

ELECTRIC RAILWAY JOURNAL

LYCEUM AND ... BRANCH
HOUSTON, TEXAS.

A New Year's Announcement

STEEL TWIN TIE TRACK

is renewable

IN the thirteen years since the first installation of Steel Twin Ties was made the outstanding merits of this type of construction have been classified not only by our efforts but by the comments in the technical press of engineers who have installed Twin Tie Track.

That the reasons urged for the use of Twin Ties up to this time have been ample is evidenced by the rapid and consistent adoption of Twin Tie Track. Economical, permanent, adaptable and easy riding track when proved by cost records, years of service, special conditions and by actually riding on it, recommends itself as good construction.

But now, nearly two years after the first test renewal installation was made, it can be positively stated that such track is renewable — that definite details taking into account all engineering requirements have been worked out providing for complete renewal without removing anything but the rail and the paving down

to the base of rail.— Further that the cost of renewal is in the neighborhood of Two Dollars and Fifty Cents a track foot exclusive of new rail, joints, new paving and paving labor.

That such a base is renewable brings forward many interesting if somewhat obvious points. To mention a few — this method of renewal would justify charging the permanent steel tie base to capital account and renewal cost to operating, or— over a period of years it will greatly reduce the car mile charge for maintenance of way. Again, it could be urged that municipalities should carry paving costs where such a permanent base were installed.

In this limited space and as this is merely an announcement, no details are covered here. The complete method is described in a circular now on the press— “How the Second Rail Goes In on a Steel Tie Foundation” which will be mailed to you if your name is on our mailing list, if not please ask for it.

THE INTERNATIONAL STEEL TIE COMPANY
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*"All Aboard
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Welcome 1924!

The Electric Railway Industry can look forward with confidence to prosperity during the coming year.

The extended use of efficient cars and equipment; the expansion of freight haulage service; the use of multiple unit trains for mass transportation; the auto bus where suited; and the continued development of public confidence, mean continued prosperity.

The Westinghouse Electric organization stands ready, as in the past, to assist the industry in solving its 1924 problem.

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Editorials1075

Demountable Containers Expedite Freight Handling in Michigan1077

By E. J. BURDICK.
A special truck chassis with demountable container has been adopted by the Detroit United Railway to pick up and deliver less-than-carload freight shipments with maximum economy.

Trainmen and Community Work for Safety1080

Traffic Problems in a City of 70,0001081

John A. Beeler shows in his Charleston report how a non-paying road in a city of this size, even when operating one-man cars almost exclusively, can still reduce operating expenses considerably.

Capitalizing on the Coffin Prize1087

How the Chicago, North Shore & Milwaukee Railroad is turning the winning of this award to good account. Its value as a publicity asset is being fully utilized in newspaper advertising, window displays and company publications.

How Economy in Current Was Obtained in El Paso....1088

Simplicity of Arrangement Features New P-O Cars...1089

By RICHARD N. GRAHAM.
All pipes, wires, switches, engines, etc., are inclosed in cabinets. Advertising cards and luggage racks have been eliminated in order to improve the interior appearance. Woodwork is of mahogany.

Keeping the Cars on Schedule1091

Organization and operation of dispatching system of Kansas City Railways is briefly told. Effective check of car operation in the field has served to produce a high standard of service. Company police department a great aid.

Washable Seat Covers Popular on Interurban Line...1093

Prizes for Helpful Suggestions1093

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The Volume Index

HAS ALWAYS BEEN a feature of the ELECTRIC RAILWAY JOURNAL. A great deal of care is put on its compilation and a special effort is made by the publishers so that the index will be included in the last number of the volume.

The index of the ELECTRIC RAILWAY JOURNAL has always been much more than an index of titles or even of articles. Where an article treats of a variety of topics, a corresponding number of entries appear in the index, together with supplementary entries under the name of an operating company, if the article relates to or describes the practice of any railway property.

The list of principal key words appearing immediately after the title page was long a unique feature of the ELECTRIC RAILWAY JOURNAL index, though recently some other papers have adopted the same idea. It is designed to aid those who may be uncertain of the exact term under which a certain article is entered. This list of principal key words naturally changes somewhat from year to year with the changes in nomenclature and practice of the industry.

The publisher of the JOURNAL believes the index will be useful to every subscriber, whether he binds his back copies or not. For this reason it does not follow the practice of some papers of requiring subscribers who want a copy of the index to write for one. It binds the index with each copy of the last issue of the volume.

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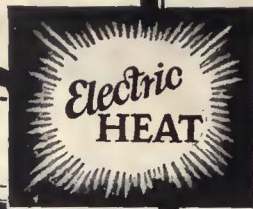
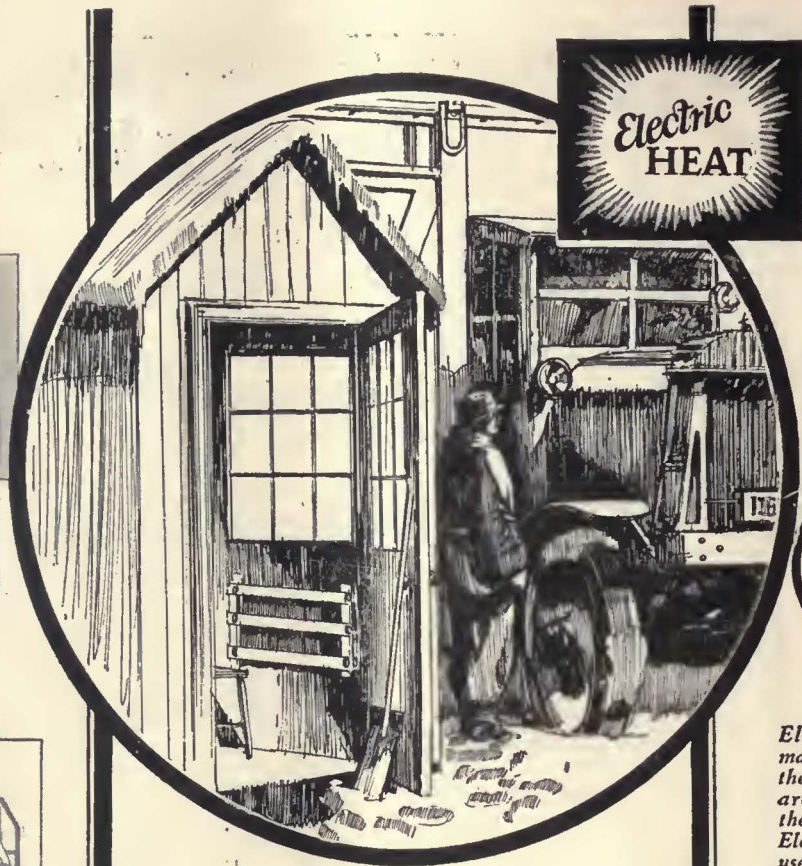
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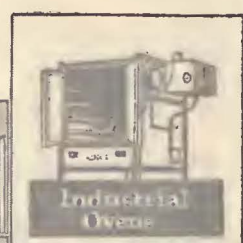
Your watchman is human, and like others, he cannot work efficiently when cold. Two or three space heaters in the sentry house will keep him warm in the coldest weather, at a surprisingly low cost, and without danger of fire.

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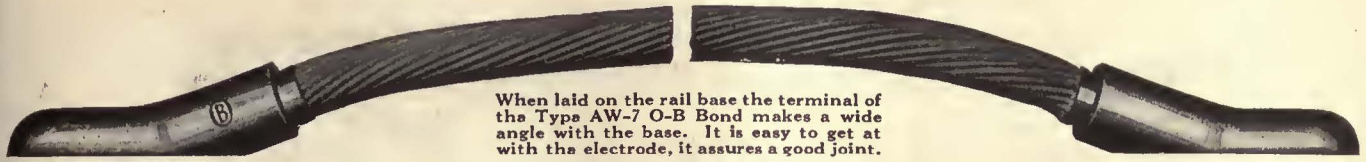
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Ask us for figures from some roads noted for good management.

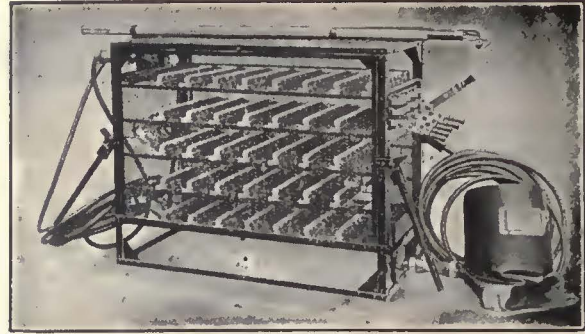
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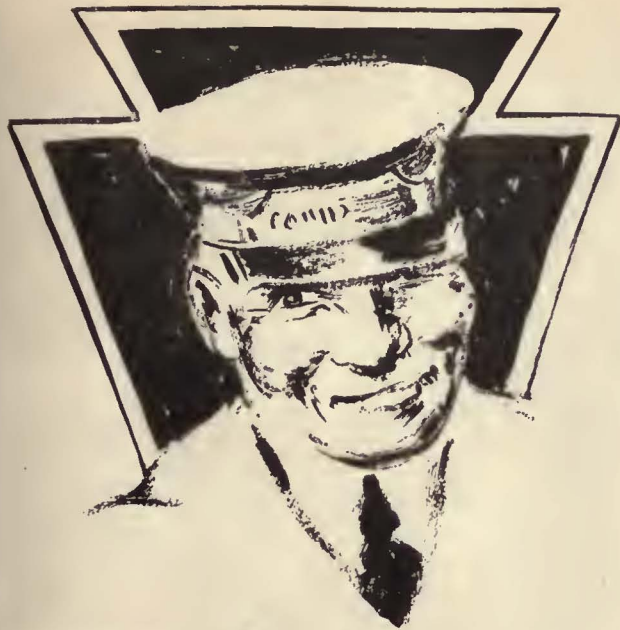
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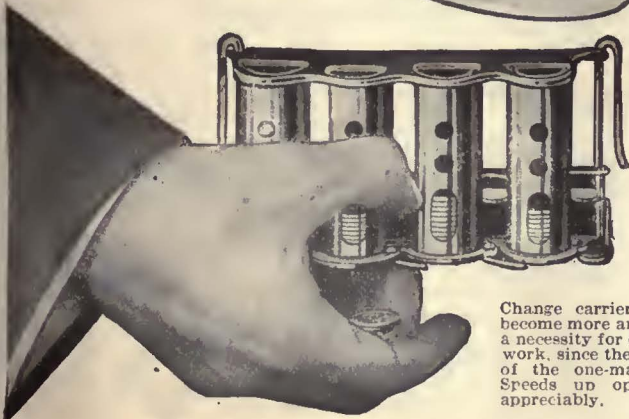
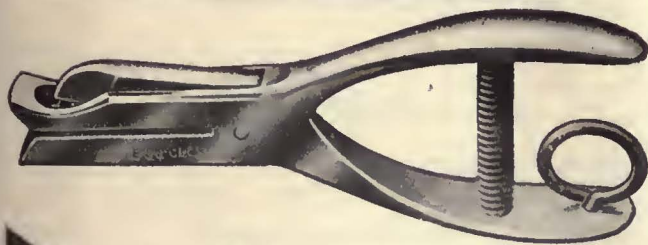


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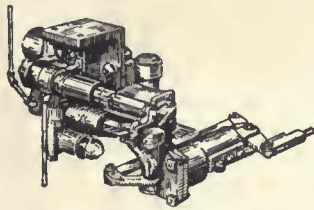
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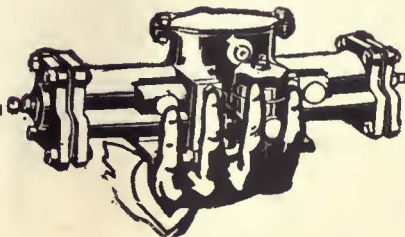
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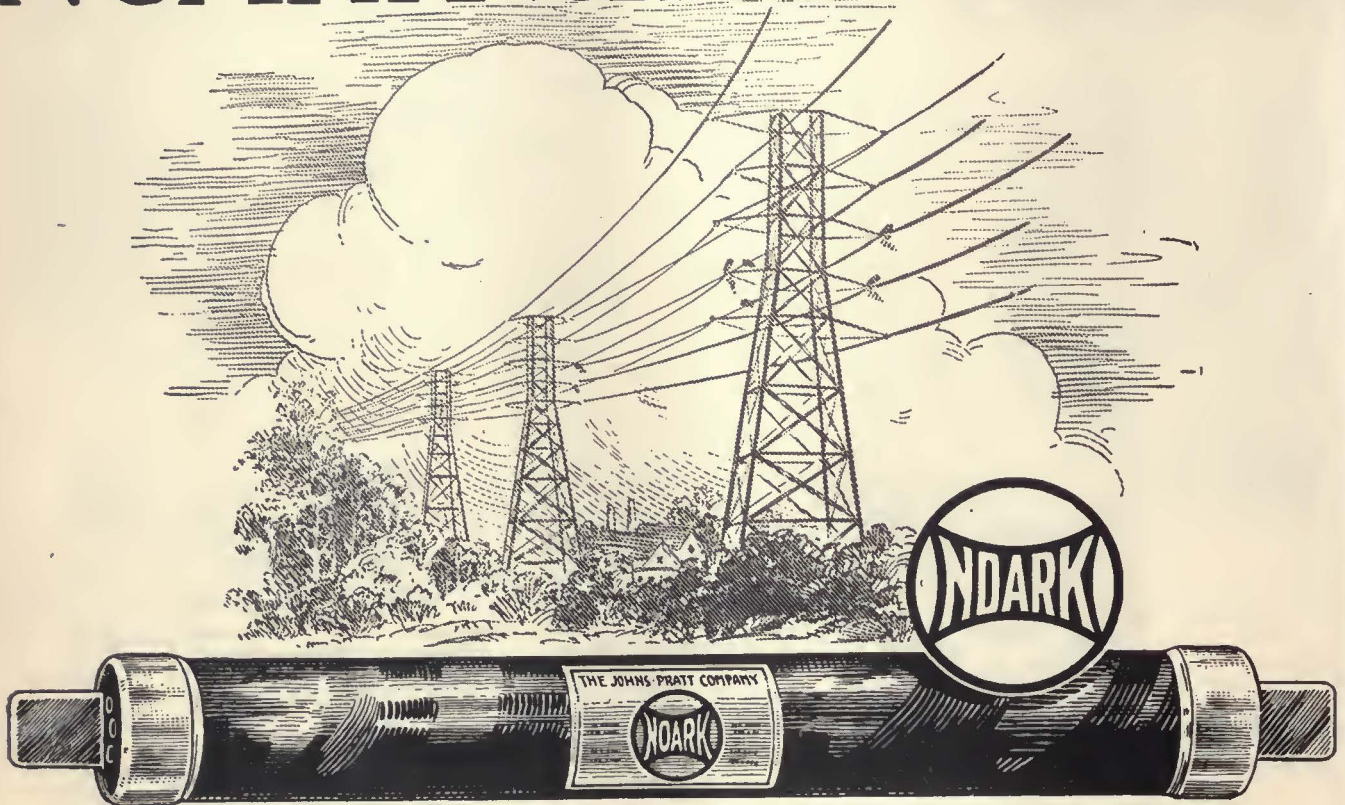
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The Milwaukee Electric Railway & Light Co. (Repeat)	Ohio Valley Railway Co.
Detroit Municipal Ry. (Repeat)	Barcelona, Spain
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Interstate Public Service Co. (Repeat)	Holyoke Street Railway (Repeat)
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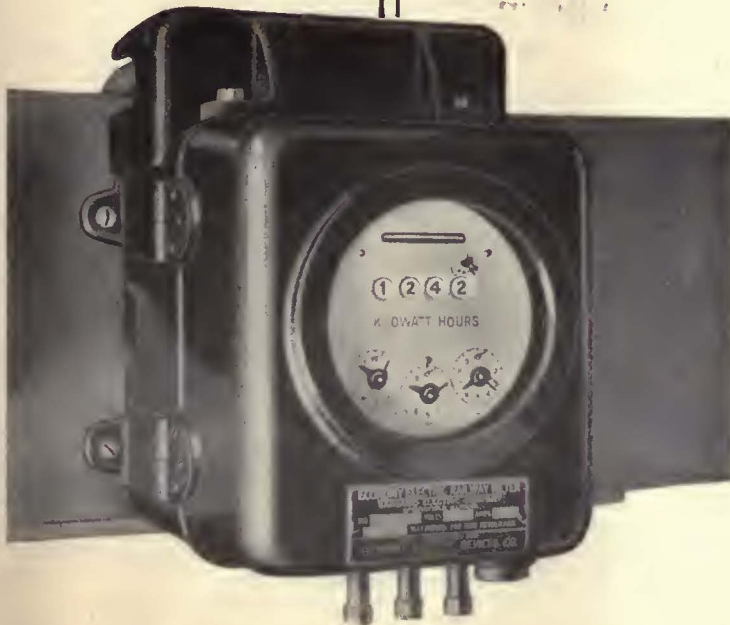
Economy Meters are inducing savings from $\frac{1}{8}$ to $\frac{1}{4}$ a cent per car mile. It will pay you to investigate whether you are operating one car or three thousand.

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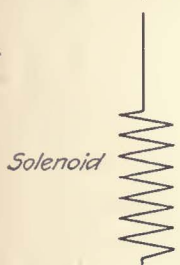
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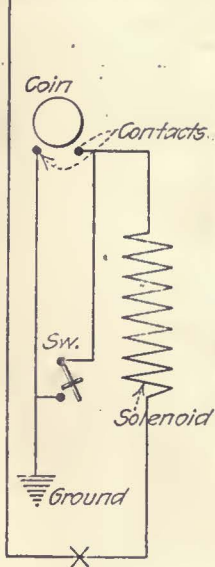
Our new system adapted to fare collection where the basic fare is either 5 or 10 cents.

Passenger depositing fare in slot instantaneously registers on overhead fare payment—the coin automatically does this electrically.

Conductor makes observation at slot or at inspection plate of coin deposited.

Company earnings shown on overhead register.

Inspection both visible and audible are part of this system occurring immediately with coin deposition.



The units are connected in series tapped into the trolley circuit; positive mechanism and electrical insulation assures the correct registration and safety of

these devices—the conductor's work is reduced to a minimum—he has access to the coin after registration for change making and car accounting is made at the source.

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Johnson Fare Box Co.

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Electric Railway Lubrication

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With an electric railway using the best lubricants obtainable, the entire cost of the annual oil bill amounts approximately to but one per cent of total maintenance expense.

In a years time, the aggregate amount of money represented by the difference in cost of high grade and lower priced lubricants, is at most, a fraction of this one per cent.

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Galena Oils and Galena Service constitute a lubrication "buy" that has never failed to register its economic value to the electric railway. Their proven ability to effect savings in "that 99 per cent" of maintenance costs makes Galena lubrication the logical choice for selection.



