company, Coatesville, Pa., the Salem (Ohio) Lighting Company, the Alexandria County (Va.) Lighting Company, the Staunton (Va.) Lighting Company, the Sumter (S. C.) Lighting Company, the Valdosta (Ga.) Lighting Company, and the Citizens' Traction Company, Oil City, Pa. The properties are operated by Day & Zimmerman, Philadelphia, Pa.

Republic Railway & Light Company, New York, N. Y.—At a meeting of the directors of the Republic Railway & Light Company, held on April 12, R. P. Stevens was elected vice-president and a member of the executive committee, succeeding George A. Galliver, resigned. This will not interfere with Mr. Stevens' duties as president of the Mahoning & Shenango Railway & Light Company. At the same meeting Robert Lindsay, vice-president and general manager of the Cleveland (Ohio) Electric Illuminating Company, was elected a director and a member of the executive committee of the Republic Railway & Light Company, succeeding Samuel McRoberts, resigned. The Republic Railway & Light Company controls the Mahoning & Shenango Railway & Light Company through stock ownership.

Seattle (Wash.) Municipal Railway.—A. L. Valentine, superintendent of the department of public utilities at Seattle, Wash., in a recent report states that Seattle's municipal railway lines, Division "A" and "C," were operated during the month of March at a loss of \$2,136, as against a loss of \$2,200 for the month of February. This brings the total deficit for the operation of the line from June 1, 1914, to April 1, 1917, to \$105,008, or an average loss of more than \$3,000 a month. The actual operating loss on Division "A" last month amounted to \$254, while that on the Lake Burien line, Division "C," amounted to \$288. An interest charge of \$1,593 brings the total loss for the month on both lines to \$2,136. No provision has been made to date by the Council for carrying this deficit, no item having been included in the municipal tax budget for that purpose.

United Light & Railways Company, Grand Rapids, Mich.—The United Light & Railways Company states that the Tri-City Railway & Light Company has paid off the outstanding \$263,500 of first mortgage 5 per cent bonds of the Muscatine Lighting Company, and that the Tri-City Railway & Light Company first and refunding bonds are now a first lien on all the gas, electric light and power and electric railway properties in Muscatine.

United Railroads, San Francisco, Cal.—The time for the deposit of certificates of the United Railroads under the modified plan of reorganization, to which reference has been made previously in the ELECTRIC RAILWAY JOURNAL, has been extended until May 25.

Dividends Declared

Carolina Power & Light Company, Raleigh, N. C., one-half of 1 per cent, common.
 Georgia Railway & Power Company, Atlanta, Ga., 2½ per cent, first preferred.
 Green & Coates Street Passenger Railway, Philadelphia, Pa., \$1.50.
 Lancaster County Railway & Light Company, Lancaster, Pa., quarterly, 1¼ per cent, preferred; ¾ per cent, common.
 Mohawk Valley Company, New York, N. Y., quarterly, 1½ per cent.
 Monongahela Valley Traction Company, Monongahela, W. Va., ¼ per cent, common.
 Public Service Investment Company, Boston, Mass., quarterly, 1½ per cent, preferred.
 Ottumwa Railway & Light Company, Ottumwa, Iowa, quarterly, 1¼ per cent, preferred.
 Rome Railway & Electric Company, Rome, Ga., quarterly, 1 per cent, common.
 Tidewater Power Company, Wilmington, N. C., monthly, one-half of 1 per cent, preferred; ¾ per cent, common.
 Washington Water Power Company, Spokane, Wash., quarterly, 1 per cent.
 Western Ohio Railway, Lima, Ohio, quarterly, 1¼ per cent, first preferred.

Electric Railway Monthly Earnings

BATON ROUGE (LA.) ELECTRIC COMPANY						
Period		Operating Revenues	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Feb., '17		\$18,821	*\$8,685	\$10,136	\$3,513	\$6,623
1 " " '16		17,150	*8,524	8,626	3,436	5,190
12 " " '17		215,983	*101,794	114,189	42,148	72,041
12 " " '16		196,290	*106,964	89,326	29,616	59,710
CLEVELAND, PAINESVILLE & EASTERN RAILROAD, WILLOUGHBY, OHIO.						
1m., Feb., '17		\$32,362	*\$21,591	\$10,771	\$11,435	†\$664
1 " " '16		29,922	*18,174	11,748	11,074	697
2 " " '17		68,798	*43,724	25,074	22,873	2,201
2 " " '16		60,822	*36,482	24,340	22,112	2,228
COLUMBUS RAILWAY, POWER & LIGHT COMPANY, COLUMBUS, OHIO.						
1m., Feb., '17		\$316,318	*\$224,677	\$91,641	\$44,961	\$46,680
1 " " '16		280,700	*165,534	115,166	44,375	70,791
12 " " '17		3,613,173	*2,219,873	1,393,300	520,107	\$73,193
12 " " '16		3,167,944	*1,871,698	1,296,246	484,332	\$11,914
DALLAS (TEX.) ELECTRIC COMPANY						
1m., Feb., '17		\$179,859	*\$105,253	\$74,606	\$40,120	\$34,486
1 " " '16		163,758	*95,660	68,098	36,573	†33,525
12 " " '17		2,033,646	*1,231,369	802,277	459,529	†356,890
12 " " '16		1,836,629	*1,130,126	706,503	411,103	†300,599
EASTERN TEXAS ELECTRIC COMPANY, BEAUMONT, TEX.						
1m., Feb., '17		\$73,006	*\$39,179	\$33,827	\$9,783	\$24,044
1 " " '16		64,175	*34,344	29,831	8,939	20,982
12 " " '17		848,403	*454,299	394,104	109,456	284,648
12 " " '16		751,425	*395,327	356,098	105,535	250,563
JACKSONVILLE (FLA.) TRACTION COMPANY						
1m., Feb., '17		\$53,931	*\$37,312	\$16,619	\$15,493	\$1,126
1 " " '16		50,136	*33,549	16,587	14,716	1,871
12 " " '17		637,103	*429,440	207,663	185,495	22,168
12 " " '16		611,470	426,708	184,762	180,385	4,377
NASHVILLE RAILWAY & LIGHT COMPANY, NASHVILLE, TENN.						
1m., Feb., '17		\$197,593	*\$118,630	\$78,963	\$40,970	\$37,993
1 " " '16		185,318	*109,648	75,670	42,897	32,773
12 " " '17		2,408,600	*1,469,090	939,510	505,200	434,310
12 " " '16		2,171,809	*1,336,133	835,676	512,838	322,838
PENSACOLA (FLA.) ELECTRIC COMPANY						
1m., Jan., '17		\$27,046	*\$15,653	\$11,393	\$7,804	\$3,589
1 " " '16		23,936	*13,773	10,163	7,751	2,412
12 " " '17		283,211	*159,218	123,993	92,727	31,265
12 " " '16		261,746	*147,356	114,390	86,073	28,317
PHILADELPHIA (PA.) RAPID TRANSIT COMPANY						
1m., Feb., '17		\$2,510,812	\$1,415,832	\$1,094,980	\$813,751	\$281,229
1 " " '16		2,255,672	1,254,493	1,001,179	816,555	184,624
9 " " '17		21,001,095	11,779,325	9,221,770	7,328,468	1,893,302
9 " " '16		18,862,731	10,565,708	8,297,023	7,345,864	951,159
PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.						
1m., Feb., '17		\$459,908	*\$243,101	\$216,807	\$181,016	\$35,791
1 " " '16		409,331	*253,092	156,239	181,166	†24,927
12 " " '17		5,568,929	*3,030,719	2,538,210	2,178,685	359,525
12 " " '16		5,448,097	*3,075,752	2,372,345	2,206,371	165,974
TAMPA (FLA.) ELECTRIC COMPANY						
1m., Feb., '17		\$90,359	*\$45,766	\$44,593	\$4,372	\$40,221
1 " " '16		90,543	*46,456	46,087	4,394	41,693
12 " " '17		972,512	*532,768	439,744	52,351	387,393
12 " " '16		990,048	*510,705	479,343	52,184	427,159

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

Traffic and Transportation

Fare Matter in Albany Acute

United Traction Runs Placards of Warning in Cars—
Vice-President Weatherwax States
Company's Attitude

The United Traction Company, Albany, N. Y., is another utility which has taken steps to enlighten the public regarding the situation which confronts it. In a statement issued by Vice-President H. B. Weatherwax, it is denied that the company seeks to establish a universal 6-cent fare on its city lines, but a readjustment of fares is said to be necessary. Mr. Weatherwax said that the company must receive more for the service it renders and that the public must be reconciled to an increased fare by the addition of 1 cent to the straight 5-cent fare, by a charge of 2 cents for transfers, by a 10-cent fare after midnight, or by the establishment of the Continental zone system. The statement by Mr. Weatherwax was made in order to avoid misunderstanding of the attitude of the company regarding the establishment of a 6-cent fare and followed comments on the matter in the public press. He said in part:

"Nothing could be more untrue than the statement that the average haul per passenger is one-quarter of a mile in this city. The average ride per passenger on the Albany division, which includes Albany and Rensselaer, is 1.64 miles. For that portion of the system in Cohoes and vicinity, the average ride per passenger is 1.88 miles, and that on the Troy line is 1.99 miles. The average ride per passenger for the entire system, exclusive of transfers, is 1.76 miles, while that including transfers is 2.16 miles.

"It is commonly supposed that the company receives the 5-cent fare from each patron, whereas, because of school tickets and free transportation granted to certain officials, it actually receives 4.04 cents per passenger. The resulting rate of fare in Albany is a trifle more than 2 cents per mile, while that for the average passenger over the entire system is a little less than that amount.

PLACARDS PLACED IN CARS

"The placard appearing in the trolley cars which bears the words 'NO LONGER CAN THE NICKEL STAND THE STRAIN' was not placed there to convey the impression that we are going to ask for a 6-cent fare or any change in fare immediately or in the near future. It is hoped that we will not have to change any fare, but the future prosperity of the company will determine that. It should be quite apparent that a public utility corporation cannot continue to pay thousands of dollars more each year for what it must buy and thousands more for taxes and wages without eventually changing the price of what it has to sell, namely, transportation.