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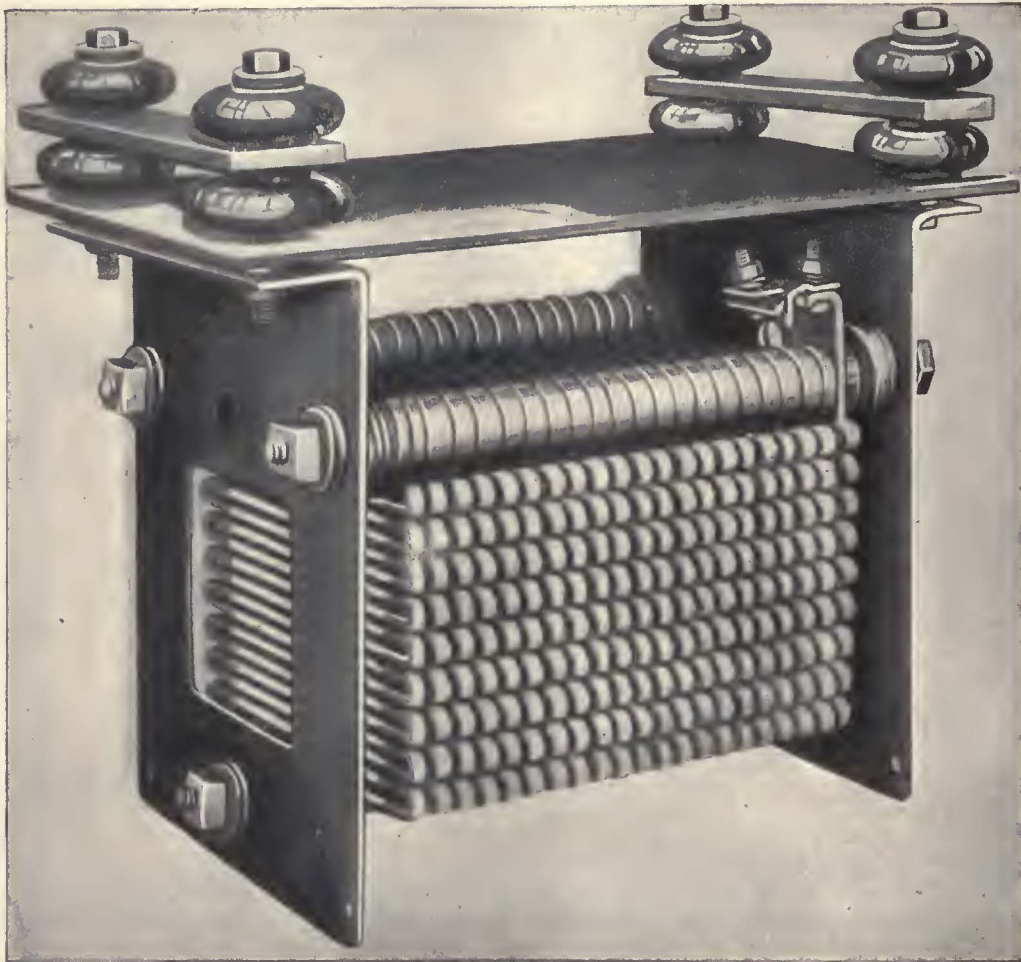
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GENERAL ELECTRIC

New York, Saturday, December 29, 1923

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

Published by McGraw-Hill Company, Inc.

HENRY W. BLAKE and HARRY L. BROWN, *Editors*

Volume 62
Number 26

Another Car Designed to Sell Transportation

IN SOME ways the design of the new light-weight interurban cars of the Pennsylvania-Ohio Electric Company, described elsewhere in this issue, goes further than previous designs have done with the idea of making the ride comfortable and pleasant for the passenger. Deep-cushioned seats, linoleum-covered floors and real mahogany woodwork have become fairly familiar during the past year or two, and it is generally accepted as good practice to keep bell cords, register rods, door engines and the like out of sight. But this railway has gone beyond that by concealing the air pipes to the engineer's valve behind a metallic cover painted to harmonize with the interior car trimming, and by eliminating altogether the advertising signs and luggage racks.

While elimination of advertising presumably does raise the dignity of the interior, the need to do so in a coach is debatable. Nowadays the car cards are for the most part tastefully designed, printed on good quality material, and neatly installed. They are usually inoffensive to the eye and they often furnish the passenger food for thought in idle moments.

The concealment of the air pipes, however, will be considered by everybody to be a good move. These are unsightly at best, and frequently oily and dirty.

The special lighting fixtures and the mahogany trim in the upper part of the Pennsylvania-Ohio cars add unmistakably to the distinctiveness of their interiors. While the lines of these cars are not as good as might be secured, the attractiveness sought has been obtained in substantial measure.

Such innovations as are made in this and other recent cars show that the industry is giving some well-deserved attention to the subject of car design from the merchandising as well as the engineering standpoint. The roads that have adopted these new ideas have invariably found that their business profited and their public relations were improved.

Where the Dangers to One-Man Cars Lie

NEWS reports of the last three months indicate a revival of the opposition to one-man cars. These attacks are not confined to any one part of the country. There have been rumblings of dissatisfaction in the East, South, Central States and Far West, and it may be that this condition will be reflected in hostile legislation during some of the 1924 sessions. It is to be hoped that these cases of dissatisfaction are purely sporadic. Nevertheless, the one-man car has been such a boon to the industry that it behooves every railway man to consider what may be done to overcome any sentiment of

this kind which may limit the operation of cars of that type on his road.

There are only three possible reasons for opposition to one-man car operation, namely:

1. A belief that the interests of labor require a larger crew on street cars than is actually necessary.
2. Ignorance on the part of the public of the merits of the one-man car.
3. An attempt by companies to make the one-man car do more than it should be called on to do.

The first reason will probably always prevail to some extent, so long as demagogues exist. Nevertheless, it is not a difficult task to prove that the interests of labor lie in just the opposite course. Not only do one-man operators receive a higher wage than operators on two-man cars, but if the service should be confined to two-man cars, many electric railway companies would have to go out of existence. So-called "full crew" laws were for long a needless expense to the steam railroads, but the public generally has come to understand that they cause an economic waste.

Ignorance on the part of the public of the merits of one-man cars, the second reason mentioned above, may be expected in cities where they have not been in service. It can be overcome only by carefully considered explanation and education before the cars are put in operation and during the early stages of their trial.

Perhaps the greatest danger to the one-man car comes from the third cause mentioned, i.e., from the companies themselves. The merits of the one-man car should not blind any one to the fact that it has its limitations, and its greatest real friends are those who are willing to recognize that it has these limitations.

The One-Man Car Has Its Limitations

IF THERE is an attempt to make the one-man car do more business than it comfortably can, either as regards its loading capacity or the ability of the operator to make change, this condition is immediately reflected in longer stops and slower schedule speed, and if this condition continues the result is not only an exasperated public, but lower earnings per car-hour. In some instances this critical point has undoubtedly been passed, usually through overenthusiasm as to what one-man cars can do. And it is perhaps significant that such cases of overenthusiasm are most apt to be found on properties where the one-man car is comparatively a recent innovation. This is only to be expected, because history has frequently shown that recent converts to an idea are apt to be not only the greatest zealots in its behalf but that they often err in going too far in its application.

Fortunately, there are many ways of overcoming

difficulties of passenger congestion on one-man cars, without abandoning the one-man idea.

The simplest way of helping out the operator when his duties are so many as to slow down the speed of the car is to simplify his task of collecting fares. Usually, there are many possible ways of doing this. Sometimes street collectors can be used to advantage at congested points at certain hours. Occasionally the conditions are such that prepayment areas can be introduced. The time of change making on the car can be made less by the use of tokens and passes, and it can be distributed over a long time and so shorten the length of stops by operating the car pay-leave in one direction and pay-enter in the other. Or the problem may be approached with the idea of shortening the time of other parts of the process of fare collection or in some other way to reduce the work of the car operator.

A good gage for determining whether some time-saving is desirable is the figure attained of schedule speed in miles per hour. Where this begins to get below that of other cities of like population and similar street congestion, or shows a retrogression on the same property, something should be done. If the simple methods described herein and others like them fail, the two-man car may be the only recourse.

Great help along the lines being considered may be expected of the one-man two-man car, provided it really is operated by one man when the traffic conditions call for such operation, and by two men when two-man operation really is demanded, which will usually be during the rush hours. From a tabulation of recent car orders, this seems the most popular type for city railways today. It is an ideal design when used with judgment.

Obviously, such a car in one-man two-man service means considerable extra work for the schedule maker in connection with the conductor's runs, because on many lines there will be few if any straight runs for conductors left. But the task of providing satisfactory runs for the majority of the men is not insurmountable.

Economies Possible on Small Properties Too

IN THIS issue is reviewed at some length the report of a consultant on the railway in Charleston, S. C., which serves a population of 70,000. It is of interest because there are many small properties whose earnings are not very good and with which it is often thought nothing much can be done. Yet in Charleston it was found that material savings could be made, in spite of the fact that about 90 per cent of the city service was already being supplied with one-man cars.

The principal savings are expected to be realized from the elimination of duplicate and waste car mileage and from a speeding up of the cars. The greatest ailment from which the small properties are suffering is a slow, indifferent sort of service. Charleston was not as bad in this respect as many, in spite of its Southern clime. But the system was suffering from an excessive number of stops and several other practices that tended to slow up the operation and not only make costs high but discourage riding. Then there were a number of things, small in themselves but totaling big, that the outside point of view found could be done to cut costs. So there are things to be done, even with the small property. And while cutting expenses, some of the major economy measures also improve the service, and more patronage is thereby attracted.

Make Signs Informative for the Casual Reader

MUCH emphasis is being placed these days on the idea of merchandising transportation. An important part of merchandising is so to describe the goods that the public will know what is being offered and will want to buy. For the regular rider, a single letter or number designation on a car is all that is needed and is a very good plan. But the destination sign should be so worded as to give the stranger and casual rider the maximum possible information.

Perhaps this idea was more fully realized by the street railway men of thirty years ago than it is today, for in those days on the attractive car exterior was painted not only the destination but a catalog of the principal points reached en route. For example, the cars of one line in Washington carried a legend such as this: "Mount Pleasant, Capitol and B. & O. Depot via 14th Street and Pennsylvania Avenue."

With the advent of larger and more complex railway systems such plans fell into disuse on account of the desirability of having all the cars of the company interchangeable. Dash signs, roof signs, and finally the illuminated roller signs have all been used to impart the desired information. Of course, with any type of changeable sign the space available to display routes and destinations is far less than when the whole car body could be used for the purpose. This is particularly true with the roller sign, now almost universally used.

The great advantage of the roller sign is that when a car is changed from one route to another or from one destination to another a suitable sign is immediately available. The necessity thus to be able to transfer a car on short notice from one route to another presents somewhat of a problem to the sign painter, as there must be suitable names on the sign roll. If a car may be operated on many routes it is necessary to have a great number of names and the roll, therefore, assumes considerable length.

In an effort to reduce the length of the roller curtain and thus effect a minor economy, some railways have tried to devise destination names that would serve for more than one route. Sometimes this has been carried to the point of absurdity. Names that are almost meaningless are used simply because of their universal applicability. While this was mentioned briefly in an editorial in this paper last week, attention being called to the bad practice of using non-informative signs on cars out of service, the use of such terms is not confined to cars routed toward carhouses, but occurs in many other instances. Some examples are: "City Line," "Belt," "Downtown," "R.R. Station" and "Bridge."

Such designations are not inaccurate, perhaps, but they are often quite indefinite. The regular rider on a particular line may know which railroad station is meant, and some people probably know what "City Line" means. To the casual rider, or to the stranger in town, however, such designations mean very little. The regular rider knows where the car goes however it is marked and the company gets his fare anyway; but if a few fares from strangers can be gathered in by making it easy for them to know the car's destination this money is just extra profit. Hence, why not make the sign tell just as much of route and destination as space and ingenuity permit?



These D. U. R. Containers for Less-than-Carload Service Have 2½ Tons Capacity and Can Be Shipped Sealed from Origin to Destination

Demountable Containers Expedite Freight Handling in Michigan

By *E. J. Burdick*

Vice-President and Manager Detroit United Railway

A Special Truck Chassis and Demountable Containers Have Been Adopted by the Detroit United Railway to Pick Up and Deliver Less-than-Carload Freight Shipments with Maximum Economy—The Company Now Is in Trucking Business at Request of Wholesalers' Organization.

A METHOD of handling freight in less-than-carload lots has been adopted by the Detroit United Railway to facilitate loading and unloading and allow through routing of the shipment without rehandling. Essentially the plan consists of the use of relatively small containers that can be loaded and sealed at the point of origin, and then carried either on any motor truck or more conveniently on a special chassis to a point where the containers are loaded on a special flat car of the railway. At the receiving end the process is reversed.

This arrangement saves nearly all the time formerly used in the trans-shipment at the railroad terminals, and permits a more intensive use of the railway's equipment. A description of both the mechanism and the manner of its employment are of interest.

Careful study of the freight problem by the Detroit United Railway resulted in the formation of a subsidiary company to handle the trucking, both in long distance hauls and in pick-up and delivery service. In planning the basic idea as well as the major part of the developed details, we have contended that the motor car—both for passenger and freight—has its proper place in the field of transportation, and that it is advisable for electric railways to adjust themselves to the new system of motive power through co-ordinating the two, instead of refusing to recognize the utility of this suddenly developed method of conveyance.

The regulatory law recently enacted by the State of Michigan contains a general policy covering road conservation and wild-cat operations. The state policy having been determined, the Detroit United Railway was in a position to know what it had to face both in

the way of possible competition and expansion. Its first definite step was the incorporation of the Detroit United Railway Trucking Company, with a capital stock of \$500,000; all stock held for and in behalf of the interurban system.

After several meetings of the department heads it was thought that, theoretically at least, the use of demountable truck bodies seemed the proper step. Such bodies could be hauled to established car lines, there transferred as units to flat cars and at the other end retransferred to trucks and distributed without disturbing the contents. This plan also allows a minimum use of the highway and a maximum use of established rights-of-way, very largely company owned. Michigan laws place a maximum upon truck load and length of motor trains. It appealed to the Detroit United, therefore, that economies which would result from placing several motor loads on one electric freight car and several cars in the trolley train, thus reserving the trucks themselves for the many terminal trips for pick-up and delivery, would give them a decided advantage over intercity trucking competitors using the highways.

ADVANTAGES OF THE PLAN

There are many advantages to follow such a co-ordinated trolley and truck shipping system as the Detroit United Railway is contemplating. According to the old system the product is packed at the shipping room in the factory, loaded on a truck body, unloaded at the railway freight house and loaded into the freight car. After arriving at the end of the railway trip exactly the same number of moves is made at the point of delivery.

Compare this with the demountable body which can be placed either in the factory shipping or stockroom. The loaded body is moved to the truck chassis and carried directly to the electric railway car or loading platform and is transferred without disturbing the contents. This avoids four labor handlings in shipping, four in receiving, and makes substantial savings in the standing time for truck and driver. Fractional loads contained in packing cases of assorted sizes can be handled readily with this equipment with the same saving in labor at the freight station as is obtained with full container shipments. The fewer the number of handlings, the less will be the loss and breakage. As an additional precaution, the new type containers can be sealed by the shipper.

PERISHABLE PRODUCTS BETTER HANDLED

The handling of perishable products has always presented shipping difficulties. Every hour of delay decreases the value of the shipment. Consequently overnight delivery is a very desirable service. Under the new plan a demountable case can be left at the farm. When it is filled the farmer or the company, as may be agreed, takes it by motor truck to the nearest receiving station, where it is loaded on a car. In the morning, after the shipment has arrived at the rail terminal, it is delivered to its destination intact, with the contents in the best possible condition. It is under seal from the time the farmer does the packing until that seal is broken by the consignee.

Compare this method with the usual plan now followed in handling farmers' products to the market. The goods are subject to long delays, exposure to heat and cold and are passed through many hands. In addition, the crates are turned first on one side and then on the other as they are stacked and packed in warehouses and cars. Sometimes the product of one farm is so mixed with that of others in the selling that to a considerable extent identification is lost.

In addition to its advantages in the transportation of perishable farm products, the container arrangement is applicable to the handling of manufactured machine parts under a plan which may be called a "machine to machine" delivery. Parts may be put directly into containers at the machine as manufactured and delivered to an assembling plant in some other town without expensive packing and excessive handling costs. The construction of the containers makes it simple to move them about the plant by use of the ordinary type of



Containers When Mounted on Flat Car Are Locked in Position



Flat Car Has Channels for Container Wheels. Locking Device on Axle of Container Engages Recessed Bar on Car

industrial tractor. Extra containers may be provided so that they can be put directly into the assembling plant and the parts used as required with no additional handling.

At the present time the Detroit United Railway is engaged in trucking and is awaiting approval by the State Commission to put the new plan into general use. At the earnest solicitation of the Wholesalers' Bureau of the Detroit Board of Commerce, the Utility Commission authorized establishing a trucking line of 80 miles from the end of the Detroit, Jackson & Chicago Railway at Jackson, Mich., to Sturgis, Mich., through Hillside and Coldwater. This route is more extensive than the company had originally planned in connection with a contemplated pick-up and delivery service. The demand for speedier transportation from this territory to and from Detroit was such that the company agreed to try it out, using for the present time the ordinary trucking equipment.

Some idea of the extent of this service may be gained from the following schedule: Freight is received up to 4 p.m. at Detroit for Jackson and is carried over the



Arrangements for Handling the Containers

At the left, the ball-bearing wheels and locking hook and link are shown. At the right, the winding drum for loading may be seen. The large doors are removable to facilitate packing and unpacking.

electric line during the night. At 8 a.m. the following day truck distribution for Sturgis is started, which is usually completed by 3 to 4 p.m. that same day. In the reverse direction a pick-up truck leaves Sturgis at 8 a.m., picks up freight at intervening stops between Sturgis and Jackson, loads the freight into an electric freight car that afternoon and the merchandise arrives in Detroit the following morning. For this pick-up and delivery service a charge of 25 cents per 100 lb. is made over the regular steam road rate. This method has proved highly satisfactory and eliminates trucks using the highway between Jackson and Detroit. The service was started with 1½-ton trucks, which have been replaced with 5-ton chassis, all equipped with the demountable apparatus but using for the present the ordinary type of body.

THE MECHANICS OF THE CONTAINERS

How to put on and take off the bodies from the truck chassis was found one of the great problems to solve. Cranes on every car and cranes at every loading station spelled a big investment which seemed impracticable from the railway standpoint. Attention was called to a



Loading Mechanism and Channel Tracks Are Bolted to Chassis. Channelways on Rear Can Be Adjusted for Height to Meet Similar Channels on Platform. Hooks Hold Front Container to Truck

worm and endless chain device made by the Ideal Truck Equipment Company of Chicago as a possible solution of the problem. An examination of what this company had indicated that the idea was there, but that it would have to be developed further to suit our needs. This was done through the co-operation of the railway engineers with those of the equipment company. The present device utilizes the truck motor to move the container on or off the loading platforms. This device does not prevent the chassis being used with a regular truck body in the ordinary manner.

The loading and unloading mechanism mounted on the truck chassis consists of a superstructure containing a pulley at each end, over which is run a steel cable receiving its power from a winding drum through a chain and worm mechanism driven from the truck transmission. Flared channelways are provided to form a

track for the containers. These may be adjusted vertically to align with similar channels on the loading platform of the freight house. An engaging hook on the cable pulls the container on or off the truck as occasion demands. The mechanism contains a locking device for holding the containers in position during transportation on the truck and a cutout device which automatically stops the operation when the load has been pulled into the proper position. The rear container is stabilized in its position by side bearings. The forward container is held by hooks on the truck which engage its front axle. The containers are held in position on the flat car by similar means. Containers of this type have taken curves at speeds of 60 m.p.h. without slipping from their positions.

The containers, developed with the co-operation of the Fisher Body Company, are built up of light but rugged angle-iron framing with permanent corner panels of plywood which cover approximately one-third of the area on each of the four sides. On the bottom, two substantial sills are formed of 3-in. x 5-in. x ½-in., 8.2-lb. steel angles which carry the cast-steel bearing housings for the support of the wheels, axles and locking device. The wheels, which are flangeless, with a diameter of 9¼ in., are mounted on ball bearings and travel in steel channel tracks on the chassis, loading platform and flat cars. The wheel gage is 31 in., and the axles are spaced on 4-ft. 3-in. centers.

A substantial maple floor is laid over the sills. The entire framing structure is reinforced with gusset plates and brackets. Approximately two-thirds of the area on each of the four sides is inclosed by a pair of doors extending full height. These doors are arranged so that they can be entirely removed to facilitate packing and unpacking, leaving an opening 48½ in. wide. A locking bar holds them securely in position so as to make the closed container entirely weatherproof. The weight of the complete equipment, including the auxiliary mechanism on the chassis, is comparable with the weight of an ordinary oak van truck body of equal capacity. The inclosed half-sized unit has over-all dimensions approximately 6 ft. 6 in. wide and 7 ft. 6 in. long. The over-all height from wheel tread to roof is 6 ft. 10 in. and the height from floor to roof of the container is 5 ft. 9½ in. Each of such half-size containers is designed for a capacity of 2½ tons.

For the shipment of goods which do not require protection from the weather an open type of container has been developed. This has simple stake sides, but is mounted on the same floor as the inclosed container described.

Using a 5-ton truck chassis, either one full size or two half size stake or inclosed type containers may be carried.

The accompanying illustrations show the type of construction employed and the arrangement of containers on both truck and flat cars.

Annual Meeting of F.E.S.

THE annual meeting of the American Engineering Council of the Federated American Engineering Societies will be held Jan. 8-11 at the Shoreham Hotel, Washington, D. C. The sessions will include a Public Works Conference on Wednesday, sessions of the American Engineering Council on Thursday and Friday, and a banquet for the A. E. C. and delegates on Thursday evening.