"The tenth annual report of the Public Service Commission for the year 1916 shows that, for traction operation throughout the State during the years from 1908 to 1915, inclusive, revenues increased 43.9 per cent, operating expenses 40.2 per cent, and the net corporate income decreased 58.2 per cent. During the same period revenues of the United Traction Company have increased 20 per cent, operating expenses 64 per cent, and the net corporate income has decreased 115 per cent. This condition was brought about entirely through increased expenses for paving, taxes, materials and wages.

"It makes no difference what the capital stock of a corporation may be, whether \$1 or \$1,000,000, if the results of a year's operation show an absence of net income, and operating expenses to have increased three times as fast as revenues, that company cannot serve the public without additional food in the form of money. We want the public to understand the situation and I am sure that then they will treat us as fairly as they would a grocer, druggist or other merchants, or a hotel or a theater, if their respective prices were raised."

Changes Recommended for Boston

Commission Issues Comprehensive Memorandum
Outlining the Present Needs of the Boston
Elevated and Urges Public Co-operation

In a statement made on April 10 the Public Service Commission of Massachusetts outlined several desirable improvements, some of which are under way, in the service of the Boston Elevated Railway. The present congestion has resulted largely from the unusual increase in traffic in the last eight months, which was nearly 70 per cent greater than for the corresponding period a year ago. Additional cars and track facilities are essential, and the company's recent orders for new equipment were cited as evidence that the management is endeavoring to meet the situation.

Substantial relief will be afforded by the opening of the Dorchester tunnel to Andrew Square, by the opening of the Everett elevated extension, and by the operation of 100 center-entrance cars in the East Boston tunnel and of 87 new rapid-transit cars. At least 100 new surface cars are needed in addition to those already ordered. The elimination of small surface cars of the old type is desirable, and the company has asked for bids for the construction of surface cars of the center-entrance type and trail cars similar to those now in service. The commission recommended increasing the number of eight-car trains operated on the Sullivan Square route, where the minimum headway is two minutes. Delay is incurred by the absence of a loop at the Forest Hills terminal and by the necessity for cleaning the rear car used as a smoker, as it becomes the first car of the in-bound train. Door-closing contacts to signal the motormen are replacing the bell cord. The commission considered the abolition of the smoking car. This is favored by the company and by many patrons.

It was further proposed to reduce the number of passengers loaded per car at congested stations and transfer points and the turning back of cars on certain routes at intermediate points; to provide enough cars to give each passenger a seat during non-rush hours; to construct a prepayment area at Maverick Square, East Boston, and a loop at City Point, South Boston; to give more attention to car maintenance and to enlarge the platforms for surface cars at the Harvard Square station of the Cambridge subway. The commission pointed out the desirability of special legislation to enable the company to purchase additional rolling stock.

Harrisburg Jitney Men Testify

At a hearing on March 14 in the case of the Harrisburg (Pa.) Railways against the jitney men of that city, it was decided that the latter file applications for certificates of public convenience without admitting that they are common carriers pending a hearing on this point at a later date. This case has been continued by the Public Service Commission and after taking the testimony of seventy-six operators the hearing was closed on April 13. The testimony will be transcribed and thoroughly analyzed by the commission. The jitney men have fifteen days in which to file a brief with the commission, after which the latter will render its decision. In the event the decision is adverse to the jitney men, the case may then be tried by law to decide whether or not the certificates will be granted. In the meantime the jitneys will continue to operate.

In answer to questions by Attorney Bailey, for the company, as to whether the applicants had any property for security in case a jitney passenger or a pedestrian should be injured through their operation, one witness said he had no real estate, but that he had \$7,000 cash in the bank. Another stated that he had property worth \$25,000. E. C. Hawthorne, president of the Jitney Indemnity Association, testified in this connection that the constitution and by-laws of that association make the members liable for any accident claims. To this end each member contributes to a fund and two claims have already been paid. Claims are to be satisfied by assessments if there is not sufficient money in the fund.

Damage Suit Threatened

The Winnipeg (Man.) Electric Railway is likely to start action against the city of Winnipeg to recover \$1,000,000 damages incurred through unfair jitney competition. The company contends that the city has permitted and encouraged jitney operation which is contrary to franchise privileges held by the company for all transportation facilities. It is alleged that during the last two years of jitney competition \$545,747 has been paid to the city for taxes, percentage payments on gross revenue, and pavement charges. Taxes on cars have amounted to \$12,920, and it has cost \$20,000 to keep the tracks free from snow, which has provided a clear way for the jitneys, and there have been other losses in revenue. Unless the City Council takes immediate steps to carry out the existing contract, the company proposes to withhold all payments to the city and to attempt to recover the amount lost during the period the city has permitted the jitneys to operate practically without restriction.

Wilford Phillips, general manager of the company, in a letter to the Council outlined some of the company's expenditures and added, in part: "On the other hand, the jitneys are allowed free and unlimited competition upon payment of the sum of \$20 per car per year. The company is at a loss to understand why the Council objected to the legislation proposed by the province of Manitoba to bring the jitneys under the control of the Public Utilities Commission. It has always provided for the citizens of Winnipeg a first-class street railway system, which ranks high with others on this continent. The result of permitting jitney competition to continue will be to so embarrass the company financially that it will not be able to procure capital to make extensions to the system and it will not be able to provide efficient and up-to-date service as it has in the past."

Lincoln Traction Wants Higher Fares

The Lincoln (Neb.) Traction Company has filed an application with the State Railway Commission for permission to charge a straight 5-cent fare instead of the present rate of six tickets for 25 cents with a reduced rate for school children. The company alleges that the fare now in force is inadequate to meet the present cost of operating with due margin for contingencies and a fair return to stockholders. In a statement supplementing the application W. E. Sharp, president of the company, said that if the increase is allowed the company will advance the wages of its employees and use the balance of the increased revenue to purchase improved equipment. It is stated in the application that the decrease in revenue is due largely to the increased use of automobiles, which is also responsible for a large proportion of the increased number of accidents.

According to the company's statement the total of fares collected during the year ended March 1 was \$563,825, of which 60 per cent represented the sale of tickets. On coal used during the past year there was an increase in price amounting to \$40,000 over the previous year, while the taxes of the company increased from \$32,188 for the year 1912 to \$40,348 for 1916. The net income for the year ended March 1 was \$149,902, with no allowance for depreciation, and it will require \$144,024 to pay interest on the bonds of the company and dividends on preferred stock.

Bay State Wins Service Case

The Public Service Commission of Massachusetts has issued a decision in favor of the Bay State Street Railway, Boston, Mass., on the petition of the Selectmen of East Bridgewater for the restoration of a previous schedule on the Montello-Bridgewater line. In October, 1916, an hourly service was substituted for half-hourly operation over a considerable portion of the route during normal hours. Traffic in the zone between East Bridgewater and Bridgewater is light and the receipts per car-mile on the route in the past three years were only 21.81, 20.50 and 20.91 cents. In view of this fact the board did not feel justified in ordering the increased service, but suggested improvement in the condition of equipment and track.

Jitney Men Form Insurance Company

F. B. Cliphouse, secretary of the Spokane Jitney Men's Union, Spokane, Wash., reports the organization of 500 jitney operators into the Mutual Union Insurance Company, which will be able to write bonds for jitney men by May 1. The new company will be organized to do an accident bonding business in Washington and for a time will be only a mutual concern. The plan of organization, financing and operation is worked out and has been approved by the state insurance department. The jitney men must pay \$30 immediately upon joining the company and \$10 a week until they have paid a total of \$200. It is thought that this organization will be able to control and expand the business more than has been done previously. Secretary Cliphouse states that the jitneys will be made to adhere to certain routes and to maintain certain schedules. The probable difficulty of obtaining bonds, resulting from a recent Supreme Court decision, was noted in the issue of the ELECTRIC RAILWAY JOURNAL for April 7, page 666.

New Fare System on L. A. & W.—The Rooke automatic coin register has recently been put into service on the Lewiston and Augusta lines of the Lewiston, Augusta & Waterville Street Railway, Lewiston, Me.

A Quick-Witted Conductor.—The following item is said to have originated in Harrisburg: "A passenger boarding a pay-as-you-enter trolley car at edge of city handed the conductor a big potato for his fare. The conductor gravely opened a lunch box and gave him a small roll as change."

Jitneys Lose in Court.—In a suit brought by the Memphis (Tenn.) Street Railway asking an injunction against the jitneys the Court of Appeals of that city has sustained the action of the chancellor in declaring that the franchise under which the jitney buses were operated in Memphis is void. A written opinion was filed in the case.

Scranton Jitney Operators Summoned.—Complaints have been received at Harrisburg, Pa., that certain jitney operators in Scranton were ignoring the order of the Public Service Commission requiring them to take out certificates of public convenience. Several jitney operators have been ordered to appear at the Capitol on April 26 to answer the charge.

Railway to Install Bus.—The Alabama Power Company, operating the railway lines in Anniston, Ala., has arranged to install an auto bus, which will connect with the North Noble car line in Anniston and extend to Blue Mountain, going within 300 yards of Edgemont Cemetery. The fare from Anniston to Blue Mountain by railway and bus will be 5 cents.

Reduced Fare Proposed.—The Fort Smith Light & Traction Company, Fort Smith, Ark., has announced a reduction in fare from 10 cents to 5 cents on its line from Fort Smith to South Fort Smith, a manufacturing suburb. The reduction will be effective for sixty days, as an experiment, and will be continued if found to be for the best interests of the company.

Disks Replace Tickets in St. Louis.—On April 1 the United Railways, St. Louis, Mo., substituted small metal disks, the size of a nickel, for the ticket books which have been issued to city officials, the members of the police department, and others, for the use of employees. The new disks have a hole in the center, and bear the words "United Railways Company, one ride."