Trainmen and Community Work for Safety*

San Diego Trainmen Share in Safety Savings According to Car-Hours Worked—Citizens Organize to Reduce Street Hazards

THE San Diego Electric Railway has recently made a change in its method of distributing its bonus to the trainmen from the "Safety Fund." This fund has been in force since 1914, when the company announced a plan for stimulating among the platform men a more personal interest in accident prevention and the safe operation of cars. It set aside in that year 3 per cent of the gross revenue, out of which was to be paid all the claims for personal injury, property damage, outside law, courts, including witnesses, medical, hospital and other expenses and announced that the rest would be divided among the car men on a car-hour basis. In other words, the man who put in the greatest amount of platform hours participated to the greatest extent in the savings.

Five platform men were chosen to represent the car men in connection with this fund. They were called the safety committee and held meetings one night each week to review the accident reports of that week. Having the experience of car men themselves, they could readily see the mistakes that their fellow workers made, and it was the duty of this committee to call to the attention of the men connected with an accident where a mistake had been made in judgment and where pure carelessness played a part. For this service the members of the committee were paid \$3 apiece a week, this sum being taken from the fund.

Up to 1923 it is estimated that the car men in San Diego have been able to divide close to \$100,000 through this fund, many of the checks to individuals running considerably over \$100.

The system has worked very satisfactorily for both company and men, and there has never been any thought of abandoning the principle. Experience has shown, however, a few desirable improvements. Thus, it was found that many men who had had accidents were receiving at the end of the calendar year proportionately as much as those who had had no accidents at all. Hence, beginning with Jan. 1, 1923, a plan was adopted to equalize the bonus on the basis of the man-hours worked and also of the number of accidents each car man had had. A slight change was made also in the amount of money assigned to the fund, which was changed to 3 per cent of the gross revenue from the transportation of passengers up to and including \$1,000,000 and 2 per cent on the next \$500,000.

The method of computing immunity from accidents is put on a monthly basis; that is, in each month that a man has no accident for which he is responsible, he is credited with 8.33 per cent (which is one-twelfth of 100 per cent). At the end of the year the percentages thus obtained by each man are totalized, the men are divided by these aggregate percentages into several classes, and the per cent that each class bears to the total is ascertained. These percentages will then represent what per cent will be taken of the total remaining in the fund and divided among the men in each individual class.

*This article is based on material included in the brief submitted to the Charles A. Coffin Prize Committee of the American Electric Railway Association by the company named.

The total number of hours worked by the men for the year in each class is then divided into the total amount of money available for the class to arrive at an hourly rate, and the amount of money for the class is then divided among the men in the class according to this rate and the individual hours worked. To participate in this plan, a full month must be worked with a lay-off allowance for regular men of not more than four days per month and for extra men of not more than six days per month.

All platform men who may be detailed by the transportation department to temporary work, such as selling tickets, work-car service, traffic count, dispatching on account of construction, flagging on account of construction, acting in the capacity of relief receiver or temporary inspector, do not lose the credit of 8.33 per cent because of failing to put in the required number of days on platform work. However, the total number of days worked during the month, which includes the number of days that a man may have put in on the cars and on his temporary work, must equal the number of days he would have been required to put in on the cars had he remained on his regular run and not been detailed to the other work.

The responsibility for all accidents is decided by the safety committee.

SAFETY CO-OPERATION NOT LIMITED TO COMPANY EMPLOYEES

While realizing that the consummation of any safety program is mostly dependent upon its own efforts and that of its own employees, the company realizes that the co-operation of the public is also most necessary. Having started the practice of caution at home, it felt it was justified in asking for the co-operation of the public and was fortunate in securing the co-operation of the heads of various civic bodies in organizing what is known as the San Diego Public Service Committee, whose purpose is to eliminate, so far as possible, all traffic accidents.

Fifty citizens volunteered to act as a vigilance committee in reporting careless or reckless automobile drivers to the executive committee. The committee in turn writes a courteous letter of warning to the driver, and three such warnings constitute sufficient reason for his arrest. This committee meets at luncheon every Monday, and its duties are not alone directed to the automobile hazards but to anything that constitutes a menace upon the streets. The result of this plan, conducted under the direction of a temporary organization, has proved so satisfactory that it has recently been decided by the citizens to make the committee permanent.

Standard Watches Insure Accurate Time*

SOME companies operate under the theory that because street railway schedules are subject to so many interruptions, it is not particularly important for the men to have accurate timepieces. On the El Paso Electric Railway system, however, it is believed that the very fact that it is difficult to maintain good schedules makes it imperative for the operators to have the correct time. During the year all trainmen have been required to secure regulation watches of standard makes, and these watches are inspected twice a month and a record of their condition is kept. This tends also to induce greater effort to keep cars on time.

Traffic Problems in a City of 70,000

A Recent Traffic Analysis Made of the Charleston (S. C.) Electric Railway System Disclosed a Number of Possible Improvements and Economies, Even Though One-Man Cars Were Being Used Almost Exclusively

THE transportation situation in Charleston, S. C., as described in the survey recently made for the company by John A. Beeler, New York, shows a condition which probably has parallels in a number of other cities of like size. In 1910 Charleston had a population of about 59,000 and in 1920 of 68,000. The street railways in the first part of the last decade were fairly prosperous, showing from 1911 to 1914 an operating ratio of from 67 to 69 per cent, with operating revenue in the neighborhood of \$400,000. During the next four years the operating ratio increased to from 72.3 to 77.9 per cent, while in the last five years it has been over 90 per cent for every year. For every year except 1920 it was over 97 per cent, and in 1921 and 1923, based on the first five months' operation, it was more than 100 per cent. During the war riding greatly increased because of activity at the Charleston Navy Yard, but since 1920 traffic has gone back to about the trend of the pre-war figures. There is no jitney competition.

The report of the Beeler organization suggests a plan by which the company will be able to make a saving of \$148,530, or about 25 per cent of the operating expenses, and still serve the city as well as if not better than with present service, in spite of the fact that operation in Charleston has been largely by one-man cars. Since the completion of the report it has been accepted by both company and city. An abstract of the report follows:

RAILWAY CONDITIONS IN CHARLESTON

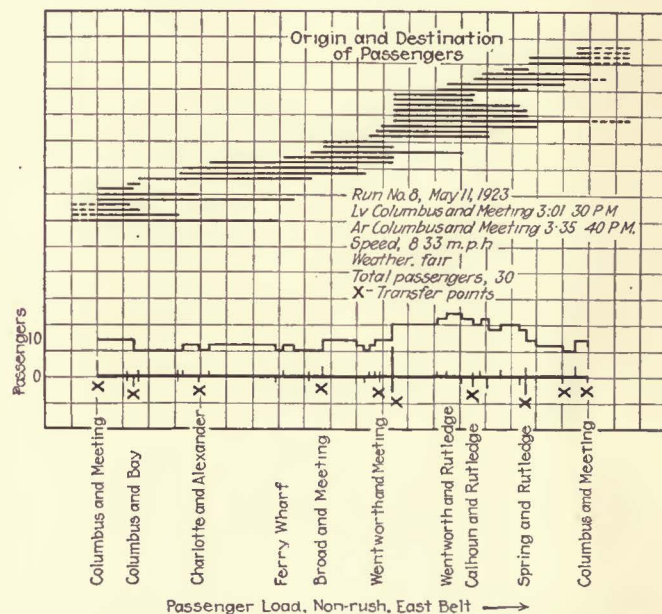
The Charleston railway operates a total of 39.44 miles of track, of which about 10.7 miles are on the interurban line connecting North Charleston and the Navy Yard with the city. The balance is on the city lines. The service calls for the operation of thirty-four base cars and ten additional during the rush hours, making a total of forty-four cars in daily service. In 1922 the system transported approximately 10,000,000 revenue passengers and had a gross operating revenue of \$634,000.

The city of Charleston is one of the oldest in the country, having been founded by the British in 1670. The growth has been slow but steady from the first census in 1790, when it had a population of 16,000, to the present time, with its population of 67,957. This population is fairly evenly divided between whites and blacks, there being 35,585 of the former and 32,372 of the latter. The distribution of races throughout the city is likewise quite even, except for a few localities. The total population, including that of the contiguous territory served by the interurban, is approximately 72,000.

The present incorporated area is approximately 3 miles long and 2 miles wide and is bounded by water on three sides. Fully two-thirds of the people live within one mile of the business center of Charleston. This proximity to the business district encourages

walking and tends to a low riding habit. The accompanying maps indicate that there has been a tendency to overtrack the city. There are four lines of tracks running lengthwise and four crosswise.

The revenue rides per capita per annum was about 130 in the period just preceding the war. This figure dropped slightly during the first two years of the war, but after the United States entered the conflict the Navy Yard began increasing its forces and the peak of over 220 rides per capita was reached in 1920. Since then the drop has been precipitous, due to the general industrial depression and the fact that very little work is going on at the Navy Yard. In consequence, the



Typical Graph Showing Passenger Loads During Non-Rush Hours on East Belt Line

rides per capita based on the first five months of 1923 is back to the pre-war figure of 130 per annum. Fluctuations in the total passengers carried by years are shown in one of the charts on page 1086.

In addition to the lessened business activity, the increased use of the automobile has, no doubt, had some effect on the street car riding habit. There are about 4,500 motor vehicles of all classes in the city. However, there is a general increase in the use of the automobile throughout the United States, and in spite of this fact most street railways are showing an increase in passengers carried.

The railway operates six routes, five of which are city lines and one interurban. Comparative financial and operating statistics, by routes, for twelve months' operation based on May, 1923, are given in Table I. As will be seen from the table, every one of the city lines shows a deficit.

The volume of service rendered is remarkably good. Rarely does one find passengers standing even during

TABLE I—PASSENGER REVENUE AND EXPENSES PER CAR-MILE BY LINES, CHARLESTON
Annual and average, based on operations in May, 1923

Line	Car-Miles	Passenger Revenue	*Operating Expenses	Operating Deficit	Average Cents per Car-Mile, 1923			Car-Miles per Day
					Passenger Revenue	*Operating Expense	Deficit	
Belt.....	470,700	\$117,240	\$121,000	\$3,760	24.91	25.7	\$0.79	1,284
Broad Street.....	261,700	50,500	68,040	17,540	19.30	26.0	6.70	719
King Street.....	194,000	72,975	79,730	6,755	37.62	41.1	3.48	524
Meeting Street.....	155,700	32,820	39,700	6,880	21.09	25.5	4.41	426
Rutledge Avenue.....	371,400	96,640	109,190	12,550	26.02	29.4	3.38	1,036
Suburban.....	488,500	172,810	166,580	6,230	35.37	34.1	11.27	1,399
Total.....	1,942,000	\$542,985	\$584,240	\$41,255	27.96	30.1	2.14	5,388

* The amounts shown for operating expense include taxes. Operating costs have been determined from the system averages and by making allowances for differences in type of equipment and car speeds on the various lines.
† Surplus.

the rush hours. In fact, it is not a question of furnishing seats but more a question of passengers to fill them. The company has made no effort to curtail the service. In fact, it has steadily increased the number of car-miles operated. The rate of fare is the same as last year, viz., 7 cents cash, or four tokens for 25 cents.

A comparison of operations in Charleston with those of street railways elsewhere is given in Table II. In the first column are the latest available figures from reports of the American Electric Railway Association. The second column gives the Charleston railway operations for the same periods as covered by the association reports.

TABLE II—COMPARISON OF CHARLESTON AND OTHER CITIES

	A. E. R. A. Electric Railways	Charleston Railway
Average rate of fare in cents.....	7.13 (a)	6.02
Annual revenue per capita.....	\$12.70 (b)	\$8.81
Operating revenue per mile of single track.....	\$20,292 (b)	\$16,080
Operating revenue per car-mile in cents.....	45.9 (a)	30.8
Operating expenses per car-mile in cents (d).....	36.2 (a)	33.1
Operating ratio, per cent (d).....	78.97 (a)	107.37
Taxes, per cent of operating revenue.....	7.13 (a)	9.48
Revenue passengers, per cent (c).....	inc. 6.63 (a)	18.05 dec.
Revenue passengers per car-mile.....	6.2 (a)	4.9

(a) Average of eighty-one urban railways for first four months of 1923.
(b) Average of fifteen cities, 60,000 to 80,000 population, for year 1922.
(c) Increase or decrease compared with same period 1922.
(d) Including taxes.

The average fare is 16 per cent lower than the average elsewhere. The density of business, as represented by the operating revenue per mile of track, is 26 per cent lower in Charleston. Even though the fare were the average rate, viz., 7.13 cents, and there were no change in the riding habit, the volume of business would total only \$16,100 per mile of track, or less than 80 per cent of that in the other cities last year. The operating revenue per car-mile in Charleston is less by nearly one-third and the operating expenses per car-mile about 10 per cent less. It is notable that the total receipts per car-mile in Charleston are 15 per cent less than the operating expenses of the average company.

THE SURVEY

To determine what readjustments in service could be made without disturbing the trend of travel, considerable field work was necessary. Traffic counts were taken at all of the principal transfer points, the peak load points and points where there was considerable interchange of traffic—seventeen locations in all. Each point was counted from 6 a.m. until 12 midnight for a two-day period and the results averaged. The counts were taken on weekdays when the weather was fair and other conditions such that normal traffic would be expected. The men stationed at these locations took a record of every car passing, noting the following:

Route, destination, direction, car number, time of day and the number of passengers arriving at and leaving the point. The results of these observations were tabulated and charted. Records were also made for a number of typical trips of all stops, the location and volume of the passenger interchange, the time at time points, delays and any features which might influence the movement of the car. On three lines the origin and destination of each passenger were observed as further aids in determining possible readjustments on these routes. Charts were prepared from these rides, and a typical one showing the origin and destination of each passenger is presented on page 1081.

CARS SHOULD BE REROUTED

In Charleston, as in most cities, the greater part of the demand for transportation is from the residence sections to the business section of the city. A considerable amount of the company's business is the result of the demand for service between the city of Charleston and the Navy Yard and North Charleston, which is cared for by the Suburban line. Since the business district is not confined to any one section, there is also a demand for cross-town service as a means of connecting the various civic centers and providing transportation between the hotels and the Union Station. This class of service encourages the use of street cars by the patron who has only a short way to go. Service which caters to the short-haul rider, the patron who enables the company to earn money, must be made as direct, speedy and generally attractive as possible.

The present and proposed routes are shown on page 1085. It is believed the new routing will serve the city better than the present one. It will provide the average patron with faster and more direct service and it will eliminate much of the waste in the present service, especially duplication and operation in unproductive territory.

The routing of the Suburban and Meeting Street lines will remain unchanged. The King Street line will loop back via Calhoun, Meeting, Broad and King Streets, resulting in one-way operation on the congested portion of King Street between Broad and Calhoun. On this portion of the line there is only one track now, because of the narrowness of King Street. The new routing will eliminate the necessity of cars now waiting at turnouts in this single-track section.

On the Rutledge Avenue line the detour to President Street will be eliminated and in the downtown section the cars will loop back via Meeting, Broad and King Streets. This will remove some of the excess service running to the Battery. A complete rearrangement of the Broad Street and Belt lines is recommended which will eliminate most of the present duplication of routes.

The cost of the additional special trackwork required

to make this rerouting effective should not exceed \$12,500.

The co-operation of the city authorities in the matter of regulation of vehicle traffic will be required for best results in obtaining a prompt movement of cars. The fact that costs due to accidents and damages have increased 145 per cent since 1913 illustrates the need of better traffic regulation.

Parking should be minimized on streets which have a large volume of traffic. Secondary streets having little importance as thoroughfares should be used for this purpose. Among other things, automobiles should be required to stand parallel to the curb with the adjacent wheels within 6 in. of the curb. No parking should be permitted opposite a trolley loading space.

SERVICE READJUSTMENTS

The company is at present using an up-to-date form of schedule modeled after the A.E.R.A. standard. In making new schedules to conform with the routing changes, the use of this form should be continued. The service readjustments were determined after a careful check of the riding habits on the various lines. Barring irregularities, the proposed schedules will furnish as many seats as passengers during every hour of the day, which is certainly liberal. In fact, such an arrangement is impracticable in many cities. An outline of service changes are summarized in Table III.

All of the proposed headways are more than sufficient to meet the traffic demands and are in equal divisions of an hour, so that cars will pass a given point at the same time after each hour. This is of great value to patrons and tends to increase riding.

The new schedule calls for 8.70 car-miles per car-hour instead of 7.91 as at present. Slow operation tends to discourage riding, waste power and increase accidents. It is also the general experience that schedules which are too slow tend to carelessness on the part of the operator. If the motorman is obliged to keep busy he will be more watchful and fewer accidents will be the result. The reduced congestion on King Street will be a large factor in minimizing the delays on that particular line.

At present all of the lines with the exception of the King Street and Suburban lines are operated with one-man cars. It is the intention of the company to put one-man cars in service on King Street as soon as a sufficient number of the cars are equipped with safety devices. This is in line with the most modern practice.

Expressed in terms of the different types of equipment, the total daily car requirements are as follows:

	Two-Man	One-Man	Trailers
Present.....	18	25	3
Proposed.....	9	21	3
Saving.....	9	4	..

This results in a saving of nine two-man cars and four one-man cars. The saving in the one-man cars will be especially appreciated as a shortage of this type was inevitable with the beginning of one-man operation on King Street under the present system of routing.

GENERAL IMPROVEMENTS DESIRABLE

There are a number of factors influencing the quality and cost of service which often can be improved if attention is directed to them. Suggestions particularly applicable in Charleston are enumerated in the following paragraphs:

Some confusion exists at present as to the exact location of passenger stopping places. Stops are made occasionally at a number of short side streets where none is authorized. The far side stop at transfer points was abolished, but this rule is not definitely followed. On the Suburban line, where there are definite stations, they are marked with small enameled signs, but some of these are entirely effaced. To mark definitely the stopping places of cars, the trolley poles at these locations should be painted with a white band about 3 ft. wide at a suitable height bearing the words "Car Stop" in black letters. The use of this type of sign is almost universal throughout the country and has been found very satisfactory wherever tried. It is plainly visible from a distance, and it is cheaper and more permanent than any other device.

The stopping places on the city lines average about fourteen to the mile, while the actual stops made vary from 4.3 per mile on Rutledge to 7.7 per mile on King. The Suburban line, with 8.4 stopping places per mile, averages 3.8 actual stops for the same distance. Most of the stops are made in the delivery area and some are at insignificant alleys or in the middle of the block. These superfluous stopping places should be eliminated, not only for the improvement of the street car service but as an aid to the movement of general traffic on these busy streets. City stopping places should not be closer than eight to the mile in order to secure satisfactory results. To make eight stops per mile requires a stop every forty-five seconds and is all that the most modern equipment and a skilled motorman can do and maintain any schedule worthy of the name.

The present schedules do not provide for a layover or scheduled standing time at line terminals. While the allowed time is sufficient to provide for minor delays, better operation would be obtained if the scheduled time were faster and a short layover provided with the time gained to care for the delays that are bound to occur.

The present practice in Charleston is for a patron to state what transfer he wants when he boards the car. The conductor, however, does not issue the transfer until the patron is leaving. This delays both the

TABLE III—PRESENT AND PROPOSED ROUTES, OPERATING DATA AND WEEKDAY SCHEDULE

Line	Round Trip, Miles		Base Headway (Minutes)		Car-Miles		Car-Hours		Car-Miles per Car-Hour	
	New	Old	New	Old	New	Old	New	Old	New	Old
Belt.....	4.52	4.74	10	7	1,030	1,284	133	168	7.73	7.64
Broad Street.....	.....	6.44	.....	10	.....	719	.....	97	.....	7.42
Columbus-Spring.....	1.95	.....	15	.....	140	.....	18	.....	7.80	.....
(a) King Street.....	5.13	5.62	10	12	555	524	72	76	7.70	6.90
Meeting Street.....	7.64	7.64	30	20	290	426	38	56	7.64	7.61
(b) Rutledge Avenue.....	7.87	9.56	10	10	930	1,036	118	132	7.87	7.85
(c) Suburban.....	18.60	18.60	30	20	1,140	1,399	92	152	12.39	9.21
Totals and averages.....	.....	.....	.....	.....	4,085	5,388	471	681	8.70	7.91

(a) On King Street before 7 a.m. and after 9 p.m. a twelve-minute headway should be maintained.
 (b) In addition to a special trip per morning and evening for colored workers at the fertilizer plant.
 (c) For the present demands, six extras should be operated in the morning and eight extras at night. This includes the two-car and three-car train to the Navy Yard at night. The car-hours and car-miles shown include the extras.

alighting and boarding passengers. It would be much better if the transfers were issued to passengers only when they board the car.

The center-entrance cars are equipped with two doors, but only one of these, the forward one, is used. Keeping this door closed gives a little additional seating space, but it would be better to use both doors as an aid in speeding up and improving the service.

The track switches now in use in Charleston are hand operated, by short switch-irons, which make it necessary for the motorman to leave his post to throw the switch. With one-man cars, this makes serious delay and fare collection becomes more difficult. Electric switches should be used wherever the headways are five minutes or less. Switches not electrically operated should be thrown from the car. Hand switch-irons long enough to permit this operation should be provided.

Observations showed that while there was opportunity for a great deal of coasting, very little was done.

of paving so required has recently been reduced 50 per cent. It should be eliminated entirely.

It has been the policy of the company not to set aside a reserve for renewals and retirements, but to keep the physical plant in condition by charging all current renewals to the maintenance account. Only actual additions to the plant, such as the addition of safety devices to cars, are added to capital account. The generally accepted practice, however, and one which guarantees greater protection of property and minimizes the fluctuations in the operating expense, is to set aside an annual reserve for renewals and retirements and to use it as needed. The company should accrue annually a sum for this purpose.

SAVINGS POSSIBLE BY PLAN

Table IV shows in detail the present operating cost per car-hour of the different types of equipment. An analysis of the savings possible from reducing the car-hours shows that for each hour saved expenses will be reduced as follows: Two-man car, \$1.658; one-man car, \$1.009; trailer, \$1.002.

Maintenance of equipment is not included in this estimate because it is considered later, but three-fourths of the maintenance of way car-hour cost was taken, as the ratio of the car-mile to the car-hour reduction is 3 to 4. No change was estimated for the general expense or taxes, so that the estimated savings should be conservative.

The total annual reduction in expenses that should follow all changes recommended is shown in Table V.

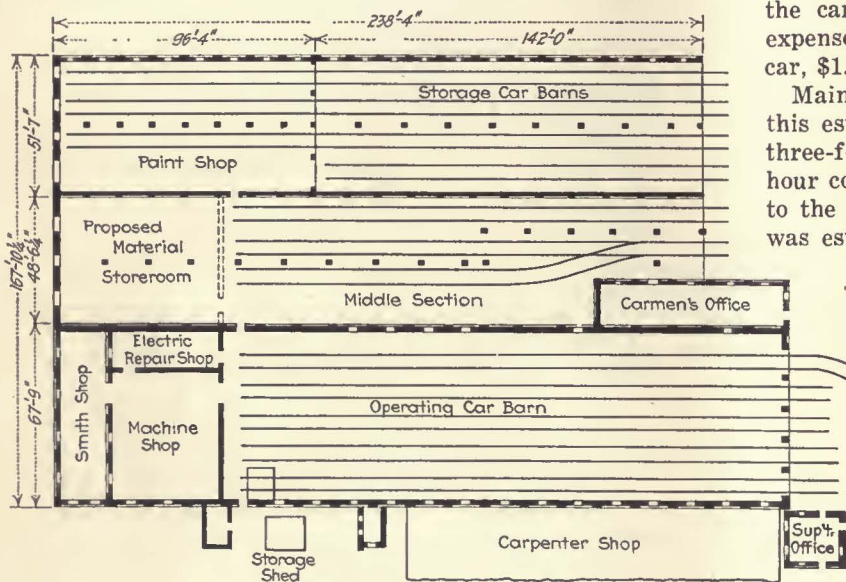
SHOPS AND CARHOUSE

Maintenance of equipment costs increased steadily until 1921, when the peak was reached. At that time the cost per car-mile was 6.1 cents, or 454 per cent higher than in 1913. The present figure of 5 cents per car-mile is 354 per cent greater than before

the war. This indicates either abnormal renewals or need for greater economy in the shops or both.

The general arrangement of the shops is good except that a storeroom should be provided in the rear of the middle portion of the carhouse as a time saver when securing materials. When the time is propitious a carpenter shop should be built in conformity with the rest of the surroundings. The completion of the remodeling of the cars, a more efficient use of labor and the decrease in the number of cars in service due to the new routing proposed will make it possible to reduce the cost of labor and materials as estimated in Table VI.

By reference to chart No. 8 on page 1086 it will be seen that in 1913, which may be taken as a typical pre-war year, 5.3 per cent of the operating revenue



Plan of Carhouse and Shops, Charleston, with Proposed Additions of Storeroom and Carpenter Shop

One of the standard forms of power saving devices should be adopted. Their efficient use reduces power consumption and gives more comfort to the passengers, as it necessitates more uniform acceleration and braking. Probably 10 per cent of the power cost can be saved after the power saving devices are paid for.

Reports from eighty-one electric railway companies in the United States for the first four months of this year show that approximately 7.1 per cent of the operating revenue is paid out in taxes. For the same period, the Charleston railway paid 9.5 per cent of its operating revenue for this purpose. Some substantial relief should be afforded the railway. In addition to the regular taxes the company paves a portion of the streets between and adjacent to the rails. The amount

TABLE IV—PRESENT OPERATING COST OF DIFFERENT TYPES OF EQUIPMENT, BASED ON MAY, 1923, EXPENSES

	Present Cost per Car-Hour		
	Two-Man	One-Man	Trailer
Power	\$0.281	\$0.188	\$0.188
Maintenance way and structures	.338	.225	.282
Maintenance equipment	.459	.229	.153
Operation of cars	1.390	.960	.910
Damages	.163	.122	.122
General	.182	.164	.164
Taxes	.194	.146	.146
Total	\$3.007	\$2.034	\$1.965

TABLE V—ANNUAL SAVINGS POSSIBLE BY CHANGES RECOMMENDED

	Annual Saving
138 two-man hours daily at \$1.658 each, equals \$229 daily x 365 =	\$83,600
70 one-man hours daily at \$1.009 each, equals \$71 daily x 365 =	25,900
2 trailer hours daily at \$1.002 each, equals \$2 daily x 365 =	730
Due to power saving devices	4,100
Shop readjustments (labor)	14,800
Shop readjustments (material)	12,700
Carhouse readjustments (labor)	6,700
Total	\$148,530

TABLE VI—ESTIMATED ANNUAL SAVINGS AT SHOPS AND CAR HOUSE

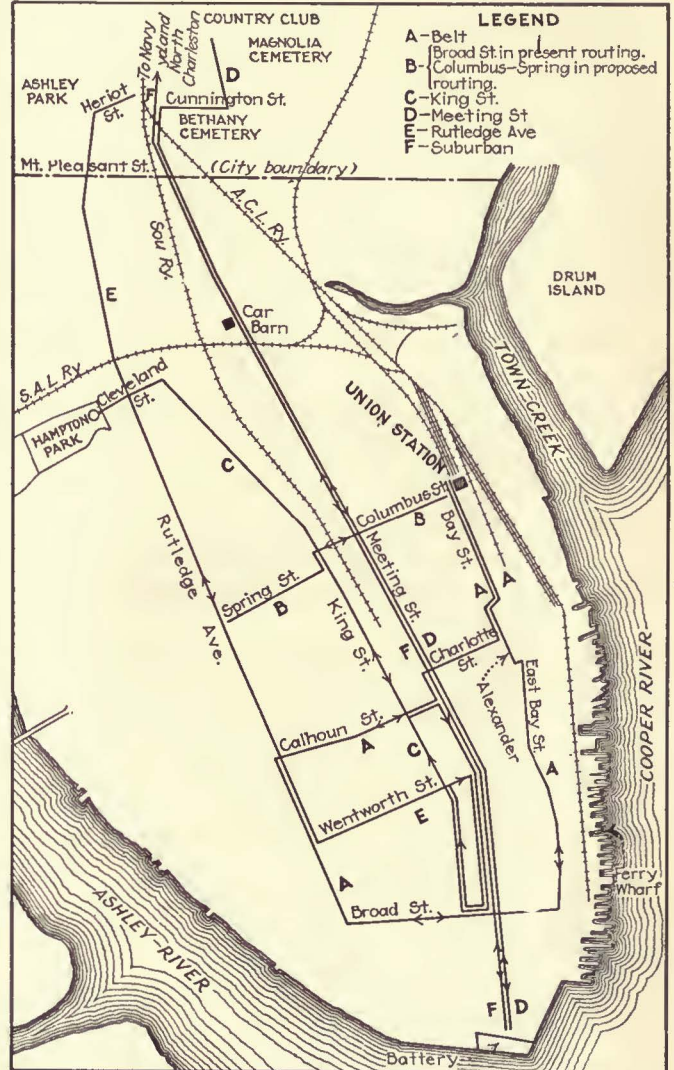
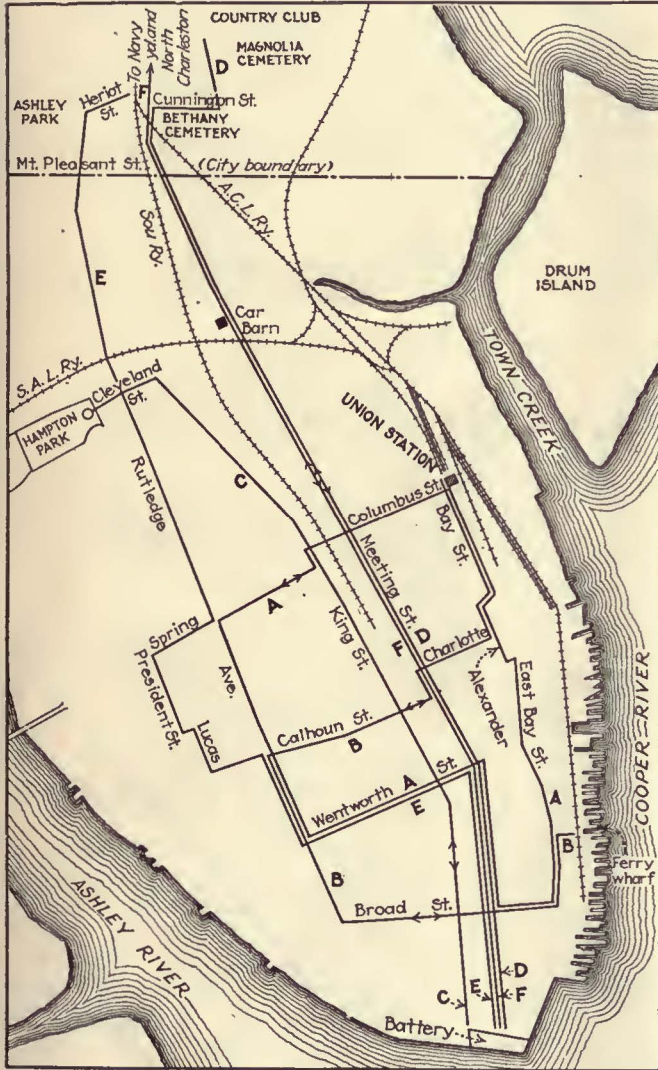
Payroll reduction (shops).....	\$14,800
Payroll reduction (carhouse).....	6,700
Saving in materials.....	12,700
Total annual saving.....	\$34,200

was required to cover maintenance of equipment costs, while for the first five months of 1923 16.5 per cent was required. Similarly, in 1913 these expenditures represented 7.8 per cent of the total operating expense, while now they are 15.5 per cent or double. This account should be normally about the same percentage of the total expense.

A very considerable portion of the increase in recent

temporary shed to care for the increased work in connection with the remodeling of cars. The present carpenter shop structure will need rebuilding in a few years. By that time the company may expect to be on a better financial basis and a building should be constructed in conformity with the rest of the plant.

The material store house is located in the old power house across the street. This requires a walk of approximately 1,000 ft. when material is required. The rear portion of the middle section of the carhouse is little used except as a place to pile junk. It should be cleared out and used as a store room that will be readily accessible from the shops. The cost of making the store room changes should not be a great deal. The



Maps Showing Present and Proposed Routes on the Charleston Railway

years is, undoubtedly, due to deferred maintenance. Some of it is due to renewals and betterments to the present rolling stock. As there is no special reserve for renewals of this nature, these costs are being charged directly to operations.

ARRANGEMENT OF SHOPS

The general arrangement of the shops is shown in the plan on page 1084. They are well located with respect to the carhouse. The electrical, machine, blacksmith and paint shops are housed in the main brick structure. The carpenter shop, however, is a frame lean-to on the south side of the main building. This frame structure was recently enlarged by addition of a

saving in time and labor in routing the materials should soon repay this expense.

The machine tools are in good condition and with the remodeling of the cars finished any replacement is hardly justified at the present time. A shaper or a milling machine would be a time saver in turning out light work. A check on the number of operations that would be done on this machine with the normal maintenance work should be made and the cost compared with that of similar work done by present methods. It is probable such an investment would be justified.

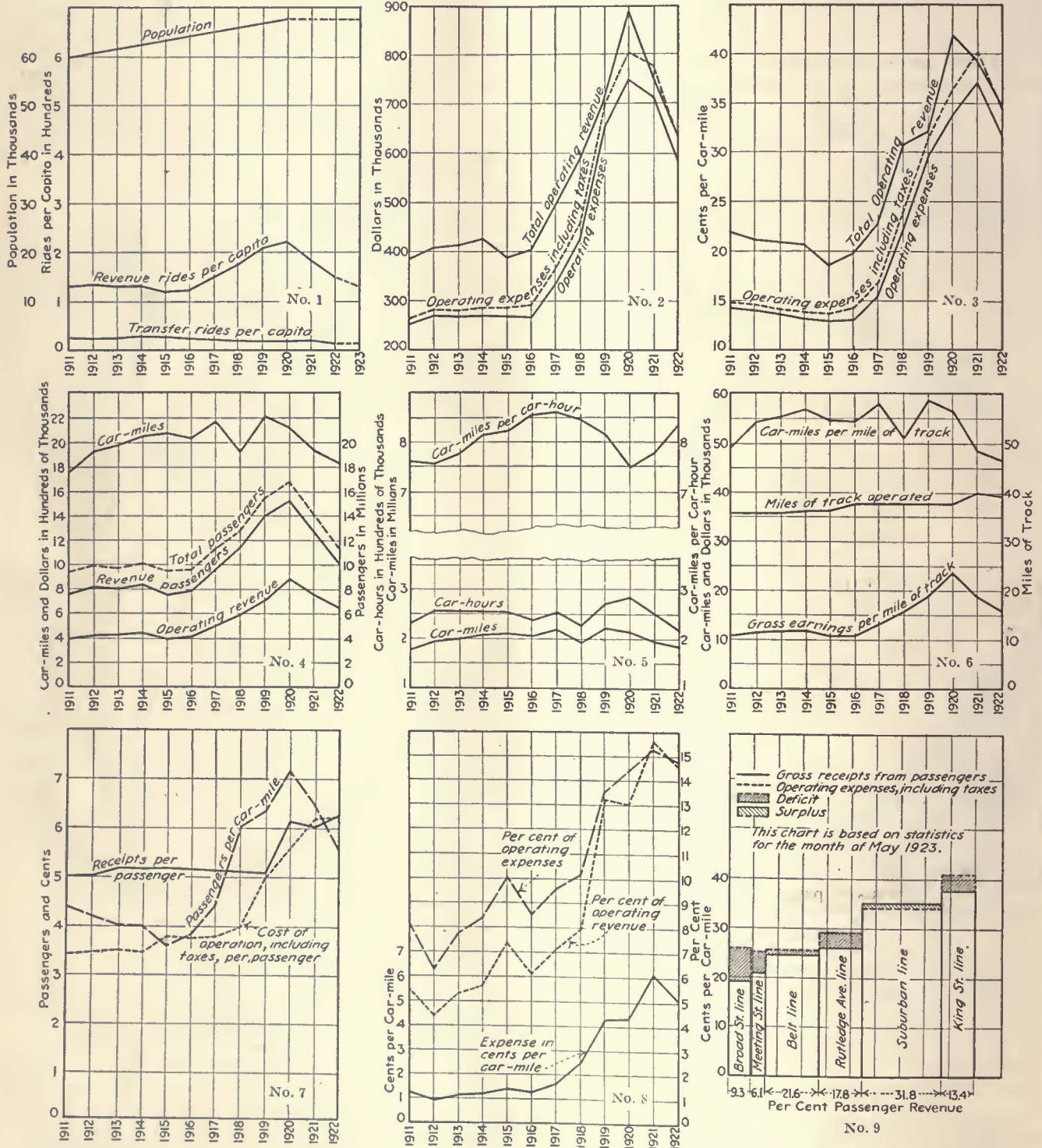
A large portion of the woodworking machines were purchased in 1921, so there should be no need for additions at this time.

With the remodeling of the cars completed, a reduction in the shop force is contemplated, leaving just enough help to care for the current maintenance. The decrease in the number of cars in service, with the proposed routing in effect, will reduce the labor requirements still further. Fifteen men may be dropped from the payroll, with a weekly saving of \$364.50 from the present weekly payroll of \$791.10. With a smaller force, administrative duties will be easier and a closer check on the work will be possible.

Based on the five months ended May 31, 1923, the annual cost of materials for equipment maintenance is \$52,800. With the recommended routing effective the material costs should be reduced approximately in the same proportion as the number of car-miles operated, or an annual reduction in the material cost of \$12,700 may be expected.

The carhouse can also be operated with a smaller force and the weekly payroll reduced at least \$129.60.

The adoption of all of the recommendations in this



Statistical Graphs of the Charleston Railway Property

No. 1. Population and rides per capita.
 No. 2. Revenue and expenses.
 No. 3. Total revenue and expenses per car-mile.
 No. 4. Car-miles and number of passengers

carried, compared with operating revenue.
 No. 5. Car-miles, car-hours and the car-miles per car-hour.
 No. 6. Car-miles and gross earnings per mile of track.

No. 7. Passenger statistics.
 No. 8. Maintenance of equipment costs in cents per car-mile.
 No. 9. Receipts and expenses per car-mile by routes.

report should be of permanent benefit to both the public and the company. The faster and better distributed service should stimulate business. Reduced congestion will benefit the general public as well as the car rider and the user of the automobile. The merchants and property owners will benefit from the enlarged delivery area and the better distribution of cars through the business district.

The plan will enable the railway to take an important step toward being self-sustaining, as with the plan herein effective a saving of \$148,530 in operating expenses can be made. Supplementing these economies, further steps may be taken to improve the net earnings of the railway in three ways: (1) By the people of Charleston patronizing the railway more; (2) by curtailing the proposed service and introducing further economies; or (3) by raising the fares.

The railway deserves more patronage as the low per capita earnings show. An increase of one dollar per capita, or 2 cents per week, would practically wipe out the deficit. The schedules and service proposed in this plan will readily care for 15 to 20 per cent more riders. A 13 per cent increase in the revenue passengers would enable the company to operate without a deficit. This may result from changes in population or from in-

creased riding. If from the latter alone the riding habit must go up from 130 to 147, which, although more nearly what it should be, is a considerable increase over the present.

To curtail the service from that which is proposed is not desirable if any other way out can be obtained. Economies other than those recommended are not desirable from a service standpoint.

At the present time a combination of increased fares and more patronage is a practicable solution. If a straight 7-cent fare for adult city passengers were adopted it is estimated that the railway revenues will be increased \$22,500 annually. Possibly the people of Charleston, when they understand this situation, will avail themselves of the service to a greater extent and thus tide over the necessity of either lowering the standard of service or of increasing the rate of fare above 7 cents.

Fares to be equitable must always be based on the cost of rendering service. High costs mean higher fares. As the costs recede the fares should do likewise. At no time, however, can any progressive community prosper with poor car service even though such service is tolerated by the public in order to secure a low rate of fare.

Capitalizing on the Coffin Prize

How the Chicago, North Shore & Milwaukee Railroad Is Turning the Winning of This Award to Good Account—Its Value as a Publicity Asset Is Being Fully Utilized in Newspaper Advertising, Window Displays and Company Publications—The Cover Design of the Prize-Winning Brief Has Been Reproduced on Dining Car Menus and on Attractive Souvenir Calendars

REALIZING the immense value of the Charles A. Coffin prize as a publicity and merchandising asset the management of the Chicago, North Shore & Milwaukee has been quick to apply it. The prize has also been put to use to give an incentive for building up a still greater pride and *esprit de corps* within the organization. The work already done has taken many different forms and still further applications are contemplated for the future.