Skip-Stop Adopted in Baltimore.—The United Railways & Electric Company, Baltimore, Md., put the skip-stop system in operation on two of its lines on April 15, and has requested the public to give the plan a fair trial. Great care has been exercised in the selection of the stops in order that the convenience of patrons may not be sacrificed. All stops have been retained in the downtown district.

Street Signs to Give Schedules.—The signboard system giving street car schedules, which has recently been tried by the Athens Railway & Electric Company, Athens, Ga., a subsidiary of the Cities Service Company, has proved entirely successful. The signboards placed at corners indicate at all times of the day when cars will pass in either direction. The scheme has received very favorable comment.

Parlor Cars for Texas Electric.—The proposed parlor-car service for the Texas Electric Railway, the consolidated Strickland Lines, Dallas, Tex., will be inaugurated on May 1 on the line between Denison and Waco. The type of chairs and other equipment has been selected, and the installation will be done in the company's shops near Dallas. An extra charge of 35 cents will be made between Dallas and Waco for accommodation on these cars.

Anti-Smoking Rule Repealed on B. R. T.—The Public Service Commission for the First District of New York has approved the customary application of the various companies in the Brooklyn Rapid Transit System for the partial suspension of the anti-smoking order on the surface cars of that system between May 1 and Oct. 25. The privilege of smoking will be permitted on the four rear seats of open and convertible cars.

Information Book for Evansville.—The Public Utilities Company, Evansville, Ind., has issued a small booklet which gives directions on how to reach all the city factories, which are listed alphabetically. It also contains the interurban timetables and directions on the front cover as to what street cars run to the different depots. This booklet has been distributed by the police department and in the hotels, restaurants, stores and various other places.

Three-Cent Fare Increase Proposed.—The Montoursville (Pa.) Passenger Railway, which connects Montoursville and Williamsport, has filed with the Public Service Commission of Pennsylvania a copy of its new tariffs and schedules to become effective May 1. The fares have been increased 3 cents over the former 5 and 7-cent units. This was found necessary on account of the present high prices for materials and the recent advance in wages granted to all employees in order that experienced operators could be retained.

Railway Office Adds Bureau for Travelers.—The Union ticket office of the San Diego Electric Railway, San Diego & Southeastern Railway and San Diego & Arizona Railway in San Diego, Cal., has increased its usefulness to the traveling public and visiting tourists by the addition of an information bureau from which is supplied information about pleasure trips and points of interest in the city. Pamphlets giving information regarding combination trips taken by rail, auto, trolley and by boat are also distributed from the bureau.

Fare Increases Further Suspended.—The Public Service Commission of the Second District of New York has issued orders dated April 12 suspending until May 15 the effective date of proposed increases in passenger transportation rates by the Fonda, Johnstown & Gloversville Railroad. The commission has also extended the date for similar increases by the Schenectady Railway until June 15. As reported in the issue of this paper for Feb. 10, page 271, the commission on Jan. 25 suspended these proposed rates until April 15 in order to investigate the reasonableness of the fares.

Skip-Stop Recommended for Buffalo.—The special municipal traffic committee appointed by the Mayor of Buffalo to recommend new traffic laws has suggested the trial of skip-stop service on two lines of the International Railway. The committee has also recommended the laying of extra tracks in certain downtown streets to facilitate the loading of passengers at congested transfer points, the construction of a frame shelter at Shelton Square, and the removal of certain lines from the congested business district. Thomas Penney, vice-president of the International Railway, is a member of the committee. The recommendations are being considered by officials of the company.

Traffic Increasing on Chicago-Milwaukee Line.—During the first three months of the current year the Chicago, North Shore & Milwaukee Railroad, Highwood, Ill., realized an increase in earnings of about 40 per cent over the same period in 1916. This increase was due largely to the growth in the long-haul and through-passenger business. Another source of revenue is the increased traffic due to the present activity at the Great Lakes Naval Training Station, located on the lines of this company. During the last nine days of March the company sold \$439 worth of tickets to individual marines. The company is also receiving a good share of the government business in transporting men to and from this training school.

Legal Notes

ILLINOIS.—*Injury to Negligent Workmen Under Compensation Act.*

A motorman who was killed when the car suddenly started and struck him while he was standing on the ground in front of it, attempting to adjust the trolley so as to furnish current, was killed by an accident "arising out of and in the course of his employment," and compensation may be allowed under the workmen's compensation act of 1913, though the motorman was violating the rules of the railway company. (*Chicago Railways v. Industrial Board of the State of Illinois*, 114 *Northeastern Rep.*, 534.)

INDIANA.—*Injury to Passenger Boarding Moving Car.*

Where a passenger sought to board a street car which was moving slowly, and indicated this desire to the conductor, who expressly invited him to become a passenger, and while he was actually on the steps of the car mounting to the vestibule, it was negligence for the conductor to signal for an increase of the speed of the car, without giving the passenger a reasonable opportunity to mount the steps in safety, even though the place was not a regular stopping point. (*Union Traction Co. of Indiana v. McVey*, 114 *Northwestern Rep.*, 438.)

INDIANA.—*Injury to Local Passenger by Express Car.*

Where an interurban railway, by its manner of operating, extended to patrons an invitation to station themselves at a crossing near the track within a reasonable time before the arrival of a local car and to signal such car by lighting a match or bit of paper, the road was under duty to exercise reasonable care, in the operation of express cars past such point, for the safety of those waiting there. (*Indiana Union Traction Co. v. Hiatt*, 114 *Northeastern Rep.*, 478.)

KENTUCKY.—*Liability of Employing Company for Negligence of Subsidiary.*

In an action against a railway company for the death of its servant while emptying the cash boxes of cars of a traction company in which the railway company owned a majority of stock, the fact that the decedent was an employee of the railway company, whether he was working directly for it or performing some service for the traction company, was sufficient evidence to prove the liability of the railway company. (*Evansville Railways v. Ligon's Adm'r.*, 180 *Southwestern Rep.*, 898.)

MARYLAND.—*Passenger Thrown from Platform on Curve.*

Where a passenger, for his own convenience in smoking, chose to stand near the open door of a platform of an interurban car after being requested to step inside, the railway company was not liable for his death by being thrown from the car as it swayed, going around a curve at a speed not excessive. (*Hagerstown & Frederick Railway v. State*, for use of *Cunningham*, 99 *Atlantic Rep.*, 376.)

MASSACHUSETTS.—*Passenger Injured While Boarding Car at Wrong Place.*

A railway company is not liable for injuries to a person who attempts to board its street car at a place other than the usual stopping place, in the absence of any invitation from the platform men, and when they did not see him or were not chargeable with having knowledge of his presence. (*Nuttall v. Worcester Consolidated Street Railway*, 114 *Northeastern Rep.*, 292.)

MISSOURI.—*Death Caused by Unlawful Obstruction.*

A street railway which made unlawful or negligent excavation obstructions in a street, which directly caused the death of a twelve-year-old boy without any negligence on his part, is liable, notwithstanding the fact that the team which the deceased was driving had become frightened and were not fully under his control at the time the accident occurred. (*Dugdale v. St. Joseph Railway, Light, Heat & Power Company*, 189 *Southwestern Rep.*, 830.)

Personal Mention

Frank F. Janes has been appointed chief clerk to M. C. Sauerwein, general manager of the Buffalo, Lockport & Rochester Railway, Rochester, N. Y.

W. G. Murrin, acting general superintendent of the British Columbia Electric Railway, with headquarters at Vancouver, has been made assistant to the general manager.

W. A. Whitney, formerly of the Union Pacific Railroad, has become general manager of the Ogden, Logan & Idaho Railway, Ogden, Utah, succeeding P. D. Kline, who resigned recently.

J. B. Hardy has been appointed chairman of the public utilities committee of the City Council of Fort William, Ontario, which operates the Fort William Electric Railway.

E. F. Kelley, formerly purchasing agent of the Buffalo, Lockport & Rochester Railway, Rochester, N. Y., has assumed the duties of chief clerk to the general manager of the Schenectady (N. Y.) Railway.

W. M. Thwing, who for several years has been claim and tax agent of the Buffalo, Lockport & Rochester Railway, Rochester, N. Y., has assumed, in addition to his former duties, those of general traffic agent, a new position.

George B. Woods, heretofore vice-president of the London & Lake Erie Railway & Transportation Company, London, Ontario, has been elected president of the company, succeeding W. K. George, who resigned on account of other duties.

E. A. MacMillan, formerly master mechanic for the Fort William (Ont.) Electric Railway, has been appointed general superintendent of the Stroudsburg Passenger Railway, and the Stroudsburg, Water Gap & Portland Railway, Stroudsburg, Pa.

Martin N. Todd, president of the Galt, Preston & Hespeler Street Railway, and general manager of the Lake Erie & Northern Railway, Galt, Ont., has returned to his duties much improved in health after spending several weeks in New Orleans and Southern points.

Joseph L. Tully has been appointed assistant superintendent of the Worcester division of the Worcester (Mass.) Consolidated Street Railway. This is one of several promotions Mr. Tully has received since 1903, when he entered the employ of this company as clerk.

James F. Hamilton, who was recently appointed general manager of the Rochester lines of the New York State Railways, was tendered a complimentary banquet at the Rochester Club by officials of the Rochester Railway & Light Company and the New York State Railways.

Henry Cordell has for some time been serving tentatively as master mechanic of the Chicago, North Shore & Milwaukee Railroad, Highwood, Ill., at the Highwood shops. Mr. Cordell was for twelve years previously general foreman of the Wilson Avenue shops of the Chicago (Ill.) Elevated Railways.

R. P. Stevens has been elected vice-president and a director of the Republic Railway & Light Company, Youngstown, Ohio, succeeding George A. Galliver, resigned. This will not interfere with Mr. Stevens' duties as president of the Mahoning & Shenango Railway & Light Company, which is a subsidiary company.