As the first step in the program, the report of the Charles A. Coffin Prize Committee and the remarks accompanying the presentation of the prize have been made the basis of a series of large advertisements. Weekly insertions are being made in seven Chicago papers, five Milwaukee papers, two papers in Racine and two in Waukegan. In addition, these advertisements are being published in the local papers of Kenosha, Libertyville, Lake Forest, Highland Park, Winnetka, Wilmette, Glencoe and Evanston. This list includes practically all of the larger communities along the line.

A reproduction of the certificate of award was published first. This is being followed up by a series of seven advertisements quoting excerpts from the report of the committee. The seven advertisements are the same in form, the excerpts being inserted as shown in the illustration. Several of the other quotations are given below:

5. Because of improvements in construction practice, which have resulted in reduced first cost, reduced maintenance or greater reliability of service.

"Construction methods which are contributing to the general success of this company include new and better power station equipment; a program of rock-ballasting the entire system is 60 per cent completed; the old light rail is being replaced with 100-lb. rail and concrete and brick platforms are replacing wood at the stations."

—From Report of Committee on Award.

6. Because of particular success in conducting a safety program, and actually reducing the number and seriousness of accidents.

"In fostering greater safety in operation, this company has succeeded in reducing injury and damage claims to 1.82 per cent of the gross. The record was one accident per 16,081 car-miles in 1922. Lectures, safety meetings, safety recommendations. 'Safety First Car' and first-aid drill teams are part of the company's notable safety work."

—From Report of Committee on Award.

7. Outstanding accomplishments in development of good relations between management and employees.

"The fact that your company has secured the award of the Coffin Foundation is proof positive that the greatest spirit of co-operation must have existed among all men concerned, in the operation of your railway system."

—Mr. Emmons, Chairman Committee on Award.

It is expected that this series will be carried still further when the existing program is completed.

AWARD ALSO USED IN ADVERTISING NEW SECURITIES

The value of the award as a merchandising asset has also been applied in a campaign conducted for the procurement of new capital. Advertisements for the sale of the company's 7 per cent prior lien stock carry a reproduction of the front and back of the medal with the following statement beneath:

"Awarded October 11, 1923, for distinguished con-



**Why
The North Shore Line
won the first
CHAS. A. COFFIN MEDAL**

*at the Convention of the American Electric Railway
Association, October 11, 1923, Atlantic City, N. J.*

**1—Because of the particular initiative,
skill and enterprise manifested in
popularizing electric railway service.**

"From the representations of the winning company, the committee finds, that on this property, there has been carried to fruition most of the things that have been talked about for years, as the remedies for various troubles. On this property the remedies have not only been talked about; they have been EXECUTED."
From Report of Committee on Award

**CHICAGO NORTH SHORE and MILWAUKEE
RAILROAD COMPANY**

An Example of General Newspaper Advertising in Which Excerpts from the Committee Report Are Quoted

tribution to the development of electric transportation." These stock advertisements are in addition to the general advertising series and are being run in the same papers in which the general advertising campaign is conducted.

USED IN WINDOW DISPLAY AND COMPANY PUBLICATIONS

Very shortly after the award was made a large scale reproduction of the medal was prepared and was made the center of a window display in the Edison Building, where the company's offices are located. This display created a great deal of comment and interest and has since been moved to the terminal passenger station in Milwaukee.

The company included a description of the award in the "North Shore Bulletin," which is a monthly booklet prepared for circulation among patrons of the line and residents along its route. A similar item was published in the "High Ball," which is a monthly employees' publication, and in the Chicago Elevated Railway's publications, the "Elevated News" and the "High Line." The combined circulation of these papers is approximately 75,000 monthly.

Framed photographic reproductions of the certificate which accompanied the medal have been hung in the various stations along the company's route. Four-color reproductions of the cover of the prize-winning brief have been utilized on the covers of the dining car

menus, along with pictures of the front and back of the Coffin medal.

This colored cover design has been further utilized in making up a wall calendar. On each page of the date pad the front and back of the medal are pictured. It is planned to distribute the calendars as souvenirs at the opening of the new Wilson Avenue passenger station just nearing completion. In addition they will be mailed to a selected list of women representing various club and civic activities in the communities along the line of the road.

Bronze watch fob replicas of the medal have been made up. These are being distributed to employees and will also be used by the traffic department for distribution to employees of shippers doing business with the North Shore Line.

The management contemplates further application of the award in its general publicity program. It will probably be used as the basis for some of the posters with which the road has been so successful in the past in creating favorable attention and comment. By extension to its billboard advertising and to car card publicity it is expected that public confidence and good will toward the company can be still further stimulated through this evidence of merit presented by the industry of which it is a part.

**How Economy in Current Was Obtained
in El Paso***

THE business center of El Paso is very close to the river on the south, and the development of the city has been, therefore, confined to a northward growth. This growth has been made more difficult by reason of the fact that a chain of mountains extends through the northern part of the city, terminating just outside of the business district.

Innumerable hills and curves increase the kilowatt-hour consumption of the cars of the El Paso Electric Railway, as is evidenced by the fact that when an experiment with friction bearings was conducted by the company on the only level line operated, a lower power consumption was experienced with these cars than with the ball-bearing type on other lines. The total mileage of city lines in El Paso is 42.2 on a single track equivalent. Of this amount 22.1 miles is paved.

All of the company's cars are equipped with Economy meters, and a careful record is kept of each man's and each car's performance. An individual inspector is in charge of this phase of operation and keeps comparative records which are posted for the benefit of the men, and which also are published in the company's periodical, "Cactus Points." Where he finds that certain men are using more than the average amount of current, he studies the particular case and usually ascertains and corrects the cause.

The use of these meters by this Texas company, and the system in connection with them, have been instrumental in helping reduce the current consumed. This is shown by the average kilowatt-hours per car-mile for the system, which in 1920 was 1.765; in 1921 was 1.65; in 1922 was 1.52; and in 1923, based upon operation during a period of seven months, the kilowatt-hour consumption was 0.88.

*This article is based on material included in the brief submitted to the Charles A. Coffin Prize Committee of the American Electric Railway Association by the company named.



Single Sash Windows of Unusual Height Admit Plenty of Light in the New Cars of the P-O Electric Company

Simplicity of Arrangement Features New P-O Cars

All Pipes, Wires, Switches, Engines, Etc., Are Inclosed in Cabinets
—Advertising Cards and Luggage Racks Have Been Eliminated in
Order to Improve the Interior Appearance—Woodwork Is of Mahogany

By *Richard N. Graham*

Manager of Railways Pennsylvania-Ohio Electric Company, Youngstown, Ohio

WITH the idea of creating a car which would bear the same relation to the ordinary interurban electric car that the coaches of the Pennsylvania-Ohio Electric Company bear to the ordinary bus, several departures from conventional practice have been made in the design of the new cars placed in service on Oct. 28. Three principal objects were sought. In the first place, simplicity of arrangement was desired for the purpose of facilitating cleanliness and improving the appearance of the interior. All pipes and machinery were, therefore, inclosed in cabinets. In the second place, the company wished to make the car as comfortable as possible for the passenger. In the third place, it was desired to speed up passenger movement, not only boarding and alighting but also within the cars, and doors and aisle were specially designed for this purpose.

The cars are operated from Youngstown to New Castle, a distance of 20 miles, and from Youngstown to Sharon, a distance of 15 miles. On these routes the headway is thirty minutes throughout the day and evening until midnight.

Both lines have comparatively heavy traffic, with considerable passenger interchange. This is particularly true of the Youngstown-Sharon line, where there are a number of very heavy loading points.

The new cars weigh 37,000 lb. and take the place of an older type interurban car weighing approximately 75,000 lb. Each car is equipped with four G. E. No. 265 motors of 35 hp. capacity. Four Westinghouse No. 317, 90-hp. motors constituted the equipment of the cars which are now being retired from service, but it is

expected that the new cars will handle the same traffic at the same schedule speed as the cars for which they are being substituted.

Because of the simplicity of the design and the quality of the material, the interior of the car has an unusually pleasing appearance. No stanchions of any kind are used in the car. Luggage racks and advertising signs have been eliminated. From the tops of the single sash windows up to the roof the sides are finished in genuine mahogany with a simple panel effect. The same finish is used for switch cabinets, controller, and the casing



Both Entrance and Exit Are Normally by the Front Door, but an Emergency Door at the Rear Is Also Provided



Mohair Velvet Seats Are Permanently Fixed at a Comfortable Angle, and the Interior in General Is Free from All Unsightly Mechanisms

for the engineer's valve. All switches are inclosed in a Detroit switch cabinet, which is painted to conform to the general scheme of decoration. It is placed under the left front window out of the way of the operator or passenger. The unsightly pipes leading to the engineer's valve are inclosed in sheet-steel cover, finished in conformity with the woodwork. Where it was necessary to install conduits inside the car body leading to the control apparatus, they were similarly inclosed. A feature of this car, therefore, is the minimum display of apparatus. The machinery is of no more prominence than in the interior of a well-appointed automobile.

In order to admit plenty of light, the bottom panel of the side frame was made unusually low, so that the lower part of the window sash is just opposite the elbow of a seated passenger. The cars were constructed with



Air Pipes Leading to the Engineer's Valve Are Hidden Behind a Sheet-Iron Shield

single sash windows, so that this sash might have greater height. All windows are plate glass. The bulkheads have been eliminated and the end windows and those opposite the doors were made of the maximum possible width and height. The result is that even on a cloudy day in a region which has an unusually cloudy climate the interior of the car appears bright and cheerful.

The elimination of the double sash and of all exposed piping or apparatus of any kind that would furnish a lodging place for dirt has facilitated the work of keeping the car interior clean and sanitary. Special washing facilities for these cars are now being installed in the inspection barn from which they are operated. For this purpose, a vacuum cleaning process will be used. As there is no provision made in the cars for bulletins, signs, notices, advertisements, or any other sort of publicity or propaganda, another fruitful source of dirt and trash has been eliminated. The company believes that the passengers should bring their own reading matter aboard the cars.

Carlines have been inclosed in mahogany cross-beams, while another beam runs longitudinally the full length of the car. Elsewhere the ceiling is finished in ivory white enamel. The ceiling thus has a beamed effect. This effect is carried out into the vestibule by a special sheet-metal vestibule hood, which also is finished in white enamel.

ADEQUATE LIGHTING AND COMFORTABLE SEATS

For artificial lighting at night, Brascolite lighting fixtures have been installed along the center of the roof. Each fixture contains a 93-watt light. In combination with the white enameled ceiling, already mentioned, these lights provide effective illumination, so that the passengers can read newspapers with ease at all points in the car.

Maximum comfort for the passenger is provided by the high back seats with deep spring cushions. The cars were arranged for single-end operation with the specific idea in mind of having a stationary seat that would have the proper pitch to be the most comfortable. Arm rests are provided on both sides of each seat. The seats are sufficiently roomy for two large men wearing overcoats to sit side by side in perfect comfort.

The floor is covered with battleship linoleum and the seats are upholstered in Chase mohair velvet of figured design. The color of the upholstery harmonizes with the mahogany trim. The operator's curtain corresponds in color and appearance to the upholstery of the seats.

An Ohmer fare register is installed on a mahogany cabinet containing pigeonholes for transfers and the operator's reports. Space is provided there also for two electric lanterns, one with a red bull's-eye and one with a white bull's-eye, which are used by the operator for signaling purposes instead of oil lights.

Ingress and egress of passengers are accomplished through a large double door at the front end. There is also an emergency door at the rear which can be opened by passengers whenever an emergency stop is made. The aisle is unusually wide, and the farebox is located so as not to interfere in any way with the free movement of passengers.

A single seat just back of the front door was originally included in the design, but this has now been eliminated and the sand box under this seat has been inclosed in a mahogany cabinet.

Keeping the Cars on Schedule*

Organization and Operation of Dispatching System of Kansas City Railways Is Briefly Told—
Effective Check of Car Operation in the Field Has Served to Produce a High
Standard of Service—Company Police Department a Great Aid

IN ORDER to correct unavoidable disarrangements of service at their very inception, the Kansas City Railways has developed a dispatching system which has contributed materially to the building up of increased patronage and has resulted in other direct and indirect economies coming from the more efficient utilization of equipment with the accompanying saving in platform expense.

This dispatching system was laid out on a basis that would provide vigilant supervision and prompt action through immediate contact with service by men in the field. Besides endeavoring to make efficient schedules, the company has a system of control through its dispatchers and inspectors which provides forty-five men on the street during rush hours to assist in traffic regulation, proper spacing and prompt action in case of imperfections in the service. Service irregularities have been reduced to a minimum, where prompt action is possible through the speedy transmission of intelligence and dispatching of relief for such troubles as wrecks, trolley breaks and accidents. Incidentally, all emergency trucks and similar equipment carry police sirens.

The dispatching organization comprises a chief dispatcher and three assistant chief dispatchers, located at the main office, who, in three shifts, carry the work continuously through twenty-four hours, and dispatchers, inspectors, company police, motorcycle inspectors, division officials.

PRIVATE TELEPHONE SYSTEM GIVES DISPATCHER DIRECT CONTROL

The dispatching desk is connected directly with twenty-six dispatchers' booths located at strategic points over the system. In addition, the dispatcher has direct telephone communication with pole box telephones located at fifty-one intermediate points on all lines of the system. All these telephone connections with the dispatcher's desk are over private wires.

The assistant chief dispatchers keep a record of all the calls from field dispatchers, inspectors, company police, division officials, etc., listing all delays of over five minutes, all accidents and all occurrences pertinent to the operation of the system. These are tabulated and a typewritten report for each day is on the desk of the superintendent of transportation by 7 o'clock the following morning. These men also carry out the dispatching orders of the chief dispatcher, reroute cars, fill in spaces, handle emergencies, dispatch emergency tower wagons, trucks or wreck cars, police or medical aid, and act as the nucleus for transmitting orders and receiving reports for the entire system.

The dispatchers located at the twenty-six booths scattered over the system at strategic points are on duty eighteen hours a day. They check and correct on the street irregularities in headways and schedule distortion. They report to the chief dispatcher all delays or



One of the Twenty-six Dispatchers' Booths Located at Strategic Points on the Kansas City Railways System

These booths are electric lighted and heated and equipped with telephone, schedules of all lines passing the booth, information of the city and the system, and with miscellaneous equipment such as switch bars, spare trolley poles, fuses, replacers, pick-up sticks, jacks and chains, light repair kit and fire extinguishers.

failures of over five minutes. They keep a typewritten record of the time of arrival and the load of every car passing the stations. They observe and report any defects noted in passing equipment to the assistant chief dispatcher, with the result that defective equipment is promptly removed from service. In addition to the duties already mentioned, these men act as public information stations, sell tokens and tickets and are in every respect branch offices of the main office for the convenience of the public.

The inspectors, dressed in a uniform which is distinctive from the trainmen's uniform, are stationed at heavy points during the rush hours. They assist in loading and moving cars and act as traffic officers when necessary. They transmit orders to trainmen, check up defective equipment, report violations of rules, assist the public in every way possible and see that cars

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are given preference over vehicular traffic at all intersections. These men are all commissioned police officers and they act in perfect co-operation with the police department, by which they are recognized. During the non-rush hours, the inspectors travel over the lines constantly, looking for improper operation, schedule distortion and keeping in constant touch with the chief dispatcher through the pole telephones.

In addition to the regular inspectors, the company employs four motorcycle inspectors, working in two shifts of ten hours each. Their duties and authority are the same as those of other inspectors. They function particularly in cases of fire, accidents or other emergencies. Their motorcycles are equipped with sidecars so that they can transfer trouble men, division officials and others rapidly and can carry emergency kits. They also assist in handling parades. They are commissioned officers and wear a uniform similar to that of the motorcycle police and their cars are equipped with police sirens.

THE RAILWAY HAS A POLICE DEPARTMENT

The Kansas City Railways also has a police department which is said to be unique among street railway companies. It consists of a chief and a day and a night captain and fourteen officers. The police department is on duty twenty-four hours a day. Use is made of a fast automobile equipped with a police siren, and every man in the department is an ex-police department officer, commissioned by the city and given equal authority and rights as regulation police officers. These men answer accident calls, handle crowds, secure names of witnesses, assist in caring for the injured, keep the streets clear. Their police authority renders them invaluable in such emergency cases. They assist in clearing up parades and make arrests of traffic violators or disturbers, if necessary. In times of heavy traffic movement at parks, ball games, parades and other special events, they report to the chief dispatcher and assist in distributing the load, preserving order and in exercising general police authority. These men are also used as guards and watchmen at all points where money is handled.

In addition to the regular company police department, there are 115 police commissions in the transportation department. These were granted by the police commissioner and the railway employees so commissioned are regarded by the police department as regulation officers with power to make arrests, handle traffic and perform other duties of a similar nature.

The entire dispatching organization works in conjunction with the traffic checking department of the railway. The daily reports of car arrival time and loads kept by each dispatcher, combined with the reports of the traffic checking department, give a daily traffic check and survey of every important line. As a result, the superintendent of transportation and the general manager have on their desks each morning the loading check, car receipts, car-mile receipts and total receipts of every important line, together with the platform operating expense of each line. Thus the schedules may be and actually are adjusted daily, as occasion requires.

The results of this comprehensive dispatching system are readily apparent. The company states that in spite of hills, narrow streets and vehicular congestion, it is able to maintain high service standards with delays reduced to a minimum. Train crews are constantly

checked, discipline is better enforced, and accidents and emergencies are more expeditiously handled as a result of the dispatching system.

Company Does Paving at Cost for City*

AN INTERESTING example of the way in which an electric railway company, by means of its trained organization, can be of help to a city government is shown by an incident which occurred in Colorado Springs a little more than a year ago. This city of about 40,000 inhabitants decided to put through a considerable job in paving, which the city engineer estimated would cost approximately \$1,100,000. Four of the principal streets of the city were involved, and on one of these the Colorado Springs & Interurban Railway maintained a double-track railway about 3 miles in length.

The city advertised for bids, but when they were received they were found to be in excess of the engineer's estimates, except for a small proportion of the work. The specifications for the rest of the work were then changed and new bids were requested, but these also were considered unreasonably high by many of the citizens. The railway company then made the following offer to the city, to wit: If the Council would reject all the present unsatisfactory bids, the company would do the work on that part of the undertaking for \$5,000 less than the lowest bid which the city had received up to that time. It agreed also in separate provisions to do the work without profit of any kind, that the cost would not exceed that already mentioned, and finally that while it would have to purchase certain equipment to do the work, this equipment would be considered a part of the cost of doing the work and be turned over by the company to the city at the expiration of the contract.

This offer was accepted, and when the contract was finally completed, which was about Nov. 1, 1922, it was found that the company had saved the city \$200,000 in cash and had turned over to the city the equipment which it had purchased at a cost in excess of \$96,000.

Incidentally, the company found that the work that it had to do itself in connection with its own track in this repaving undertaking had been done at a cost of some \$30,000 less than the lowest bid made by any contractor, and that it had obtained a much better class of work.

Transportation Conference

A CALL for a national conference on transportation, to be held in Washington, Jan. 9, 10 and 11, was issued on Dec. 25 by Julius H. Barnes, president of the Chamber of Commerce of the United States. The discussions at this conference will relate to recent reports of committees of the national chamber on the following phases of the transportation question: (1) Governmental relations to transportation; (2) railroad consolidation; (3) readjustment of relative freight rate schedules; (4) highways and motor transport; (5) co-ordination of rail and water service; (6) taxation of common carriers. Abstracts of the committee reports, 4 and 6, which relate more closely to electric railways than any of the others, were published on pages 903 and 905 of the issue of this paper for Nov. 24, 1923.

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Washable Seat Covers Prove Popular on Interurban Line*

A CAUSE for complaint among patrons of the Northern Texas Traction Company, Fort Worth, with regard to the interurban cars used to be that the leather backs of the car seats in many cases soiled their clothing. To overcome this the company has equipped all the interurban cars in limited service on the Fort Worth-Dallas line with slip-on covers which extend over the seat backs for a distance of 12 in. from the top.

These covers are made of regular automobile seat covering, duck No. 2430. It requires 1 yd. 4 in. of the material at 35 cents per yard to make one cover and the labor and other costs are about 20 cents, making each one cost approximately 59 cents. The average life of a cover is several months, and during the year they have been in use only \$30 has been spent for repairs, outside of the regular replacement of worn-out covers.

A contract has been made with a local laundry to wash these covers at 1 cent each and every set is washed once in fifteen days. These covers give a pleasing effect to the car interior as well as prevent dirt being rubbed off the seats onto the clothes of the passengers. Many favorable comments have come from patrons of the line, and the improvement has increased the popularity of the Fort Worth-Dallas limited service with only a very small increase in expense.

Prizes for Helpful Suggestions*

TWO methods of encouraging helpful suggestions from employees for the improvement of the service or more economical operation are being practiced by the Colorado Springs & Interurban Railway. One of these is to offer prizes for the best suggestions of this kind submitted by employees. An offer of this kind, with first prize of \$100, second prize of \$75, third prize of \$50, and fourth prize of \$25, was made by this company in 1923. Prizes are awarded at the end of each year by a majority vote of the board of directors. The vote of the directors is taken without knowledge as to who made the suggestions.

All suggestions must be in writing. A number have already been received and some have been adopted and put into force. The men are taking great interest in the plan.

A second method of stimulating interest in improvements in the practice of the company was begun in

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February, 1923, in the form of monthly luncheons for the superintendents and the foremen with the president of the company. At these luncheons the foremen read papers prepared by themselves upon the work of their respective departments, and this is followed by general discussion, either of the points brought up in the paper or of any other matters that the foremen feel may be of interest to the company. The papers are typewritten, and a copy is delivered to each of the directors of the company. It has been found that the foremen at these meetings will make suggestions for improvement of the service and economies in operation which they might otherwise hesitate to make to the superintendent for fear that such suggestions might be considered as criticisms of his management. Another benefit from the plan is that the directors of the company gain a better understanding of the details of the operation of the system through the reading of these papers than they might otherwise have.

Piling Coal with Bus and Trolley

MOST people who use coal in the Eastern States, whether individuals or company officials, did what they could last summer to have a sufficient supply for this winter. Among other companies, the Connecticut Company put in a quantity of coal for power and heating purposes.

A visit in July to the Mount Vernon Street carshops in Hartford of the Connecticut Company disclosed a novel method of piling the coal purchased for heating purposes in those shops. A supply of from 600 to 700 tons was being put in outside storage, and after being discharged from the coal wagons had to be piled. This might have been done by hand or with a scoop drawn by horses, but a much more rapid and economical way was being followed with a scoop operated by a car and bus. This shovel was connected to a cable which ran over a sheave attached to a pole near the top of the coal pile and then over a sheave near the bottom of the pile. By this cable the scoop could be hauled to the top of the coal pile. Another cable attached to the scoop passed over a sheave near the bottom of the pile. This enabled the scoop to be pulled down. One of these wires was connected to a trolley car and the other to a bus.

The only operators required were one for the trolley car, one for the bus, a man at the bottom of the coal pile to fill the scoop and a man at the top of the coal pile to empty it.

The trolley car by backing would then haul the scoop to the top of the pile, and after it was emptied, the bus would haul it down again.



The Car Pulls the Shovel Loaded with Coal to the Top of the Pile and the Bus Pulls It Down

Through Trains Out of Indianapolis

TWELVE through passenger routes are now being operated out of the Indianapolis joint terminal. The following table gives these routes, running times and number of trains daily:

Through Trains from Indianapolis to	Miles	Running Time		Trains Daily Each Way
		Hours	Minutes	
Fort Wayne via Anderson, Muncie and Bluffton (Limited).....	126	4	50	7
Fort Wayne via Anderson, Muncie and Bluffton (Hoosierland).....	126	3	55	1
Fort Wayne via Kokomo, Peru and Wabash (Wabash Valley Flier).....	136	4	10	1
Goshen, Ind.....	160	5	20	1
Louisville, Ky*.....	117	3	45	7
Terre Haute, Ind.....	72	2	25	7
Marion, Ind. (Limited—connecting at Anderson)	72	3	30	12
Marion, Ind. (Marion Flier).....	72	2	40	1
Lafayette, Ind.....	70	2	35	7
Richmond, Ind.....	70	2	35	7
Muncie, Ind. (Limited).....	57	2	20	16
Muncie, Ind. (Muncie Meteor).....	57	1	50	1
Connersville, Ind.....	58	2	0	13
Greensburg, Ind.....	49	1	45	12
Dayton, Ohio (Way).....	109	4	15	4
Dayton, Ohio (Limited).....	109	3	55	3

*Also six trains connecting at Peru for Goshen.

Automobiles Flatten Traffic Curve

MANY railway managers realize that the large business which they used to do in the summer has gone to the automobile, but all perhaps have not definitely determined the extent to which their traffic has been so affected. The influence on one road, the Eastern Massachusetts Street Railway, is shown by the accompanying chart. This chart gives the traffic for each

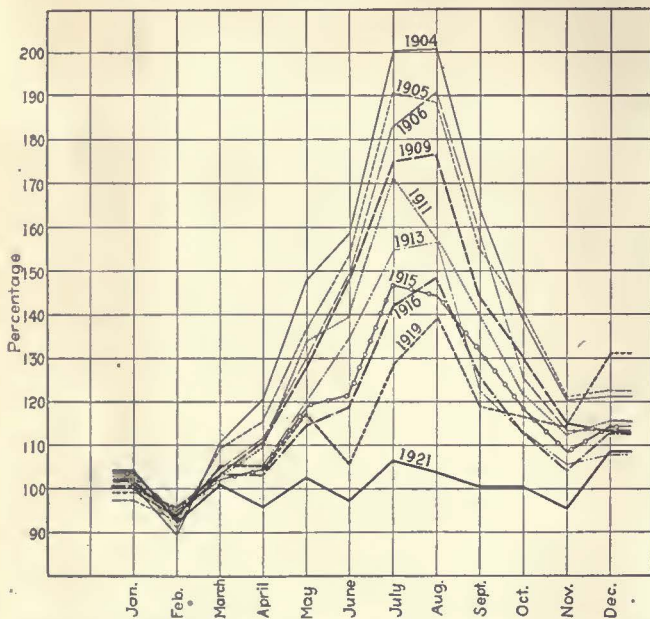


Chart Showing Seasonal Variation for a Number of Years on System of Eastern Massachusetts Street Railway

month of several years, in percentage of the average business during January, February and March of that year, for the company mentioned and for its predecessor, the Bay State Street Railway. The years whose traffic is thus charted are ten in number, selected at intervals from the past eighteen years.

As will be seen, the chart shows a constant decrease in ratio of summer business to winter business. Curves for individual lines naturally would show some variation from the combined curve, as the Eastern Massachusetts system is made up of a number of city lines, as well as suburban lines, but the effect mentioned is shown

in practically all of them to some extent. The curve is affected somewhat, of course, by the discontinuance during the past few years by the trustees of the Eastern Massachusetts Street Railway of some 200 miles of track. Probably the summer peaks on these lines has been higher than on the rest of the system.

Education in Milwaukee

Thirty-one Courses Are Offered by the Employees' Benefit Association This Year—Cost of the Work Is Borne by the Association

FOR a number of years the Employees' Mutual Benefit Association of the Milwaukee Electric Railway & Light Company has conducted classes on various topics directly or indirectly connected with electric railways and electric lighting. The courses are under the direction of Prof. H. A. Rowland, educational director of the company.

This year the bulletin announcing these courses showed thirty-one courses altogether, divided as follows:

In mathematics: arithmetic review, advanced arithmetic, shop arithmetic, algebra, trigonometry, calculus and calculating machines.

In electricity: direct and alternating current principles, electrical experiments, electric motors, transformers, rotary converters and rotary condensers, storage batteries, high-voltage problems, electrical instruments, the electrical distribution system, car electrical equipment.

In mechanical subjects: blueprint reading, sketching, lettering and curve drawing, the automobile.

In power plant courses: power plant engineering No. 1, steam engines, steam turbines, power plant engineering No. 2, power plant engineering No. 3.

General: psychology, economics of labor, English for the foreign born, English for engineers, quiz class in accounting.

Most of the lessons are held in the evening, but there are some starting at 12:30 p.m. The class period is usually one and one-half hours.

Any member of the benefit association is eligible to join the classes, but in some of the more advanced work the primary course is required. Certificates are granted to those who complete courses, but to secure a certificate a grade mark of more than 70 per cent and an attendance record of more than 80 per cent of the class periods are required. It is also expected that each student will do a certain amount of home work in addition.

Professor Rowland is assisted by thirteen instructors, almost entirely college graduates who are ambitious to help in this kind of work. All are members of the Employees' Mutual Benefit Association and are employed by the Milwaukee Electric Railway & Light Company in regular operating positions. The cost of carrying on this work is borne by the association.

The pamphlet program announcing these courses for the 1923-24 season carries a number of inspiring slogans, such as:

"Things don't turn up in this world until somebody turns them up."

"A competent employee can't be held down nor an incompetent one held up."

"The man who only half tries doesn't even make half good."

Maintenance of Equipment

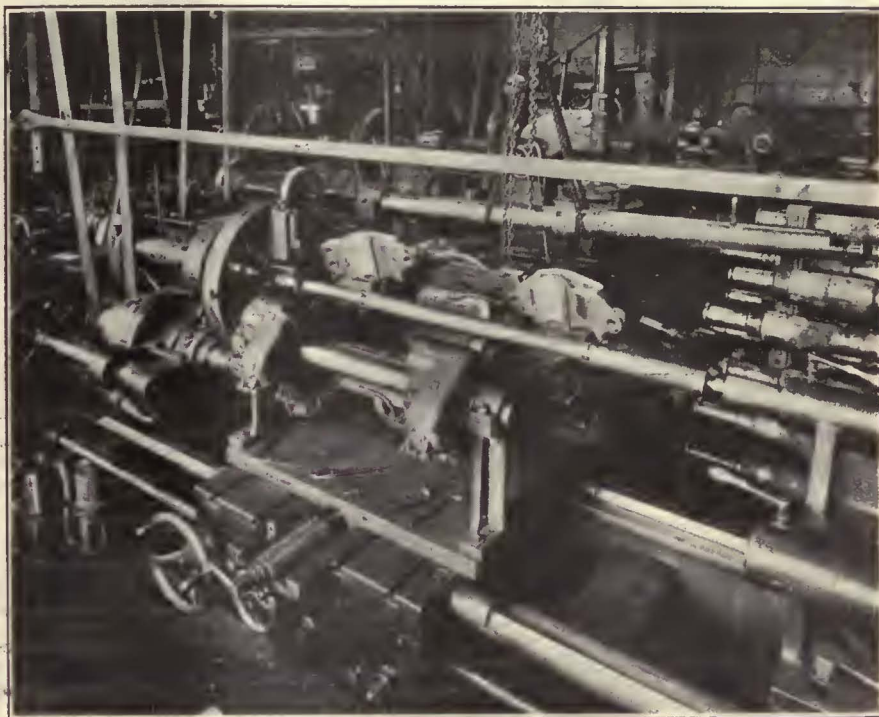
Rehabilitating Motors at Spokane*

AN EXTENSIVE system of rehabilitating motor equipment has been under way at Spokane, Wash., since the consolidation of the two street railway systems in that city. The management determined that the most essential problem was the building of the worn housing fits in motor cases, as most of the bearings required shimming to hold them. The method followed for doing this was by electric welding, an average of about $\frac{1}{4}$ in. of solid steel being placed in the housing fits.

After this building up is completed, the motor shell is set up in a McCabe 72-in. double spindle lathe. An accompanying illustration shows a G.E.-80 motor in position for machining. The plate on the carriage is part of the equipment of the McCabe lathe. The jigs for holding the axle were manufactured in the company's shops and are bolted to the carriage plate. Perfect alignment is secured by putting a piece of axle in these pillar blocks and then bolting the shell in with the bearings in position.

There are two upright bolts with running threads on the back of the plate. These go through the motor bolt holes in the cases. By using these the casing is brought up to its proper position. A sheet-iron templet is used on the pole pieces in order to obtain proper centering. When the crossfeed of the lathe is locked in proper position, proper gear mesh is assured, as the distance between the center of the axle and the armature shaft is fixed. The boring bar is provided with two high-speed cutters so that both bearing fits are bored out at once.

It requires one man about half an hour to change from the regular lathe equipment to the set-up necessary for boring out motor shells, and in addition it takes another half hour to set up the shell. The top half of the case is set up in the lathe with the bottom half of the bearing



Set-Up for Reboring G.E.-80 Motor Shell

bolted to it. After the shell is in position, it requires about two and a half hours to bore a casing.

In the welding particular care is taken to provide a deposit of sufficient metal so as to be sure that a solid clean cut can be taken. About 10 lb. of steel welding rod is used per shell, which makes a total cost, not including the cost of welding current, of about \$5.25. This includes the machinist's time for boring. Any additional welding or reboring of bolt holes would be an additional cost. The cost of reboring shells, re-insulating fields and putting other motor equipment in proper condition for G.E.-80 motors runs between \$12 and \$15 per motor. All bolt holes that show wear are filled up and re-bored to standard size.

A heavy boring bar can be seen in a sling at the back of the lathe in the accompanying illustration. This bar is used for boring out Westinghouse 101-B motor shells. The company is standardizing on one size for its bearings, and so the Westinghouse 101-B housings are welded up and the large hole in the end of the case is rebored to a smaller diameter. All loose bolt holes are welded up and re-

bored. The cost of welding, reboring, overhauling and insulating a Westinghouse 101-B motor, other than work on armatures, is about \$32. All lathes are served by jib cranes similar to the one shown in the illustration over the wheel lathe in the background.

Aluminum Tubing Covers Iron Stanchions*

ALL of the cars of the Northern Texas Traction Company, Fort Worth, have platform stanchions of iron pipe, painted on the outside with a good grade of paint. Nevertheless, in a short time the paint wears away, especially where the passengers continually grab at the same place on the stanchion. After the paint has worn off, the bare pipe presents a dirty appearance in contrast to the painted part. Furthermore, when a woman wearing white gloves boards the car she naturally grabs the stanchion, and the gloves become soiled. This has caused

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The Iron Pipe Stanchions In the Cars of the North Texas Traction Company Are Covered with Aluminum Tubing

many complaints, which, though they are trivial, the company has sought to eliminate.

Through the co-operation of the Aluminum Company of America, aluminum tubing has been secured which just slips over the outside of the pipe stanchion. Every platform stanchion which the passenger is likely to grab in boarding or leaving the car has been covered with the aluminum tubing for a distance of several inches above and below the common place of taking hold. The result is that the stanchions always present bright clean surfaces, and instead of complaints the company has been receiving a great many commendations from its patrons since the change.

Painting Cost Reduced More than Half

A CHANGE has been made in the painting methods used by the Spokane United Railways, Spokane, Wash. The previous practice was to scrape and remove all loose paint from the car body and then give a coat of primer, after which the surface was puttied and sanded so as to apply a second coat of primer. This was followed by two coats of flat color, a coat of rubbing varnish, and a coat of heavy car body varnish. This method of painting cost about \$140 per car.

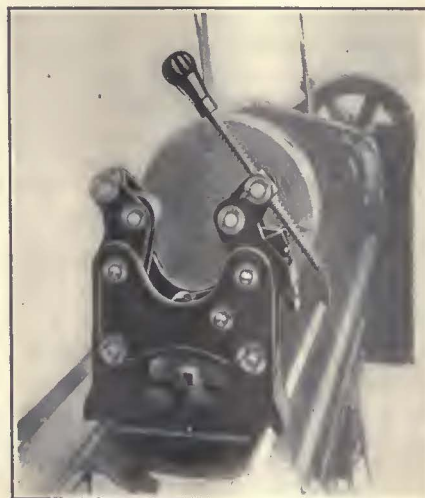
The enamel process of painting is now used. After the usual method of scraping and removing all loose paint from the car body, a coat of primer is applied. This is then glazed, puttied and sanded, and another coat of primer is put on. This is followed by very light sand-

ing and later with two coats of Fuller's cab enamel. This process costs but \$65 per car and is found to be more serviceable than the paint and varnish formerly used.



A Steady Rest with New Features

FOR machining operations such as facing, boring and turning, performed on the end of material, a steady rest has been developed by the McCrosky Tool Corporation, Meadville, Pa. The work is held between three rollers running on roller bearings. The rollers move toward the center simultaneously upon closing the jaws, the work having been in-

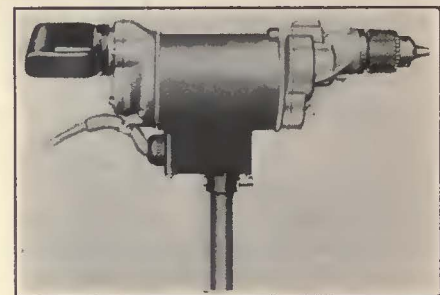


Machining Operations Are Simplified by Means of This Steady Rest

serted from the top with the jaws open. The handle end of the screw is dropped into a slot in the front jaw and the device is tightened by turning the screw. The device can be easily attached or removed from the lathe, but when once adjusted for the position of the centers on the lathe on which it is used no readjustment is required. A large range of diameters can be handled and the operator may go from the smallest to the largest diameter without any adjustment except a few turns of the tightening screw.

High-Speed Electric Drill for Small Work

A NEW model electric drill of $\frac{3}{8}$ in. capacity and with side handle construction is being put on the market by the Hisey-Wolf Machine Company, Cincinnati, Ohio. This drill is equipped with a universal motor for operation on either alternating or direct current. This is a high-speed



A Junction Box at Bottom Facilitates Cable Repairs

machine and is for use in either wood or metal drilling and reaming operations.

A cable junction box is provided on the frame. This is a new feature and permits cable repairs and renewals without dismantling the machine. The operating and controlling switch is conveniently located in the side grip handle.

The machine is provided with ball bearings throughout, and these, together with the gears and other moving parts in the gear end of the machine, are supplied with lubrication from the gear transmission case. The ball bearings on the top head are packed with grease. The machine is furnished with 15-ft. electrical conducting cable, fitted with a suitable attaching plug and Jacobs drill chuck for holding straight round shank drills up to $\frac{3}{8}$ in. diameter. A grinding wheel attachment with $4\frac{1}{2}$ -in. x $\frac{1}{2}$ -in. wheel can be supplied on order.

The News of the Industry

Queens Needs Line

Committee to Consider Problem of Meeting Transit Demand of Fast Growing Section

The need for a new four-track main line subway through the "physical" center of Queens Borough was presented to the Transit Commission, on Dec. 18, by a joint committee composed of the transit committee of the Queens Chamber of Commerce and the executive committee of the new Queensboro rapid transit committee. Such a line should in the main follow the line of Queens Boulevard, the several speakers said, through Jamaica, Hollis and Queens Village to the city line.

The principal speakers on behalf of the Queens representatives were: William A. Jones, Jr., chairman of the Queensboro rapid transit committee, and Robert W. Higbie, chairman of the Queens Chamber of Commerce rapid transit committee.

OTHER EXTENSIONS NEEDED

Chairman McAneny told the visitors that along with construction work now under way must go the new crosstown line and the Washington Heights extension, and after that, if an agreement were reached between the city and the Brooklyn-Manhattan Transit Company, must come the subway extension of the Fourteenth Street-Eastern line, which the company has agreed to operate, if the city constructs. Chairman McAneny said:

Then there must come the matter of a new entrance to Brooklyn, perhaps via Livingston Street, and also the matter of the solution of the problem in Forty-second Street, Manhattan.

Beyond that program we all feel, I think, that there must come a new entrance to Queens. There are no doubt several lines required in Queens; just what order they are to come in is, of course, something that must be determined. Queens is well up to the front in the new program and it would be well, I think, to fix the sequence which the several projects for Queens shall take.

RECOMMENDS CONFERENCE

He suggested that the two Queens committees name a committee of engineers to confer with the commission's engineers and experts. This, it was stated, had already been done. The Queens engineering committee is headed by John C. Brackenridge, a well known engineer.

Mr. Higbie stated that whatever form the relief for Queens should take, any new line should be a through one, direct to lower Manhattan. He suggested that Sixth or Eight Avenue, Manhattan, be reserved for a route for a Queens line.