W. N. Warburton, general manager of the London & Lake Erie Railway & Transportation Company, London, Ontario, has been elected secretary-treasurer in addition to his other duties. In his new capacity, Mr. Warburton succeeds Leonard Tait, who recently became secretary-treasurer of the London (Ont.) Street Railway.

William L. Ransom, justice of the City Court of New York, has been appointed counsel on the Public Service Commission of the First District to succeed George S. Coleman, resigned. Mr. Ransom has had a wide legal experience which will be of unusual benefit in his new position. He will enter upon his duties for the commission on April 23.

Philip J. Kealy, president of the Kansas City (Mo.) Railways, and colonel of the Third Regiment Missouri National Guard, has started a movement in Kansas City for an adequate armory. He has aroused much enthusiasm through his manner of starting the subscription list. He offered \$4,000 as his personal contribution, this being the amount of his annual salary which he receives as colonel of the regiment.

James R. Pratt has been promoted from the position of assistant general manager of the United Railways & Electric Company, Baltimore, Md., to that of vice-president and



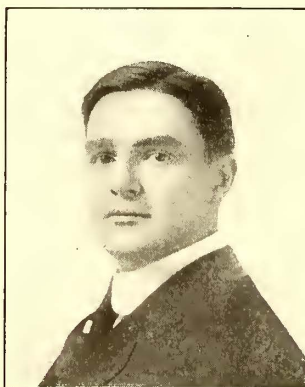
J. R. PRATT

general manager, succeeding T. A. Cross. Mr. Pratt has spent most of his business career in the local electric railway field in Baltimore and has risen to his present position from a beginning as conductor for the old Baltimore Traction Company. From his work as conductor Mr. Pratt advanced to a position in the claim department and continued in that work after the formation of the United Railways & Electric Company in 1899 as a consolidation of all the electric railway properties in Baltimore and vicinity. While

he was actively engaged in claims work Mr. Pratt studied law and after his graduation was made assistant claim agent of the company. His later appointments were those of assistant to the general manager, claim agent and finally assistant general manager, the position which he has just relinquished.

John Catherman, formerly one of the sales engineers of the Buda Manufacturing Company, Chicago, has been appointed assistant superintendent of track and roadway for the Mahoning & Shenango Railway & Light Company, Youngstown, Ohio. Mr. Catherman was graduated from Bucknell College. In 1909 he was employed by the Illinois Traction System as an engineer in the bridge and building department, devoting his time largely to the design of steel and reinforced concrete structures. In 1911 he became assistant engineer of maintenance of way on the same property continuing in that capacity until 1916, when he took up sales work with the Buda company.

Herbert B. Flowers has been elected assistant general manager of the United Railways & Electric Company, Baltimore, Md., succeeding James R. Pratt. Mr. Flowers was graduated from the Law School of the University of Michigan in 1903 and from the Engineering School in 1905. He immediately entered the operating department of the Detroit (Mich.) United Railway, becoming assistant superintendent successively of the Orchard Lake and the Pontiac divisions. In these capacities he was a member of the staff of Sir Albert Stanley, general superintendent, who since has been at the head of the London Underground Railways and is now in the British cabinet. Mr. Flowers went to Baltimore seven



H. B. FLOWERS

years ago as assistant superintendent of transportation of the United Railways and held this position until his recent promotion. He is a member of the training of transportation employees committee of the American Electric Railway Association, and is also a member of the Merchants & Manufacturers' Association, the Baltimore Rotary Club and several other local clubs in Baltimore.

Frank R. Schneider, heretofore secretary to Edward T. Moore, who is general manager of the Dallas (Tex.) Street Railway and of the Dallas Electric Light & Power Company, has been promoted to the position of assistant to R. T. Sullivan, the newly-appointed general manager of the Mahoning & Shenango Railway & Light Company, Youngstown, Ohio. Mr. Schneider went to Dallas four years ago from Houston, where he had been general passenger agent of the Galveston-Houston Electric Railway. Before assuming that position, Mr. Schneider was secretary to David Daly, general manager of the Houston Electric Company. These companies are all Stone & Webster properties. The company with which he becomes connected at Youngstown is controlled by the Republic Railway & Light Company. It operates about 200 miles of lines, city and interurban, in Youngstown and vicinity, extending into Pennsylvania, and also furnishes power for lighting and commercial purposes throughout this iron and steel district.



F. R. SCHNEIDER

Robert Knight, assistant superintendent of the electric light and power department of Edmonton, Alberta, and formerly superintendent of the street railway department, has resigned to join the army service corps. Mr. Knight is a native of Scotland, but has had a wide experience in electrical enterprises in this country. He is an associate of the American Institute of Electrical Engineers. Before he left to join the forces for service over sea, the men with whom he had been associated presented him with a handsome wrist watch.

Thomas A. Cross, for several months acting president of the United Railways & Electric Company, Baltimore, Md., has been formally elected to that position, succeeding William A. House. Mr. Cross was formerly vice-president and general manager of the company. He was born in Baltimore and has been engaged in electric railway work with the United Railways & Electric Company and its predecessors since 1891, when he entered the employ of the North Avenue Electric Railway. His advancement to the position of president is a deserved acknowledgment of years of faithful service to the company, in recognition of his intimate knowledge of the company's affairs through that service, and takes into consideration the value to the company of a man fully acquainted with the viewpoint of the citizens of the community, of which Mr. Cross has himself been so long a part. Following his connection with the North Avenue Electric Railway, Mr. Cross later engaged in engineering capacities successively for the Lake Roland Elevated Railway, the Baltimore Traction Company, the City & Suburban Railway and the Consolidated Electric Railway, all of which through consolidation became the United Railways & Electric Company in 1899. After the last-mentioned company was formed Mr. Cross was retained as superintendent of overhead construction and in 1907 was appointed general manager. He retained this position until May, 1911, when he was elected, in addition, second vice-president of the company. In January, 1916, Mr. Cross assumed also temporary charge of the duties of president, succeeding William A. House, who had received an indefinite leave of absence.



T. A. CROSS

Obituary

George Dunnington, until a month ago chief clerk in the department of credits and collections of the Puget Sound Traction, Light & Power Company, Seattle, Wash., died at his home in that city on April 7.

William V. Corwin of Corwin, N. Y., one of the founders of the plan to construct the Lockport and Olcott division of the International Railway, Buffalo, N. Y., and its first general freight agent, died on April 12. He was eighty-five years old.

George P. Germain, who retired from the insurance business in Buffalo, N. Y., twelve years ago to become associated with the claim department of the Metropolitan Street Railway, New York, died at his home in East Aurora, N. Y., on April 10, at the age of seventy-five. Mr. Germain retired from business three years ago, and had been in ill health for several months.

J. E. Allison, for many years a member of the department staff of the Seattle Electric Company and of the Puget Sound Traction, Light & Power Company, Seattle, Wash., in the capacities of employment agent and superintendent of inspection, died at his home in Seattle on March 30. Mr. Allison was a veteran in the service of the Seattle Electric Company before the consolidation of the lines there. About three years ago he resigned owing to failing health, and since that time had had the refreshment and store privileges of the Yesler Way cable station, a popular lakeside resort.

James B. Brady, New York, N. Y., died in Atlantic City, N. J., on April 13 from stomach disorders from which he had suffered for several years. Mr. Brady was born in New York in 1855 and was at one time a messenger boy for the New York Central Railroad. He began his successful business career with Manning, Maxwell & Moore, machinery manufacturers, and was a director of that company when he died. He was a vice-president of the Standard Steel Car Company, the Keith Car & Manufacturing Company and the Osgood-Bradley Car Company and a director of several other railway appliance manufacturing companies. In gratitude for his treatment in 1912 at the Johns Hopkins Hospital in Baltimore, Mr. Brady presented that institution with \$200,000 for the extension of its facilities, and he had given liberally toward its support since that time.

Strike on Key Route Ferry

No ferry boats were operated on April 12 by the San Francisco-Oakland Terminal Railways. Suspension of service was caused by the walkout of all licensed ferry employees, including captains, officers and engineers. The men had been negotiating for some time for shorter hours and an agreement had been reached on the first demands. A statement was subsequently sent to the company, however, requesting a still more favorable change and after making this demand the men refused to allow time for the matter to be placed before the company's board of directors. All hands "resigned" after the last trip of the day.

Pending a readjustment the Key System planned to take care of its regular traffic by redeeming all tickets with others good on Southern Pacific boats, which were not affected by the strike. The Oakland, Antioch & Eastern Railway, which depends upon connections with Key Route boats, chartered boats to ferry passengers coming from its main line points and destined for San Francisco. Service was re-established on the following morning.

The dispute about hours arose from the fact that when the new State law went into effect on April 1 the working day was limited to thirteen hours and the company established the schedule of twelve hours on and twelve hours off. The men demanded and were granted an arrangement of eight hours on and sixteen hours off. This required one additional crew and increased the annual cost to the company \$21,000. The final demand which caused the tieup was for twelve hours on and twenty-four hours off. This would have required two additional crews and would have increased the annual cost to the company about \$48,000. The latter plan has been agreed to temporarily, pending the arbitration of differences between the company and its employees.

Construction News

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

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

RECENT INCORPORATIONS

Mobile-Pensacola Railway & Navigation Company, Mobile, Ala.—Incorporated to take over the Mobile, Volanta & Pensacola Railroad. Capital stock, \$10,000. Officers: Charles Barclay, president; M. H. Miller, vice-president, and W. D. Stapleton, secretary and treasurer.

Globe-Miami Railway, Globe, Ariz.—Incorporated to construct a line between Globe and Miami. Officers: Harvy T. Lynch, Independence, Iowa, president; J. J. Mackey, Miami, vice-president; Edgar Sultan, Globe, secretary-treasurer, and Frank J. Dains, Kansas City, Mo., general manager. [April 7, '17.]

Gary & Hobart Traction Company, Hobart, Ind.—Incorporated in Indiana as the successor to the Gary, Hobart & Eastern Traction Company, the property of which was sold under foreclosure some time ago. Capital stock, \$60,000. Officers: Ora L. Wildermuth, president; Adlai T. Ewing, secretary, treasurer and general manager; Ora L. Wildermuth, Adlai T. Ewing, William Earle, Harold Stratton and Grant Crumpacker, directors.

FRANCHISES

Savannah, Ga.—The Savannah Electric Company will ask the City Council for a franchise to construct an extension south on Abercorn Street to Fifty-first Street and west on Fifty-first Street to Barnard Street.

Harvard, Ill.—The Chicago, Harvard & Geneva Lake Railway has received a franchise from the City Council of Harvard to construct a line along West Front Street, between West Diggins Street and South Eastman Street.

Wilmette, Ill.—The City Council of Wilmette has passed an ordinance granting the Chicago, North Shore & Milwaukee Electric Railroad a twenty-year extension of its franchise.

Cincinnati, Ohio.—The Council committee on street railroads is preparing ordinances to be submitted to the City Council providing for fifteen proposed extensions by the Cincinnati Traction Company. The total cost of the extensions is estimated at \$2,000,000. The committee will also recommend to the Council for passage an ordinance providing for the double-tracking of Central Avenue between Fourth Street and Freeman Avenue.

Cincinnati, Ohio.—The West End Rapid Transit Company will receive a year's extension of time on its franchise to construct a line from Anderson's Ferry to Third and Race Streets.

Philadelphia, Pa.—The city of Philadelphia has received a certificate of public convenience from the Public Service Commission of Pennsylvania for the construction of the northern end of the Frankford elevated line from Dyre to Rhawn Street. The commission has deferred considering applications for certificates authorizing the remainder of the proposed high-speed lines until the present legislative session is concluded.

***Beaumont, Tex.**—L. P. Featherstone, president of the Texas Steel Company, has received a franchise from the City Council of Beaumont to construct an electric railway from the end of the Magnolia Avenue car line of the Beaumont Traction Company to the Texas Steel Company's plant north of the city.

Green Bay, Wis.—The Green Bay & Eastern Railway has received a certificate of convenience and necessity from the Wisconsin Railroad Commission for the construction of its proposed line from Green Bay to Manitowoc and Sheboygan. William M. Willinger, Manitowoc, president. [April 29, '16.]

TRACK AND ROADWAY

***Darwin, Cal.**—The Darwin Development Company plans to construct a 23-mile electric railway along the south shore of Owens Lake, to connect with the Southern Pacific Company at Olancho.

Municipal Railways of San Francisco, San Francisco, Cal.—The Board of Supervisors has unanimously adopted the resolution appropriating \$116,000 of the Municipal Railways funds for the construction of tracks to connect the Van Ness Avenue and Church Street lines.

Santa Barbara & Suburban Railway, Santa Barbara, Cal.—This company will construct a temporary track from Fourth Avenue and Bath Street out on Alamar Avenue to the south side of the Hollister Avenue bridge at the city limits to provide transportation facilities to the citizens' training camp.

***Davista, Fla.**—The St. Petersburg Investment Corporation will soon begin the construction of an electric railway from Davista to Gulfport.

***Chicago, Ill.**—It is reported that a company will be organized with a capital stock of \$50,000 to construct an electric railway from Chicago to St. Louis through Decatur, Clinton, Farmer City, Bellflower, Saybrook and Anchor City. J. H. Shirley, 4139 Manhattan Avenue, St. Louis, Mo., is interested.

Gary & Interurban Railroad, Gary, Ind.—The International Trust & Savings Bank of Gary, the First National Bank of Hammond, the Indiana Harbor National Bank and the First Trust & Savings Bank of East Chicago will furnish \$114,000 for improvements to the system of the Gary & Interurban Railroad in Gary, including a new substation, additional cars and loops, and to take up \$51,000 in outstanding certificates already issued by Charles D. Davidson, receiver. The court has authorized the receiver to issue additional certificates up to \$250,000.

Tri-City Railway, Davenport, Iowa.—Provision has been made for a car line on Seventeenth Street from Eighteenth Avenue to Twenty-third Avenue by the board of local improvements of Rock Island. The street has been changed from a width of 27 ft. to a 40-ft. wide drive with an 8-ft. boulevard in the center and a 16-ft. roadway on each side. The boulevard was planned with the intention of using it later as a right-of-way for the Tri-City Railway when a street car line is extended in that direction. It is believed that when the line is built on Seventeenth Street it will connect with the Watch Tower line and may form a loop. There has also been some discussion of a line in Moline, adjacent to Rock Island, being looped so as to connect with the Tower line.

***Interstate Traction Company, Independence, Kan.**—This company has been organized at Independence to construct an electric railway from a point near Jefferson, south of Independence to Collinsville, Okla., via Tyro and Caney, Kan., and Copan, Dewey and Bartlesville, Okla., about 8 miles. It will then be extended to Nowata. A. W. Schultbies, Independence, president.

Kansas City (Mo.) Railways.—Contracts have been awarded by the Kansas City Railways for six extensions amounting to \$342,900 to the Columbia Construction Company, Kansas City. The contract for the line over the Broadway viaduct was let to Littlefield, Fry & McGough, Chicago, and the same firm was awarded the contract for the reconstruction of the Sunset Hill line, these two items totaling about \$17,000.

Southwest Missouri Railroad, Webb City, Mo.—Construction has been begun by the Southwest Missouri Railroad on its extension from Galena to Baxter Springs. The contract for the construction of a bridge over Spring River has been let to the Topeka Bridge & Iron Company, and this work is now in progress. It is expected that the line will be placed in operation by Nov. 1.

Moncton Tramways, Electric & Gas Company, Ltd., Moncton, N. B.—The system of the Moncton Tramways, Electric & Gas Company, Ltd., will probably be materially extended in the near future. E. B. Reeser, general manager, has submitted certain proposals for additional track routes which are under consideration by the Council.

Public Service Railway, Newark, N. J.—The Board of Public Utility Commissioners of New Jersey has granted the Public Service Railway permission to issue \$2,000,000 in capital stock for extensions.

Chautauqua Traction Company, Jamestown, N. Y.—Work will be begun at once by the Julian-Beggs Signal Company, Terre Haute, Ind., on the installation of a signal system on the lines of the Chautauqua Traction Company.

New York, N. Y.—Sealed bids or proposals for the supply of untreated ties and timber for use in the construction of rapid transit railroads will be received by the Public Service Commission for the First District of New York until May 2. The quantity of ties and timber desired is approximately 840,000 feet board measure. A description of the materials and other requirements, provisions and specifications may be obtained at the office of the commission.

Long Island Railroad, New York, N. Y.—This company will electrify its Evergreen branch in Brooklyn and Queens boroughs, about 1½ miles.

Cleveland (Ohio) Railway.—The City Council of Cleveland recently approved the street railway committee's recommendation for the expenditure of \$517,164 in relaying track on twelve streets by the Cleveland Railway. Street Railway Commissioner Sanders asked authority for the company to build a double-track extension to the East 156th Street line from Lake Shore Boulevard to Waterloo Road. Owners of Euclid Beach Park have proposed to pay \$30,000, or about half the cost of this improvement.

Oregon Electric Railway, Portland, Ore.—The Oregon Electric Railway will shortly begin the construction of a railroad bridge at Wilsonville across the Willamette River.

Lehigh Valley Transit Company, Allentown, Pa.—It is reported that this company plans to spend about \$135,000 for improving its lines.

Denver & Ephrata Street Railway, Denver, Pa.—Work will be begun this spring by the Denver & Ephrata Street Railway on its proposed line between Denver and Ephrata, 4.7 miles. H. S. Dissler, Denver, president. [Feb. 3, '17.]

Northwestern Pennsylvania Railway, Meadville, Pa.—It is reported that the Northwestern Pennsylvania Railway contemplates the construction of an extension from Titusville to Cambridge Springs during the coming summer.

Philadelphia, Pa.—Bids were opened April 3 by the Department of City Transit of Philadelphia for sections of the Broad Street subway. The lowest bidders on the following sections were: Contract No. 103—757 linear feet of two-track and 2500 linear feet of four-track subway in Broad Street, from south of Filbert Street to Buttonwood Street, including one station, Keystone State Construction Company, Philadelphia, \$2,815,240; contract No. 104—4086 linear feet of four-track subway in Broad Street, from Buttonwood Street to north of Stiles Street, including three stations, Philadelphia Subway Construction Company, Philadelphia, \$2,885,941; Contract No. 204—2960 linear feet of four-track subway merging into two-track subway in Broad Street, from South Penn Square to south of South Street, including two stations, Keystone State Construction Company, \$3,336,400. Awards of contracts are being withheld pending action by the Public Service Commission of Pennsylvania.

Bristol (Tenn.) Traction Company.—Improvements are contemplated by this company to its Holston Valley line.

Emigration Canyon Railroad, Salt Lake City, Utah.—A petition has been filed by the Emigration Canyon Railroad with the Public Utilities Commission for permission to tear up its track, remove its poles and wires and to abandon its right-of-way from Mount Olivet Cemetery to Pinecrest Inn.

***Graham, Va.**—The Bluefield (Va.) Chamber of Commerce, L. H. Duncan secretary, is promoting plans for the construction of an electric railway from Graham to Welch, W. Va., 53 miles, via Bramwell, Pocahontas, Boissevain, North Fork, Keystone, Gary and other points. The cost is estimated at about \$4,000,000.

Hampton & Langley Field Railway, Hampton, Va.—The contract for the grading of this company's line from Hampton to the Langley aviation field has been let to Gannaway-Hudgins Company, Hampton. J. N. Shannahan of the Newport News & Hampton Railway, Gas & Electric Company, president [March 10, '17.]

Tacoma, Wash.—Definite plans have been formulated for the construction by the city of Tacoma, Wash., of an extension of the present municipal tideflats line from its present terminus to the plant of the Todd Shipbuilding & Construction Company. The city will build the line and furnish the rolling stock and the Tacoma Railway & Power Company will operate it under an agreement similar to the one now in force covering the operation of the present line. The plan calls for an expenditure of about \$160,000, which will be covered by utility bonds. An order has been placed for 12,000 ft. of trolley wire for the extension.