Chairman McAneny pointed out that it would be folly, with the limited num-

ber of north and south thoroughfares that there are in Manhattan, to reserve one exclusively for a Queens line, but explained that in the new subway plans provision is made at some points for six and eight tracks, which will provide entrance capacity for Queens and other lines.

In reply to a question of Mr. Higbie as to whether a spur of the Fourteenth Street-Eastern line might not be built to tap Ridgewood, Commissioner Harkness said that the decision to construct the eastern end of the line as a subway opened for discussion the possibility of whether that line might not be routed through Ridgewood.

Los Angeles to Ask Commission to Fix Viaduct Share Cost

The city and county governments of Los Angeles have decided to ask the California State Railroad Commission in the form of an application to establish the equitable rate for the total of the cost of six viaducts to be constructed over the Los Angeles River to be paid by each of the interested and benefited parties. It is proposed that each of the interested parties would pay an equal share of the cost, although the pro rata for each viaduct would be different. For instance, the Los Angeles Railway lines would not use the Aliso Street viaduct and probably would not use the Ninth Street viaduct for years to come. Therefore, it is to be determined whether the Los Angeles Railway would be relieved of a share of the cost of the two proposed structures. The cost of the track relocation work is estimated to be \$1,200,000.

The Los Angeles voters on June 5 approved the \$2,000,000 bond issue as its share of the expense of constructing these six viaducts over the Los Angeles River to separate the grade of steam road lines operating on the east and west banks of the river and car lines and highway traffic. This improvement was proposed with a view to relieving traffic congestion and extreme traffic delays to riders delayed from fifteen to fifty minutes daily by operations of steam road trains at points of crossing at Los Angeles River bridges.

The City Engineer of Los Angeles estimates the total cost of six viaducts, including the expense of relocating the railroad tracks on both sides of the river, would be between \$5,000,000 and \$8,000,000, and that each of the interested parties, namely, the city of Los Angeles, county of Los Angeles, Santa Fé Lines, Union Pacific System, Los Angeles Railway Corporation and Pacific Electric Lines are to bear their proportionate expense.

Jitneys Meet Doom

Alabama Supreme Court Hands Down Decision Making Taxicab Operators Liable to Arrest

The City Commissioners of Birmingham, Ala. have won what is believed to be a final victory against the jitneys, in a decision handed down by the Alabama Supreme Court Dec. 22.

For the past few weeks the Birmingham Interurban Taxicab Service Corporation has been operating jitneys under an injunction against the city. The decision of the Supreme Court dissolves this injunction, thus making the operators of automobiles of this company subject to arrest by Birmingham officers.

Some time ago the city of Birmingham enacted an ordinance against jitneys operating within four blocks of a street car line in the downtown section of the city and placing an annual license tax on each jitney of \$100. The jitney men asked for an election by the people on this ordinance. The election was granted and the jitneys were defeated.

LICENSES REFUSED

Then the Birmingham Interurban Taxicab Service Corporation was organized by former jitney owners and it applied to the city for taxicab licenses. The cars of this company were inspected by W. B. Cloe, Commissioner of Public Safety, who reported the automobiles unsafe and otherwise unsatisfactory for taxicabs. On the strength of this report licenses were refused. The taxicab company then applied to Judge Roger W. Snyder of the Circuit Court, who granted a temporary injunction. On motion of the city, Judge William M. Walker dissolved this injunction two days after it was granted. Then the taxicab company applied for a reinstatement of the injunction and this was denied. The taxicab people then applied to Judge B. M. Miller of the Supreme Court, who reinstated the injunction pending the appeal to the Supreme Court.

Now the Supreme Court affirms the decree of Judge Walker, which dissolves the injunction and leaves the operators of these so-called taxicabs liable to arrest by the city for doing business without a license.

Another case, in favor of the city and against the Boyles Transit Company, was decided by the Supreme Court also on Dec. 22. In this case the transit company was operating automobile buses to Boyles and Tarrant City. This company asked an injunction against the city from requiring it to give bond for operating these buses. Some time ago an ordinance

was adopted by the city which was in the nature of an agreement between the city and the Birmingham Railway, Light & Power Company, requiring that interurban buses operating through sections served by street cars be required to give bond. An injunction against the city in favor of the transit company was granted in the Chancery Court. The city appealed to the Supreme Court, and the Supreme Court upheld the city settlement ordinance.

The automobiles operated by the Birmingham Interurban Taxicab Service Corporation all carried the sign "Taxicab for Hire." But they picked up passengers along the streets wherever they could get them, charged a fare of 10 cents, and operated only on certain streets. Thus in reality they were the old jitney, only under the name of "Taxicab."

City officials say, now that the Supreme Court has ruled on these two cases, they will put the law into effect immediately. Thus the jitney in Birmingham seems to have met its doom at last, after more than a year of fighting their battles in the courts and at the polls.

Plan to Raze New York Elevated Approved by City

The Board of Estimate of New York City has ratified the action of its committee of the whole in approving the plan of Borough President Julius Miller of Manhattan to raze the Sixth Avenue elevated railroad structure from Trinity Place to Fifty-third Street and Sixth Avenue and to build a subway to take its place.

Two resolutions presented by Mr. Miller have been adopted formally. One of these directed Corporation Counsel George P. Nicholson to draft a bill for introduction in the Legislature to permit the city to acquire the elevated structure. The other resolution called for a conference with the Transit Commission in regard to plans for the subway.

City Desires Staten Island Lines Despite Promises to Improve

According to John A. Lynch, president of the Borough of Richmond, New York City, electrification of approximately 30 miles of steam railroad in Staten Island has been practically promised to Acting Mayor Murray Hulbert and other members of the Board of Estimate by President Willard of the Baltimore & Ohio Railroad, operating the Staten Island Rapid Transit Railway.

Despite this it is expected that plans will be pushed for the city to buy, electrify and operate the Staten Island lines.

Mr. Lynch, said that Mr. Willard had assured city officials that the railroad also would extend its lines from Arlington to Tottenville, a distance of about 8 miles, and build spurs to industrial plants.

If the city electrified and operated

the steam railroads, Mr. Lynch said, a reduced fare would result. He pointed out that on the line from St. George to Arlington, and from St. George to South Beach, a distance of about 9 miles, an 8-cent fare was charged, while on the main line from St. George to Tottenville, a distance of 15 miles, the round trip fare was 79 cents for ordinary passengers and 22 cents for commuters. He said it would be possible for the city to operate the lines on the basis of a 10-cent fare. He estimated that \$10,000,000 would be the cost of electrification, ventured no estimate of what it would cost to purchase the railroad lines.

He added that he had already requested the Corporation Counsel to prepare an enabling bill for the acquisition of the lines on Staten Island, to be presented early in the next Legislature.

Railway Matters Before Council

Toledo Fares May Go Up—Jitney, Trolley Bus and Maintenance Allowance Matters Present Problems

An increase in fares at Toledo is expected to be announced as a result of deficits which have brought the stabilizing fund of the Community Traction Company, to the low level of \$56,868 as of Dec. 1. The raise would be to straight 7-cent fare from 7 cents cash with six tickets for 40 cents.

The deficit for operations in the month of November as reported to the street railway board of control was \$9,997 and for the month of October it was \$19,256.

Although a surplus will probably be earned in December Commissioner Cann is doubtful about keeping fares at their present level. It will be up to the company to move to change the fare. Some time ago the stabilizing fund fell below \$300,000, but the railway officials on advice of Street Railway Commissioner Cann, postponed action. The stabilizing fund was growing monthly until a raise in wages in the spring brought about a return to red figures.

After the first of the New Year a new City Council with members considered to be especially favorable to traction development in accord with the Milner settlement plan will be at the helm in city affairs. In consequence some important developments are expected. Recommendations have already been made looking to the elimination of buses which compete with the railway. There is also strong possibility of the establishment of a trolley bus cross-town line. Equipment of this type has been investigated by the commissioner and some members of Council and all appear to be favorable to the trolley-bus plan. One-man operation may also be resumed as a means of reducing expenses. Furthermore there may be some changes in the allowances for maintenance for 1924 and a revision of power rates.

In November the gross revenue of the railway was \$323,510, an increase

of \$17,325 over the same month a year ago. Operating expenses in November, 1923, were, however, \$21,286 greater than for the similar month in 1922 due to higher maintenance charges and increased wages.

The first eighteen days of December showed an increase in revenue of \$9,548 over the similar period last December.

For the year soon to end the \$640,000 set up for maintenance was overspent by \$15,000.

International Wins Suit Against Customs Collector

United States District Judge John R. Hazel in Buffalo has handed down a decision making permanent the temporary injunction granted some time ago in the case of the International Railway, Buffalo, against the United States customs collector at Buffalo, who has supervision over the Niagara Falls and Lewiston bridges of the International between the United States and Canada. The United States customs department threatened to close the two bridges to all traffic Sundays and holidays unless the traction company guaranteed the payment of overtime wages to the United States customs inspectors assigned to duty on these bridges across the Niagara River at the International boundary line.

It was the contention of the International Railway that it is the duty of the United States Treasury Department to pay the inspectors for overtime work. The order of the customs department would force all incoming passengers from Canada via the International Railway to deposit their hand baggage and packages at the customs offices and claim them the day after Sunday or holidays. The International Railway claimed that this would mean the virtual closing of the bridges and would cripple their business with tourists on the busiest days of the year.

A temporary injunction was handed down by Federal Judge Hazel restraining the customs collector at Buffalo from putting the proposed regulations into effect. Further arguments were heard by the court and now the temporary writ has been made permanent.

Increase in Wages for Findlay Employees

Employees of the Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio, on January 1 will receive a flat increase of 3 cents an hour in wages. This was provided in a recent pact between employees and the company which gave the men in freight service an increase of 6 cents an hour and those in passenger service a boost of 4 cents an hour from Aug. 16 to Jan. 1, 1924.

The rates provided 47 cents an hour for the first three months service, 49½ cents for the next nine months and 53 cents thereafter in the passenger service. Freight men have a scale of 49, 51½ and 55 cents for like periods of service. The new increases will be added to these amounts.

News Notes

Will Represent in Legislative Work.—Henry W. Killeen, attorney for the International Railway, Buffalo, has resigned from the law firm of Penney, Killeen & Nye effective Jan. 1, 1924, to become head of a new law firm to be known as Killeen, Sweeney & Kelley. Mr. Killeen will represent the International in legislative work in Albany. Thomas Penny and Judge Nye will continue to represent the International in the trial of negligence cases and many of the smaller cases will be given to other attorneys for trial in the courts.

Men Get Safety Bonus.—One half the amount estimated saved in avoiding accidents during the past three months, aggregating \$4,381, has been voted as a bonus to the employees of the Memphis Street Railway. The money represents an increase of \$1.76 an hour for each man.

Important Questions Answered.—“The Inside Track,” published by the Market Street Railway, San Francisco, devotes a page each month to the solution of perplexing problems that may come up in the course of the day's work. The December issue contains the question: What are the three most important factors which a motorman should consider when operating an electric car? The answers given, arranged in the order of their importance, were: (1) Safety. (2) Comfort of passengers. (3) Maintenance of schedules.

Railway Research Work Encouraged.—To encourage research study in the electric railway field among university students, the executive committee of the Wisconsin Utilities Association authorized an arrangement whereby a fellowship will be granted at the University of Wisconsin in electric railway research work. Under this plan the association pays \$500 each year to a senior student in engineering to work on some problem which will be selected by Professor Rood and representatives of the association, and the results presented at railway section meetings.

Extension of Time Allowed.—The local transportation committee of the City Council of Chicago has granted the Chicago, North Shore & Milwaukee Railroad a delay of three more weeks before acting upon the opinion recently delivered to the Council by the corporation counsel holding that the railroad is operating passenger, merchandise dispatch, express and freight service over the elevated lines in the city without legal rights. This matter was referred to at length in the *ELECTRIC RAILWAY JOURNAL* of Dec. 8, page 985.

Shows Utility Development Through Cinema.—During the 1923 State Fair the Oklahoma Utilities Association, gave a free cinema entertainment in the Liberal Arts Building in Oklahoma City. About 10,000 people saw the production,

receiving information on the development of the public utility field in recent years. Among the most popular films were the “Go-Getter,” illustrating the benefits of electrically operated labor-saving devices on the farm, and “King of the Rails,” showing the history of transportation from the beginning of human relations down to the electrically operated transcontinental railroad.

Seeks Ordinance.—A resolution has been adopted by the Milwaukee Public Safety Commission, urging the Common Council to pass an ordinance requiring buses to stop for passengers at street car safety zones where such safety zones have been designated.

Tests to Solve Engineering Problems.—Power company officials from many points along the Mississippi River will be greatly aided in solving their engineering problems by the results of tests being made by University of Iowa engineers, in co-operation with the Mississippi River Power Company at Keokuk. When completed, the tests will reveal the exact flow of the stream and show its course and flow as far back as 1874. The tests are in charge of Prof. Floyd

A. Nagler, director of the university's hydraulic laboratory, and Alrion Davis, hydraulic engineer of the Keokuk company.

Discusses Future of Railroads.—F. H. Hardin, chief engineer of motive power and rolling stock of the New York Central Railroad, in expressing his views recently in an interview in the *New York Times* on the future of the railroads said that the complete electrification of all railroads seemed to lie in the distant future. It was his belief that under present conditions electric power was costly, but that the cost might be cut by the conversion of water power into electricity on a large scale. Following the electrification of railroads in the neighborhood of big cities, these units will gradually be extended until they unite in a general system. He looked to the time when trains would be controlled by automatic devices eliminating the human element. He said that radio promised to play an important part in railroading in the future. It might be used to keep the ends of long freight trains in touch with each other, thus increasing the efficiency of the service.

Foreign News

Sanitation in Turkey

The thick red curtains in the street cars of Constantinople, which have separated the seats occupied by Moslem women from the rest of the car, will be removed, according to the plans of the authorities. This is on the ground that the curtains are carriers of disease. Instead, the two front rows of seats in the car will be reserved for Moslem women. However, a Moslem woman traveling with her husband may sit elsewhere “provided she does not contravene the civil or religious laws.”

Bids for Swedish Locomotives Rejected

The Swedish State Railways at Stockholm has rejected all bids for electric locomotives for the line from Stockholm to Göteborg, the electrification of which is under way. Seven Swedish firms and six foreign firms submitted offers. The rejection was partly on account of too high prices and partly on account of inconvenient delivery terms. The cheapest offer was submitted by the Allgemeine Elektrizitäts Gesellschaft of Berlin and the Siemens-Schuckert concern, their price being 195,000 Swedish crowns per locomotive. New bids have been asked for.

Address of Union Internationale Tramways Changed.—The headquarters of the Union Internationale Tramways, de Chemins de Fer d'Intérêt Local et de Transports Publics Automobiles has been moved in Brussels,

Belgium, from 23 rue d'Arlon, to 15 Avenue de la Toison d'Or.

British Cars for Calcutta.—The English Electric Company, Ltd., Preston, England, is constructing sixty cars for the Calcutta Tramways. This accompanies a scheme of track extension.

American Rails for Glasgow.—A contract for tramway track special work amounting to £8,568 for the Glasgow, Scotland, tramways has been awarded to the United States Steel Products Company by the tramways committee of Glasgow Corporation. This was preferred to the lowest English tender of £9,794.

Street Congestion in Glasgow.—Traffic congestion in the streets still occupies the attention of the Town Council of Glasgow, Scotland. James Dalrymple, general manager of the tramways, in a report on the subject, regards tube or elevated railways impracticable. He recommends the erection of a bridge over the River Clyde at Oswald Street and another one across the river opposite St. Enoch Square.

Turbo-Generator for London Tramways.—London County Council has accepted a tender by Richardson, Westgarth & Company, Newcastle, at £77,467 for the supply of a turbo-alternator of 15,000 kw. capacity for the Greenwich tramway power station. The set will consist of a two-cylinder turbine and condensing plant, with a Parsons alternator. The lowest tender received was £55,769, from a Swiss firm. The reason for adopting the British tender was the low steam consumption.

Financial and Corporate

Key Route Plan Approved

California Commission Sanctions Cut of \$20,000,000 in San Francisco-Oakland Capitalization

The proposed reorganization of the San Francisco-Oakland Terminal Railways, known as the Key Route properties, held under foreclosure and sale in the hands of John S. Drum, Warren Olney, W. I. Brobeck and Hugh Goodfellow, and their associates, with a newly written total capitalization of \$28,277,500, has been authorized by the State Railroad Commission. The old capitalization was \$48,879,000.

The commission recognizes the unassailable validity of the foreclosure sale, and gives no force to the contentions of the holders of \$15,000,000 common stock as presented by Attorney Joseph E. Bien. It leaves open all questions of appraisal for rate-making purposes, and does not rule against the contentions of City Attorney Gray of Oakland in that matter.

The Key Route Transit Company, with a capitalization of \$17,750,000 under the approved reorganization, will have complete financial and operative control. Three subsidiary companies receive recognition. These are: Key Route Securities Company, capital stock \$2,600,000; East Oakland Railway, capital stock \$250,000, and Oakland & Hayward Railway, capital stock \$250,000.

As indicated in an article dealing with the proposed plan in the issue of the *ELECTRIC RAILWAY JOURNAL* for Sept. 15, page 424, the actual capital is distributed as follows: First mortgage bonds, \$2,500,000; refunding bonds, \$9,416,000; preferred stock, \$12,829,000; common stock (issued pro rata to holders of preferred), \$3,262,500; common stock to holders of "Dividend Note," \$250,000; East Oakland Railway, \$10,000, and Oakland & Hayward Railway, \$10,000.

The commission ruled that all the reorganization expenses reaching back for a period of many months and totaling \$500,000 must be paid out of earned moneys available for interest charges and for dividends, and must not be made a capital charge which (through fixing of rates, etc.) would rest ultimately upon the public.

The commission set forth as its principal reason for approval of the reorganization plan the "fact of necessity" and the state of finances of the old company, which had at the beginning of this year no funds with which to meet these four large obligations: Matured notes, \$3,200,000; funded debt due, \$1,357,000; matured interest \$2,706,585 and sinking fund installments due, \$2,919,000.

The decision in the Key Route case, brings to a successful culmination the

efforts of the past ten years to reorganize and restore these properties to financial stability. It sustains and upholds in every particular the plan of reorganization.

The company defaulted in its bond interest as long ago as 1913. These defaults were occasioned by the over-expansion of its transportation facilities subsequent to the fire of 1906 and the high cost of labor and materials. Spasmodic and unsuccessful efforts have previously been made to rehabilitate the company, but it was not until 1919—when the present committee entered on its duties, that real and substantial progress was made. This committee was finally able this year to bring all the interests into harmony and perfect a plan.

The intricacy of the readjustment negotiations is indicated by the fact that it was necessary to satisfy fifteen sets of security holders, each with a different interest to serve, with conflicting rights and with total investments in excess of \$20,000,000. By compromise and readjustment, the fifteen groups were brought to subscribe to the plan with practical unanimity.

At the last moment, however, when the plan was presented, as the law requires, to the Railroad Commission for its approval, a small stockholding interest attempted to block the carrying into effect of the plan. The ruling of the commission sustains completely the work of the reorganization committee.

This plan was the result of the labors of a committee, of which John S. Drum is chairman, and with whom is associated Herbert Fleishhacker, P. E. Bowles, W. W. Garthwaite, Benjamin H. Dibblee, Gavin McNab, A. Crawford Greene, Paul A. Sinsheimer, J. F. Carlston and George Tourney as members. They were assisted by sub-committees representing particular bond issues, of which advisory committees the chairmen were Warren Olney, Jr., L. A. Redman, Robert G. Hooker and Grayson Dutton.

Potomac Merger Approved

The proposed merger of the Potomac Public Service Company with the Potomac Edison Company, Frederick, Md., has been approved by the board of directors of the former company. As was announced previously in the *ELECTRIC RAILWAY JOURNAL*, this consolidation was expected.

According to indications Emory L. Coblenz, Frederick, former president of the Potomac Public Service Company, successor to the Hagerstown & Frederick Railway, who is now chairman of the board of directors of the former company, will hold the same position in the merged companies. M. F. Riley, president of the Potomac Public Service

Company, will be made president of the merged companies, it is understood, and Charles Harris, Henry Holzapfel and Walter S. Finlay, Jr., will be vice-presidents. The other officers, it is said, will be: Raymond E. Town, treasurer; Byron A. Winebrenner and Phillip L. Roth, assistant treasurers; Charles C. Waters, secretary, and Raymond E. Town and William K. Dunbar, assistant secretaries.