SHOPS AND BUILDINGS

Connecticut Company, New Haven, Conn.—This company will construct a new freight station on Electric Avenue, Thomaston.

Interborough Rapid Transit Company, New York, N. Y.—Plans and specifications for the new terminal to be constructed by the Putnam Division of the New York Central Railroad and the Interborough Rapid Transit Company have been approved by the Public Service Commission for the First District of New York. The new terminal is to be just west of Sedgwick Avenue, between 161st and 162d Streets. The 162d Street connection joins the Ninth Avenue elevated line at Eighth Avenue and 157th Street, passes over the Putnam Bridge, and proceeds by tunnel under the hill to Jerome Avenue, where it connects with the Jerome Avenue line north of 162d Street. Stations will be at Sedgwick and Jerome Avenues.

Philadelphia, Pa.—Believing the bid too high, Director Twining of the Department of City Transit, Philadelphia, rejected on April 17 the only offer for the construction of the Frankford L station at Kensington Avenue and Huntingdon Street. The bid, which was for \$58,753, was presented by the McClintic Marshall Company, which has the contract for building the track structure for that part of the line. Estimates of the engineers of the city had placed the cost of the station at about \$40,000. The director will readvertise for bids.

Baumont (Tex.) Traction Company.—This company will construct a new depot and express office at Port Arthur.

Houston, Gonzales & San Antonio Traction Company, Houston, Tex.—This company plans to erect a new passenger station, of brick and concrete construction, to cost about \$100,000.

POWER HOUSES AND SUBSTATIONS

Chicago, Milwaukee & St. Paul Railroad, Chicago, Ill.—Announcement has been made by the Chicago, Milwaukee & St. Paul Railroad that power for main-line operation of its lines west of the Cascades will be furnished by the Puget Sound Traction, Light & Power Company, and will be generated at the Snoqualmie Falls plant. From Othello west, the company will use power purchased from the Washington Water Power Company of Spokane. Substations will be erected at Taunton, Doris, Kittitas, Cle Elum, Hyak, the east portal of the Snoqualmie tunnel, Cedar Falls, Black River Junction and the Tacoma shops and will cost about \$175,000 each. Power will also be contracted for from the Intermountain Power Company, which will deliver 7500 hp. at Taunton from the Long Lake plant of the Washington Water Power Company, 15 miles west of Spokane.

Iowa Railway & Light Company, Cedar Rapids, Iowa.—Plans are being made for the installation of a large central station at Creighton, Neb., from which service will be supplied to Hartington, Bloomfield, Wakefield, Emerson and other towns in that section of the State.

Charleston Consolidated Railway & Lighting Company, Charleston, S. C.—About July 1 the Charleston Consolidated Railway & Lighting Company expects to have in operation the new substation equipped with three 750-kva. 2300/13,200-volt transformers; also three 400-kva. 2300/6600-volt transformers. In connection with this station the company will erect a three-phase, 60-cycle, 13,200-volt transmission line, 2 miles long, to connect with its present line at North Charleston, now 6600 volts, but to be changed to 13,200 volts. By the end of the year the company expects to have in operation in the power house an additional 528-hp. Franklin boiler.

Manufactures and Markets

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

A Department for Buyers and Sellers

The need for a common meeting ground for the discussion of purchasing and manufacturing subjects brought about this department, "Manufactures and Markets." As a function of the service which this paper endeavors to render to the industry, this department is comparatively new. Therefore, the words of commendation of the efforts so far made have been received with especial appreciation. Constructive criticisms also are always welcome. Nothing is more helpful to an editor than a letter of comment from the field. It shows him, first, that his writings are being thoroughly read, and, second, shows him how best to guide his future efforts.

The purchasing agent of a large railway and power company in the South has pointed out that "until a few years ago the purchasing agent and his department were overlooked. He has been generally looked upon as a necessary evil, but now he is gaining recognition. I enjoy very much the articles published in your 'Manufactures and Markets' department. Any buyer should be deeply interested in everything published pertaining to market conditions and concerning the material and equipment he has to purchase." Then followed a page of good, helpful suggestions on topics which he said, if treated, would be of help to the "P. A." This case is mentioned as an example to others to give their comments also, whether favorable or unfavorable.

Insulators Should Be Purchased Long in Advance

Factories Hard Pressed to Make Deliveries—Orders Not Being Solicited Actively—Prices Advanced but More Stable

There is great need at the present time for buyers of insulators to let the manufacturers know just what their requirements are and what they are expected to be a year or eighteen months hence. This will enable the manufacturers to schedule their production and make deliveries in such a manner as best to serve the needs of the entire industry. The need for this course is especially important now because the factories have seldom if ever in their history been harder pushed to meet demands. While in the past there have been troubles with labor and difficulty in getting clay and metal parts, the ruling cause for the present congested condition in the pottery factories is that of unusual demand for insulators from all sections.

The true situation is perhaps best illustrated by the present method of handling insulator orders. For instance, a salesman gets an inquiry for insulators, say a small lot of even 200 of any type. He can quote the prevailing price on that particular style, but he will make no definite statements on when delivery can be made without instructions from the factory. Again, the factories have practically abolished or greatly curtailed their follow-up systems and are making little effort to get business if response does not follow when prices and deliveries are quoted. The impression should not prevail, however, that factories have adopted a stand of arrogance. They have not. This is shown by a recent incident wherein a syndicate property had to obtain 700 insulators of a particular type. After determining that it was absolutely necessary for the customer to have these insulators promptly, the manufacturer went over all of its orders for this type that were on file and wrote each customer asking if a delay in delivery of 700 insulators would cause inconvenience. As a result, one large company released enough insulators from its order to meet the immediate need of the other property.

The necessity of salesmen taking up orders with the factory is illustrated by another incident. A holding company wanted 3000 insulators of the small telephone type. Ordinarily these go through the factory in such great quantities that 3000 is a very small order to fill. The factory's reply to the inquiry stated, however, that there was none on hand and that delivery could be promised in ninety days. The reason for this long delay was that the machine for making this unit was shut down and conditions were such that it could not be started within sixty days.

The price of insulators has advanced sharply in the last few months, as was predicted in this department of the *ELECTRIC RAILWAY JOURNAL* for Nov. 11, 1916. Suspension units that formerly sold for 80 cents now are quoted at \$1.30. The present tendency, however, seems to be for a stable price. There is thought to be little likelihood of the insulator plants being commandeered by the government on account of their inadaptability as munition factories. The demand for insulators is so acute, however, and the prospect for its continuance is so certain that there seems to be but one wise thing to do and that is for the electric railways to order insulators at least a year in advance of their actual needs.

Some Tips for the Stock Room and Storekeeper

How to Smooth Out the Friction in Ordering Repair Parts for Old Apparatus

A manufacturer of electrical apparatus and power plant machinery, who has commented on earlier articles in this department, in discussing the question of repair part stocks, has made some direct suggestions. He says, "If the railways would establish a minimum number of parts to keep on hand, if they would keep a record of disbursements and re-order when the minimum number of parts is reached without waiting for an actual call for the part from the shop or power house, conditions would be greatly bettered so far as the railway is concerned.

"We have had numerous instances where customers had become greatly annoyed because we could not make immediate shipment from stock of an obsolete part which was ordered for repair. If a customer would stop and think what it would mean for us to carry a complete stock of repair parts for all obsolete pieces of apparatus, as well as for all of the apparatus which is being regularly manufactured, we believe he would see how unreasonable it would be for him to expect us to do this, as it would mean that our inventory for such parts would amount to thousands of dollars and the depreciation on the parts would be considerable."

NON-STANDARD APPARATUS CAUSES THE DIFFICULTY

It is the practice of this manufacturer to discontinue carrying spare parts in stock when, after a reasonable period of time, usually about two years, no calls are made for the parts. Orders received after the discontinuance of carrying the parts, of course, have to take regular schedule through the shop, and this necessitates some delay even comparable with that for the delivery of new machinery. The question of how far a manufacturer is obligated to go in tying up capital in repair parts for obsolete machinery depends largely on the competition encountered in this class of business and whether it will be to the manufacturer's advantage to make up an excess stock in order to save money by manufacturing in quantities. Of course, these statements apply very largely to non-standard products.

Practically all manufacturers make it a plan to have reserve stocks of repair parts for all active and standardized products."

The engineering department of one large manufacturer writes that "An accurate record is kept as to disbursements of repair parts from the factory storeroom. This record indicates whether the parts are used for repairs or for new machines. On such parts as are kept in stock, we usually fix a minimum number of parts and when the minimum is reached the parts are re-ordered."

It seems safe to say that it is almost impossible for a manufacturer at all times to be prepared to meet unusual conditions and make prompt shipment of every repair part which customers are likely to require. Therefore, a great deal of responsibility rests with the railway storekeeper and purchasing department in giving the manufacturer advance notice of the probable requirements of the early future.

General Electric Report

1916 Orders for Electrical Machinery and Supplies Were 70 Per Cent Greater than Those in 1915

The condensed profit and loss statement of the General Electric Company, Schenectady, N. Y., for the twelve months ended Dec. 31, 1916, follows:

Sales billed	\$134,242,290
Cost of good sold, including all operating maintenance and depreciation charges.....	118,948,199
Profit from sales billed.....	\$15,294,091
Interest and discount.....	\$1,539,499
Income from securities owned.....	1,844,645
Sundry revenue	482,738
Total	\$3,866,882
Interest on debenture bonds.....	\$19,160,973
	571,445
Available for dividends.....	\$18,589,528
Dividends paid	8,121,646
Net surplus for the year.....	\$10,467,882
Surplus on Jan. 1, 1916.....	23,692,871
Surplus on Dec. 31, 1916.....	\$34,160,753

The annual report of the company states that the extraordinary demands for the various products of the company throughout 1916 made it necessary to operate its manufacturing and other facilities to the limit of their capacity. The value of orders received for electrical machinery and supplies was \$167,169,058, or 70 per cent greater than the orders for electrical products in 1915, and 50 per cent greater than corresponding orders for the largest previous year, 1913. The orders for special war munitions received during the year, amounting to \$2,416,000, were merely supplementary to previous contracts.

The company followed its customary practice in writing off against income its total expenditures during 1916 for patents, applications for and licenses under patents and other outlays relating thereto, amounting to \$891,880. The patent account is carried at \$1, as in previous years. Stocks, bonds and other securities are carried at a valuation of \$33,773,678, of which \$21,675,214 represents securities of subsidiary companies and \$12,098,464 those of public utility and other companies. The current accounts and notes receivable are carried at \$26,816,297.

Urgent pressure upon the management for immediate and extensive additions to manufacturing facilities involved the expenditure of \$8,828,255 for plant account during 1916. This outlay, as compared to ordinary costs, was abnormal and excessive, in view of which it seemed wise to write off against income an amount substantially equal to the years' disbursement, or \$8,486,822. The cost of all the special tools, jigs, dies, drawings and patterns was thus disposed of, as was also the greater part of the cost of the large machine tools and apparatus. The book value of building accessories covering additions for a period of years was also reduced. The book value of all plant on Dec. 31, 1916, was \$29,904,764.

Quarterly dividends at the rate of 8 per cent per annum were paid during the year. The company has no note payable, and there is no paper outstanding bearing its indorsement.

Standard Sizes for Publications

By J. C. McQUISTON

Manager of Publicity Westinghouse Electric & Manufacturing Company

Everyone that keeps a reference collection of manufacturers' catalogs and other literature appreciates the desirability of having all these publications of a standard size. The difficulties involved in filing and referring to a mass of booklets of every conceivable shape and dimensions are almost unsurmountable, and as a result the usefulness of such a collection is very low.

Some years ago this company, in common with most manufacturing companies, issued publications in a variety of sizes. The following sizes, 3½ in. x 6 in., 6 in. x 9 in., 7 in. x 10 in., and 8½ in. x 11 in., were used mainly, but books of other dimensions were also issued whenever the particular text seemed to warrant a change. It became apparent, however, that this confusion of sizes was entirely wrong and that some standard must be selected and rigidly maintained. Everyone agreed to this principle, but the question then arose, what shall the standard be? Publications have different purposes. Some are intended to be kept permanently, others are intended merely to be read and thrown away. Some are designed to be sent out with correspondence, bills, and other mail matter; others are sent out by themselves over definite lists. Some are to be distributed by dealers and agents; others by the manufacturers' mailing division.

The problem is obviously a difficult one, and there are almost as many different solutions to it as there are individuals competent to pass judgment. Recommendations have been made from time to time by advertising clubs, purchasing organizations, and other bodies; but a collection of dummies made up according to these recommendations is the best of evidence that in a multitude of standards there is no salvation.

A publication 6 in. x 9 in. in size has much to commend it as a single standard for publications of all kinds, but after a careful consideration of the situation it became evident that, after all, there was one dominant standard size which is used by everyone and for which filing boxes, book-cases, cabinets, and every other office fixture could be obtained anywhere. This is the size of ordinary commercial letter paper, 8½ in. by 11 in. This size was finally adopted, and for the past several years the Westinghouse Company has been issuing practically all its new publications and is rapidly reprinting all of its old ones in this size. The gain to the users of these publications is unquestioned and many have expressed their appreciation of the change.

The size of 3½ in. x 6 in. is still retained, however, for publications that must be mailed out in small commercial envelopes, as no other size is suitable for this purpose, and occasionally some publications are issued in other sizes for special reasons. But every Westinghouse publication that may possibly be filed is 8½ in. x 11 in., except card catalogs and instruction books, which relieve, as far as is in the power of this company, the collector's troubles.

How Important Is the Purchasing Agent?

"I have been in both operating and purchasing departments, and my experience has led me to believe that the chief executives of the electric railway companies generally look upon the purchasing department simply as a place for the keeping of records covering purchases made." These words, expressed by the purchasing agent of a large city and interurban railway system in the Central states, echo the thoughts of not a few other purchasing agents. The indictment, however, is not one which should generally be accepted, because there are examples on many roads of the purchasing departments rising above the earlier mentioned status, and then becoming a most important factor in the operating organization.

According to one man, "the purchasing agent is considered as sort of a chief clerk. Ordinarily he is given very little authority, and has to consult the management in regard to placing an order even after quotations are re-

ceived. The real purchasing agent," our correspondent states, "is the general manager, and in many instances, when any important purchase is to be made, the general manager handles it direct, simply giving a record of the transaction to the purchasing agent so that a formal order may be made out for future reference and for checking prices when the invoice covering the purchase comes through."

The man who wrote the foregoing is plainly pessimistic, and that is a state of mind which, because of conditions during the last two years, may have been caused by a pressure of purely clerical work. The real job of the purchasing agent is to locate the best possible material, understand market and marketing conditions, understand the service which various materials may be expected to render, and be able to handle the sellers in such a way that he will obtain for his company the best available bargains and deliveries. The purchasing agent's position is one which should command deep respect, not only for his ability, but for his rank and function in a smooth-working railway organization. It is a position to be filled only by high-grade men. Only such men should be given the work, and they should be held responsible for the results.

FRICTION SHOULD BE AVOIDED

The purchasing department under the charge of a strong man should be one of the important departments of any large organization. To quote another purchasing agent of a large property, "it is true that the buyer places his orders on the recommendation of the engineering department, and according to specifications furnished him by that department, but the engineers have not the say as to what price is to be paid or where the material is to be bought, so long as the purchasing agent satisfies their requirements." Thus is the need for close co-operation between the purchasing and engineering departments clearly set forth. If they operate at cross-purposes, the property must lose either through the high cost for materials purchased, or from lower service value than that which might otherwise have been obtained.

The purchasing agent last quoted has the following to say about the relations of the purchasing department with the other parts of the railroad organization: "It is true that the buyer should depend upon the engineering organization to furnish him information and details governing purchases where such information is necessary, but when it comes to the question of price, the decision should be up to the buyer and the general manager. I think the buyer in his department should receive as much, if not more, consideration than some of the others, since he spends the company's money, and if given proper encouragement and co-operation can save still more. There are quite a number of concerns who fail to realize the importance of the purchasing department, and among this number are a great many railway and lighting companies."

To Report on Foreign Markets

Robert Grimshaw, special agent of the Department of Commerce, will leave early in June to visit the principal South American countries, at the instance of the Bureau of Foreign and Domestic Commerce, to investigate the markets there for certain lines of American manufacturers; also to report on the methods adopted in the different countries for getting bids and awarding contracts for governmental and municipal supplies, especially electrical. Before leaving for South America Mr. Grimshaw would like to learn from electrical and other manufacturers the principal difficulties that they have experienced in bidding on supplies in South America. He may be addressed at Room 409, Custom House, New York City.

William A. Russell, a prominent civil engineer, who was born and educated in Russia, will leave soon for that country as a trade commissioner representing the Bureau of Foreign and Domestic Commerce. Since Mr. Russell came to the United States, in 1907, he has assisted on the East River Tunnel construction, acted as an investigator for the Presidential Commission on the Isthmian Canal, and was expert consulting engineer for one year to the Board of Estimate and Apportionment of the City of New York. He was

also a senior member of the organization of M. W. Thompson, and has acted in a consulting capacity for a number of companies on problems requiring the application of legal, financial and technical knowledge.

NEW YORK METAL MARKET PRICES

	March 31	April 21
Prime Lake, cents per lb.....	35	30 1/2
Electrolytic, cents per lb.....	35 1/2	30 1/2
Copper wire base, cents per lb.....	42	39
Lead, cents per lb.....	9 1/2	9 1/2
Nickel, cents per lb.....	50	50
Spelter, cents per lb.....	10 3/4	9 3/4
Tin, straits, cents per lb.....	55 7/8	55 1/4
Aluminum, 98 to 99 per cent, cents per lb.....	55	57

OLD METAL PRICES

	March 31	April 21
Heavy copper, cents per lb.....	29	27 1/2
Red brass, light copper, cents per lb.....	24 3/4	24
Yellow brass, cents per lb.....	19	18 1/2
Lead, heavy, cents per lb.....	8	7 3/4
Zinc, cents per lb.....	8	7 1/2
Steel car axles, Chicago, per net ton.....	\$38	\$41
Iron car wheels, Chicago, per gross ton.....	\$22	\$24
Steel rail (scrap), Chicago, per gross ton.....	\$27.50	\$31
Steel rail (relaying), Chicago, per gross ton....	\$34	\$39
Machine shop turnings, Chicago, per net ton....	\$9.50	\$10.50

CURRENT PRICES FOR MATERIALS

	March 31	April 21
Rubber-covered wire base, New York, cents per lb.	42	39
No. 0000 feeder cable bare, New York, cents per lb.	42	39
No. 0000 feeder cable stranded, New York, cents per lb.	39 3/4	39 1/2
No. 6 copper wire (insulated), New York, cents per lb.	39 1/2	36 1/2
No. 6 copper wire (bare), New York, cents per lb.	42	39
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.....	\$3.20	\$3.20
Railroad spikes, 9/16 in., Pittsburgh, per 100 lb.	\$3.65	\$3.65
Steel bars, Pittsburgh, per 100 lb.....	\$3.75	\$3.75
Sheet iron black (24 gage), Pittsburgh, per 100 lb.	\$4.85	\$5.35
Sheet iron, galvanized (24 gage), Pittsburgh, per 100 lb.	\$6.55	\$6.55
I-beams over 15 in., Pittsburgh, cents per lb....	10	10
Galvanized barbed wire, Pittsburgh, cents per lb.	4.05	4.05
Galvanized wire, ordinary, Pittsburgh, cents per lb.	3.85	3.85
Cement (carload lots), New York, per bbl.....	\$2.02	\$2.12
Cement (carload lots), Chicago, per bbl.....	\$2.06	\$2.16
Cement (carload lots), Seattle, per bbl.....	\$2.60	\$2.60
Linseed oil (raw, 5 bbl. lots), New York, per gal.	\$1.11	\$1.14
Linseed oil (boiled, 5 bbl. lots), New York, per gal.	\$1.02	\$1.15
White lead (100 lb. keg), New York, cents per lb.	10 1/4	10 1/4
Turpentine (bbl. lots), New York, cents per gal.	45	52

ROLLING STOCK

Mason City & Clear Lake Railroad, Mason City, Iowa, has sent out inquiries for three cars.

Cedar Rapids & Marion City Railway, Cedar Rapids, Iowa, is making inquiry on fifteen cars.

Chicago (Ill.) Motor Bus Company has ordered 100 double-deck bus bodies from the St. Louis Car Company.

Ogden, Logan & Idaho Railway, Ogden, Utah, is asking for bids on 200 freight cars which are to be of standard design.

Pittsburgh (Pa.) Railways, noted in the April 7 issue as being in the market for 100 cars, has ordered fifty cars from the St. Louis Car Company.

Monongahela Valley Traction Company, Fairmont, W. Va., is reported to be considering the purchase of forty cars for its city and interurban lines.

Oklahoma City (Okla.) Railway has ordered six double-truck cars from the St. Louis Car Company and ten single-truck cars from the American Car Company.

Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., noted in the March 10 issue as being in the market for nine double-truck cars, has placed an order with the St. Louis Car Company for ten cars.

Mahoning & Shenango Railway & Light Company, Youngstown, Ohio, noted in the March 31 issue as ordering twenty cars from the G. C. Kuhlman Company, has specified thirteen to be city and seven to be interurban cars.

Oklahoma Union Traction Company, Tulsa, Okla., noted in the March 31 issue of this paper as preparing specifications for seven one-man and three interurban cars, has placed an order with the American Car Company for nine cars.

Charleston-Dunbar Traction Company, Charleston, W. Va., has ordered two cars from The J. G. Brill Company.

City of Tacoma, Wash., through its City Council will soon be in the market for six motor and six trail cars for an extension to be built to one of the shipbuilding yards. The city will build the line and the Tacoma Railway & Power Company will operate it.

Stone & Webster Management Association, Boston, Mass., has ordered from the American Car Company 119 one-man cars with Safety Car Devices equipment, Westinghouse air brakes and the following specialties: Faraday high-voltage signal system, Hunter signs, Golden Glow headlights, Keystone rotary gongs, air sanders and trolley catchers. This includes the order for twenty-four cars noted in the March 31 issue.

Omaha & Council Bluffs Street Railway, Omaha, Neb., noted in last week's issue of this paper as having forty new semi-steel cars under construction, has decided upon the following details for this equipment:

Number of cars.....	40	Body	Semi-steel
Type of car.....	Rear ent. pass.	Control	K-35-G2
Seating capacity.....	45	Roof	Arch
Weight (total).....	38,000 lb.	Motors	West. 506 C-2
Length over bumpers.....	45 ft.	Trucks	Brill No. 76 E
Length over all.....	8 ft. 4 in.	Wheels	30 in. cast

Interborough Rapid Transit Company, New York, N. Y., noted in the ELECTRIC RAILWAY JOURNAL of March 10 as ordering 477 steel subway cars, has specified the following details for this equipment:

Number of cars ordered.....	477	Control type.....	Westinghouse
Name of road.....	Interborough Rapid Transit Co.	Couplers.....	Type J-1
Date of order.....	March 8, 1917	Curtain fixtures.....	Not placed
Delivery	Beginning October, 1917	Curtain material, Double-coated pantasote	
Builder.....	Pullman Company	Designation signs.....	Not placed
Type:		Door operating mechanism, National pneumatic	
Motor cars.....	337	Gears and pinions, G. E. and West.	
Trail cars.....	140	Hand brakes.....	Pullman Company
Seating capacity.....	46	Heaters.....	Not placed
Weight (total):		Headlights, Dresser Railway Lamp Works	
Motor car.....	75,000 lb.	Journal boxes, Pullman Company	
Trail car.....	55,000 lb.	Motors.....	West. 577, R. I. and GE 260
Booster centers, length, 36 ft. 0. in.		Motors	Inside hung
Length over bumpers, 51 ft. 1/2 in.		Sash fixtures.....	Aero metal
Length over vestibule, 47 ft. 8 in.		Seats	Longitudinal
Width over all.....	8 ft. 10 in.	Seating material, Upholstered, rattan	
Height over all.....	12 ft. 0 in.	Springs, Elliptic and coil; Pitts-	
Body	All steel frame	burgh Spring & Steel Company	
Interior trim	Steel	Step treads	Feralun
Headlining	3/16 in. Agasote	Trucks.....	Commonwealth Steel Company
Roof	Monitor	Wheels:	
Air brakes.....	Westinghouse	Rolled steel: Trail 3 1/4 in.	
Axles	Not placed	dia.; motor 3 1/4 in. dia.	
Bumpers	Rico anti-climbers		
Car trimmings.....	Not placed		
Conduits and junction boxes, G. E. and West.			

TRADE NOTES

Vaughn & Meyer, Consulting Engineers, Milwaukee, Wis., announce a change of address after May 1 from the Majestic Building to the Security Building.

Page Woven Wire Fence Company, Monessen, Pa., is distributing an attractive booklet containing useful tables on Aristos Copperweld copper-clad steel wire.

Q & C Company, New York, N. Y., announces that it has opened a branch office in the Railway Exchange Building, St. Louis, Mo., under the direction of John L. Terry.

Horne Manufacturing Company, Brooklyn, N. Y., announces that it has received an order from the General Electric Company for 100 Lord screenless air cleaners.

Consolidated Car Heating Company, New York, N. Y., announces that on May 1 its offices in the Singer Building will be removed from present quarters on the thirty-first floor to suite 2610.

Peter Smith Heater Company, Detroit, Mich., announces that it has received an order from the International Railway Company for 365 forced-draft heaters to equip the present near-side cars and the 100 Peter Witt cars recently ordered.

Hess-Bright Manufacturing Company, Philadelphia, Pa., announces that C. H. Roberts, formerly factory accountant, has been appointed comptroller of the company.

Portland Cement Association, Chicago, Ill., has postponed indefinitely its spring meeting, which was to be held in San Francisco April 16 to 18, on account of international complications.

Poole Engineering & Machine Company, Baltimore, Md., announces that it has acquired the exclusive manufacture and selling rights of the turbo-gear formerly manufactured by the Turbo-Gear Company, Inc., of Baltimore.

Engelhardt W. Holst, whose resignation as mechanical engineer of the Bay State Street Railway was mentioned in the issue of this paper for April 7, has opened an office as general consulting and inspection engineer at 683 Atlantic Avenue, Boston, Mass.

Eccles & Smith Company, Inc., San Francisco, Cal., at a meeting of the board of directors elected Chris. Eccles president and manager and Charles F. Bulotti secretary. The Eccles & Smith Company have branch houses in Los Angeles, Cal., and Portland, Ore. The company deals in railway supplies, machine tools, pneumatic and electric tools, compressors, and all iron and steel products.

H. W. Johns-Manville Company, New York, N. Y., announces that J. D. Vale, former manager of the Salt Lake City office, has been appointed manager of the building materials department of the company's branch at Chicago. In the future the Salt Lake City office will be under the management of C. F. Cate. The Great Falls, Mont., office will be managed by J. H. Roe independently of the Salt Lake City.

Bridgeport Brass Company, Bridgeport, Conn., announces that it has acquired the Standard Brass & Copper Tube Company of New London, Conn. The factory of the latter concern, which was erected about eight years ago and has been devoted exclusively to drawing seamless brass and copper tube, has been increased in size three times in order to afford better delivery service to their customers on this class of product. The New London plant will be under the direct supervision of and operated as a branch of the Bridgeport works.

Safety Car Devices Company, St. Louis, Mo., announces the following recent sales of safety cars ordered completely equipped with this company's air brake and safety control equipment: Pacific Gas & Electric Company, Sacramento, Cal., four; Citizens Traction Company, Oil City, Pa., three; Cleveland, Southwestern & Columbus Railway, Cleveland, Ohio, two; Three Rivers Traction Company, Montreal, Canada, three; Tacoma Railway & Power Company, Tacoma, Wash., twenty-five; Puget Sound Traction, Light & Power Company, Seattle, Wash., fifty-four; Western Washington Power Company, twelve; Northern Texas Traction Company, Fort Worth, Tex., fifteen; Houston (Tex.) Electric Company, eighteen; Tampa (Fla.) Electric Company, twenty-two, and the El Paso (Tex.) Electric Company, ten.

ADVERTISING LITERATURE

Holophane Glass Company, Inc., New York, N. Y., has issued catalog No. 800 on its Holophane reflectors and fittings.

Northern White Cedar Association, Minneapolis, Minn., has issued a bulletin on the use of its poles for city and country transmission lines.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has issued Catalog 3A on its watt-hour meters. This bulletin supersedes division 9 of Catalog 3001.

Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., is distributing bulletin No. 1009 containing correct price lists of telephone apparatus and materials.

Catalog Numbering System, San Francisco, Cal., has issued a descriptive bulletin on its system. Illustrations of index cards for catalogs, filing systems, etc., are given, and the use of this system is explained in detail.

Armstrong Cork Company, Pittsburgh, Pa., has issued a booklet on "Reducing Vibration and Noise," describing the use of Nonpareil cork machinery isolation for reducing noise and vibration of motors and machinery.

Westinghouse Air Brake Company, New York, N. Y., has issued its special publication No. 9021, on "Extra Quality Pipe Fittings for Railroad Air-Brake Service." This carefully prepared booklet emphasizes the better air-brake service and saving of money made possible by the use of reliable pipe fittings in all air-brake work on locomotives and cars.