The capitalization of the combined companies will approximate \$22,000,000, according to Mr. Coblenz.

Columbus Case to Be Appealed

United States Supreme Court to Be Asked to Pass Upon Decision in Stockholder Suit

E. W. Clark & Company, Philadelphia, plans to appeal to the United States Supreme Court from the decision of the Ohio Supreme Court, rendered on Dec. 11, in which the Ohio court refused to hear the appeal of the Clark interests in the case of the Columbus Railway, Power & Light Company against the Clarks as former managers of the utility. It is understood that if the Ohio Supreme Court had consented to consider the appeal for a rehearing the Clarks would have insisted that there was unjust discrimination against them and in favor of local men, and that this denied the Clarks equal protection of the laws. It is on this ground that they now propose to take the case to the United States Supreme Court.

The litigation had its inception in a suit commenced by a stockholder against the directors of the company, including C. M. Clark. E. W. Clark & Company was also joined as defendant. All the defendants were charged jointly with liability upon the several claims presented on behalf of the company, but the Ohio courts released all of the other defendants, residents of Ohio, and held the Clarks alone liable, thus discriminating, the Clarks believe, in favor of local defendants and against non-resident defendants. The contention of the Clarks is that the judgment against them is about five times as large as the amount they received from the company for services rendered to it, and that these services fully justified the payments received.

The position of the Clarks throughout the litigation has been that in their relations with the Columbus company they never took any step that was not fully authorized by the board of directors, most of whom were local people with large holdings of stock and in no way affiliated with the Clarks, and that if there was anything wrong in any action or omission in connection with the business of the company, the responsibility rested upon the directors and not upon the Clarks. The Clarks also maintain that if they are liable the directors are equally, if not primarily, liable.

Dividends Paid in Stock

Earnings on Common of New Orleans Company to Be Put Back Into Additions to Property

A dividend of 8 per cent on the \$8,100,000 of common stock of the Public Service, Inc., New Orleans, for the year ended Sept. 30, 1923, has been declared by the directors of the corporation. This sum, amounting to \$648,000, will be returned to the company's treasury and the stockholders of the corporation will be given paid in stock in lieu of cash. With the issuance of the dividends in the form of stock, the common stock of the corporation will be increased to \$8,748,000, to be further increased next year, should the company continue to prosper, and a similar dividend be declared hereafter.

According to the agreement reached between the city of New Orleans and the Public Service, Inc., the issuance of paid in common stock must continue for a period of five years before the holders of common stock in the company will be paid cash dividends. They will then, under this plan of procedure, have increased their stock holdings approximately 40 per cent.

In making announcement of the dividend on the common stock, R. S. Hecht, chairman of the board, said:

While the company did not earn its full 7 1/2 per cent return on the rate base to which it is entitled under the settlement ordinance, it did earn a substantial margin over and above the amount required for this dividend. However, the stockholders will not receive the dividend in cash, because under the agreement with the city they are compelled immediately to reinvest the whole amount in the purchase of common stock of the company at par, and the same course must be followed in future years until dividends aggregating 40 per cent have thus been put back into the property.

The board of directors also authorized the increase of the common stock in an amount equivalent to the dividend, so that, as a matter of fact, not a dollar of capital is taken out of the assets of the company by the declaration of the dividend.

The company is in a healthy financial condition, but it emerged from the reorganization with a somewhat unbalanced set-up in that it has a total bonded debt of \$42,000,000, whereas the total amount of preferred and common stock outstanding is only \$12,000,000, which has always been considered, by investment bankers as too small a margin behind the bonds.

The directors believe the present and prospective heavy requirements for new

capital can ultimately be met only through the sale from time to time of substantially large amounts of common stock which, by furnishing a proper margin of safety, will in turn permit the sale of additional bonds on a more advantageous basis. As the law of Louisiana requires stock to be sold at par, and as the common stock of the company is and has been selling considerably below par, this program prevents certain practical difficulties, for which, however, it is hoped that some solution can be found in the near future.

The budget and financial program of the company for 1924 have not yet been determined. The board of directors will decide at its January meeting the method which must be adopted to raise the large additional capital required for improvements and extensions in the coming year.

Brooklyn Surface Lines Out of Receivership

At midnight on Dec. 21 the property of the Brooklyn, Queens County & Suburban Railroad passed out of the control of Lindley M. Garrison as receiver and into the control of the company. A decree ordering the transfer was signed a few hours before by Federal Judge Mayer. The company operates surface lines on Reid, Sumner, Metropolitan and Utica Avenues, and on Broadway along with what is known as the Broadway Ferry shuttle.

The lifting of this company out of receivership leaves only two, the Brooklyn Heights and the Coney Island & Brooklyn Railroad Companies still in receivership, but it is expected that they will soon be returned to their owners.

Under the reorganization plan the stockholders of the company are expected to contribute toward meeting the company's liabilities in case the income is not sufficient to meet all of the needs. The receiver has on hand \$700,000 in cash and securities, but most of this will be needed by the company as working capital.

The liabilities on July 1 last consisted of defaulted interest on bonds held by the public, claims of unsecured creditors and tort claims, totaling \$1,045,497, exclusive of \$400,000 of defaulted interest on the \$2,000,000 principal amount of first mortgage bonds.

Abandonment Modified

Reasons Stated for Putting Off the Shutting Down of Service on Ohio Line

The Public Utilities Commission of Ohio has issued a modified order authorizing the discontinuance of service and abandonment of facilities by the West End Traction Company, a subsidiary of the Pennsylvania-Ohio Electric Company, Youngstown, at midnight on Feb. 1.

The original order of the commission issued on Dec. 14 had set midnight, Jan. 1, for the end of service on approximately 24 miles of track connecting Youngstown with Girard, Niles, Warren, Mineral Ridge and Leavittsburg, all in Trumbull County, Ohio, west of Youngstown.

The delay in the abandonment was granted by the commission upon petition of the city solicitors of Warren, Niles and Girard and the Trumbull County Commission. The petition followed a meeting of representatives of the governing bodies and civic associations of the committees affected called by the county commissioners when the original order of the Utilities Commission made it plain that street railway and interurban service would cease with the New Year.

The petition asking for delay recited that "the general welfare of the citizens" and "the future growth" of the municipalities would be affected seriously by the abandonment; that "the political subdivisions located along the lines of said railway are now negotiating in good faith and are desirous of continuing to negotiate toward a fare adjustment on the lines affected that will enable the company to continue the operation of its lines."

The company consented to the modification of the abandonment order upon the understanding that earnest efforts would be made by the communities so to adjust fares as to enable it to earn revenues sufficient at least to pay operating costs and taxes.

The crisis on the lines came on Oct. 6 when the application for abandonment was filed by the company. For

	Latest	Month Ago	Year Ago	Since War	
				High	Low
Street Railway Fares* 1913 = 4.84	Dec. 1923 6.89	Nov. 1923 6.95	Dec. 1922 6.96	May 1921 7.24	May 1923 6.88
Street Railway Materials* 1913 = 100	Nov. 1923 158	Oct. 1923 161	Nov. 1922 174	Sept. 1920 247	Sept. 1921 156
Street Railway Wages* 1913 = 100	Dec. 1923 218	Nov. 1923 218	Dec. 1922 208	Sept. 1920 232	Apr. 1923 207
Steel—Unfilled Orders (Million Tons) 1913 = 5.91	Nov. 30 1923 4.37	Oct. 31 1923 4.67	Nov. 30 1922 6.84	July 31 1920 11.12	Feb. 28 1922 4.14
U.S. Bank Clearings Outside N. Y. City (Billions)	Nov. 1923 15.30	Oct. 1923 16.18	Nov. 1922 14.35	Mar. 1920 18.54	Feb. 1922 10.65
Business Failures Number	Nov. 1923 1,644	Nov. 1923 1,584	Nov. 1922 1,761	Jan. 1922 2,722	Sept. 1923 1,280
Liabilities (millions)	1923 67.54	1923 74.43	1922 54.23	1922 105.7	1923 27.50

Conspectus of Indexes for Dec., 1923

Compiled for Publication in this Paper by
Albert S. Richey
Electric Railway Engineer
Worcester, Mass.

	Latest	Month Ago	Year Ago	Since War	
				High	Low
Eng. News-Record Construction costs 1913 = 100	Dec. 1923 217.3	Nov. 1923 220.9	Dec. 1922 192.6	June 1920 273.8	Mar. 1922 162.0
U.S. Bur. Lab. Stat. Wholesale Commodities 1913 = 100	Nov. 1923 152	Oct. 1923 153	Nov. 1922 156	May 1920 247	Jan. 1922 138
Bradstreet's Wholesale Commodities 1913 = 9.21	Dec. 1 1923 13.44	Nov. 1 1923 13.14	Dec. 1 1922 13.78	Feb. 1 1920 20.87	June 1 1921 10.62
Dun's—Wholesale Commodities 1913 = 120.9	Dec. 1 1923 190.9	Nov. 1 1923 191.8	Dec. 1 1922 185.5	May 1 1920 263.3	July 1 1921 159.8
U.S. Bur. Lab. Stat. Retail food 1913 = 100	Nov. 1923 151	Oct. 1923 150	Nov. 1922 145	June 1920 219	Mar. 1922 139
Nat. Ind. Conf. Bd. Cost of living 1914 = 100	Nov. 1923 165.3	Oct. 1923 164.1	Nov. 1922 158.4	July 1920 204.5	Aug. 1922 154.5

*The three index numbers marked with an asterisk are computed by Mr. Richey, as follows: Fares index is average street railway fare in all United States cities with a population of 50,000 or over except New York City, and weighted according to population. Street Railway Materials index is relative average price of

materials (including fuel) used in street railway operation and maintenance, weighted according to average use of such materials. Wages index is relative average maximum hourly wage of motor-men and conductors on 105 street and interurban railways in the United States, operating more than 100 passenger cars each, and weighted according to number of cars.

some months prior the company had endeavored to secure a fare adjustment, but the definite refusal of the city of Niles to entertain any such remedy for the company's losses in the last four years brought about a situation where the company had no recourse excepting abandonment.

Following the order for abandonment, however, manufacturing and commercial interests of Niles were aroused. At the meeting of representatives of the various communities it was declared that Niles would join the other cities in seeking an arrangement whereby the operation of the lines could be continued. With this declaration the company consented to a month's delay. The negotiations will be conducted by the new city administrations taking office Jan. 1 in all the affected communities.

The present rates of fare are 10 cents cash for zones of approximately 5 miles; fourteen tickets for \$1 and 5 cents cash within municipal limits. The rate of fare suggested to permit the lines to continue are 15 cents cash for existing interurban zones; ten tickets for \$1; 10 cents cash within municipal limits, with eight tickets for 50 cents.

Commission Approves Sale of Point Pleasant Company

The Board of Public Utility Commissioners of New Jersey has granted the application of the Point Pleasant Traction Company, Point Pleasant, N. J., to sell its property and surrender its franchise. The concern formerly operated a street railway in the boroughs of Point Pleasant and Bay Head, N. J., but it was discontinued in 1919. The company has taken up all its rails and has abandoned its service. The company asked the commission for permission to sell its real estate situated in the two boroughs and also for permission to dispose of all other assets and retire from business and surrender its charter, all of which it has the consent of its shareholders to do. The board found that there was no demand for the operation of the electric railway in and between the two towns to warrant the retention by the company of franchises.

Payment of Kansas City Claims Being Arranged

Kansas City, Mo., will receive \$82,207 from the Kansas City Railways as a back payment for street cleaning and in car license taxes on the intercity viaduct. This is the result of an order from Judge Kimbrough Stone of the Federal Court.

J. C. Petherbridge, assistant city counselor, made the application and argued in favor of payment of the claims. Attorneys for the receivers, bondholders, damage suit claimants and for the company discussed the application in Judge Stone's chambers of the Federal building on Dec. 3.

Another application granted was for the payment of about \$3,000 to holders

of special deferred security certificates issued at the time of the old reorganization of the company in connection with damage suits then pending. A month ago the court ordered about \$120,000 of the certificates to be paid. Payment will be made on the basis of 80 per cent of the principal and 80 per cent of the interest.

Mr. Petherbridge said the city was badly in need of money and that the payments would be used in defraying the expenses of the city hospitals.

Note Maturity a Problem

New Haven Railroad Seeks Legislation to Deal with Issue of Trolley Holding Corporation

The New York, New Haven & Hartford Railroad has petitioned the Massachusetts General Court for legislation enabling it to acquire property of the New England Investment & Security Company, or such other legislation pertaining to the road's interest in that company as may be deemed necessary. The railroad directs attention to an interesting situation involving certain electric railways in which it is interested. Broad legislative authority is sought to enable the New Haven to deal with a situation which will arise next year, when \$13,115,000 notes of the New England Investment & Security Company come due April 1. All of these notes are owned by the New Haven.

The New England Investment & Security Company is a voluntary association, organized in 1906 by New Haven interests to acquire shares or other securities of electric railway or power companies. It controls through ownership, directly or indirectly, all or a majority of the stocks of the Milford, Attleboro & Woonsocket Street Railway, Springfield Street Railway and Worcester Consolidated Street Railway. The company also holds by assignment dated April 1, 1909, all the interest of the Worcester Consolidated Street Railway in the capital stock of the Worcester & Webster Street Railway and Webster & Dudley Street Railway.

In addition to notes, the New England Investment & Security Company has outstanding \$112,100 of 4 per cent cumulative preferred stock and \$100,000 common. There was formerly \$4,000,000 preferred outstanding upon which New Haven guaranteed the dividends, but practically all of it has been exchanged for first preferred stock of the Worcester Consolidated, thereby relieving the New Haven of its guaranty to that extent.

The notes which the New Haven owns were intended to bear interest at the rate of 3 per cent from date of issue, 4 per cent for the next five years and 5 per cent for the final five years. For several years no interest has been paid. Under the dissolution decree, the New Haven was supposed to dispose of its interest in the New England Investment & Security Company by April 1,

1919, but the date has been extended by the court from time to time.

It is explained that special legislation is necessary if the New Haven is to take over the properties for debt. On the other hand, the properties may be sold for the debt under the hammer.

Service Suspended in Monterey

The Monterey & Pacific Grove Railway, Monterey, Cal., discontinued service in Monterey on Dec. 5, because of the inability of its general manager to pay for its power bill. In spite of great difficulty, J. D. Brown, the local manager, has been sending out his cars for some time, even though the Public Service Commission threatened to close down on operations if he did not render payment to the power company.

The matter came to a head recently when the Coast Valley Gas & Electric Company sent a letter to Mr. Brown, telling him that further delivery of power would be discontinued if the company did not pay its bills before Dec. 1. In addition to this notice, the company also sent a communication to the City Council of Monterey informing it of the intention to close down on the power for the operation of the railway system.

Suspension in Monterey brings to an end one of the longest controversies in that section of the country. The difficulties of the company in its relations with the city of Pacific Grove were reviewed in the *ELECTRIC RAILWAY JOURNAL*, issue of Nov. 17.

The local manager, J. D. Brown, following the suspension, announced that he had no plans for the immediate future. He said that having no money he could not afford to operate, and he would now await developments.

Auction Sales in New York

At the public auction rooms of A. H. Muller & Sons there were sold the following securities on Dec. 26:

\$5,000 Buffalo & Lake Erie Traction Company first and refunding mortgage 5 per cent bonds, 1936, twenty shares Buffalo & Lake Erie Traction Company common 11 per cent.
41 shares New York Railways, \$1 lot.
100 shares Brooklyn Rapid Transit Company, old stock, \$2 lot; 900 shares Brooklyn Rapid Transit Company common, old stock; 1,300 shares Brooklyn Rapid Transit Company common, old stock; certificates of deposit, \$1 lot.
\$50,000 Twenty-Third Street Railway refunding and improvement 5s, 50 per cent.
30 shares New York Railways, \$2 lot.
100 shares Interborough Metropolitan Company common v. t. c., \$5 lot.
100 shares Interborough Consolidated Company, preferred, \$8 lot.
\$3,500 North Carolina Public Service Company first mortgage, series "B," due April 1, 1934, 66½ per cent.
1½ shares Michigan Electric Railway preferred "A," \$1 lot.
\$125 Michigan Electric Railway first and refunding mortgage "A" bond, due 1948, \$20 lot.

Will Discuss Extensions.—At the annual meeting of stockholders of the Buffalo & Lake Erie Traction Company, Inc., operating an interurban line between Buffalo, N. Y., and Erie, Pa., stockholders will consider proposed extensions of service in the vicinity of Erie, Pa.

\$25,100,259 Spent by Boston "L" in Five Years—\$10,000,000 More for 1924 and 1925

In a petition filed with the Secretary of State of Massachusetts asking legislative permission to issue bonds to an amount equal to the money paid in for stock of the West End Street Railway, which the Boston Elevated absorbed a year ago, the trustees of the Boston Elevated Railway filed a list of the total expenditures for capital purposes made since the creation of the Board of Trustees, as follows:

EXPENDITURES ON ROAD AND EQUIPMENT JULY 1, 1918, TO OCT. 21, 1923	
Elevated structures and appurtenances	\$1,073,607
Surface lines	3,344,123
Carhouses and shops	3,072,742
Power houses and transmission of electricity	3,444,375
Cars	10,149,688
Miscellaneous	581,753
Total	\$21,666,289
Expenditures on road and equipment prior to July 1, 1918 for which capital had not been issued on that date	3,433,970
Total obligations for which the board of trustees has had to provide	\$25,100,259

The money with which to pay for these replacements and improvements has been obtained from the following sources:

Sale of Cambridge subway	\$7,868,000
Preferred stock	2,000,000
Bonds	1,986,000
Insurance and payments account real estate sold, about	1,500,000
Depreciation July 1, 1918-Oct. 1, 1923	10,521,000
Total	\$23,875,000

These amounts, it is explained, by no means cover the expenditures which should be made in order to place this transportation system in the condition necessary to give satisfactory and adequate service.

The accompanying table shows expenditures which are needed in order to provide for the proper development of this system. According to the company the items for cars are less than is desirable and should be increased as soon as practicable.

Of the \$9,208,032 estimated for the calendar years 1922 and 1923, \$8,555,608 has been authorized and approximately \$3,765,000 has been paid to date. This leaves approximately \$4,790,000 of the 1923 expenditures yet to be financed.

PROPOSED EXPENDITURES FOR ROAD AND EQUIPMENT

	1922	1923	1924	1925	Total
Everett shops	\$205,842	\$1,190,232	\$1,445,518	\$2,052,180	\$4,893,772
Track betterments	84,924	700,000	700,000	700,000	2,184,924
Surface carhouses—modernizing	40,715	500,000	500,000	500,000	1,540,715
Miscellaneous buses, machinery, etc.	35,127	300,000	300,000	300,000	935,127
Power—South Boston power station and conduits	397,314	1,450,000	800,000	1,400,000	4,047,314
Cars	1,715,220	1,710,000	1,000,000	800,000	5,225,220
George Street storehouse	160,000				160,000
Forest Hills signal system	124,010				124,010
Forest Hills extension	122,500				122,500
Neponset terminal	24,350				24,350
East Boston tunnel changes		47,800			47,800
Total	(b) \$2,910,000	\$6,298,032	\$4,745,518	\$5,752,180	\$19,705,730

(a) These are gross expenditures. Credits for property charged off, property destroyed by fire, property sold, etc., have been eliminated. (b) Appropriations carried over to 1923.

Approves Bond Purchase.—The State Railroad and Public Utilities Commission has approved the application of the Jackson Railway & Light Company for authority to issue \$55,000 of 5 per cent gold bonds. The proceeds of the sale will be used to purchase new equipment deemed necessary for the system in Jackson, Tenn.

Extra Dividend on Illinois Traction Common.—The Illinois Traction Company, Peoria, Ill., has declared an extra dividend of \$1.50 on the common stock payable on Jan. 2 to stock of record Dec. 20. The last regular dividend of the Illinois Traction on the outstanding common stock was 50 cents a share declared payable on Oct. 1 for the previous quarter. The stock is of \$50 par.

Abandonment Allowed.—The Corporation Commission of Virginia granted the petition of the Virginia Railway & Power Company to abandon lines on County Street in Portsmouth. The appeal was favorably received on the grounds that the High Street line parallels it and jitney competition is too keen for its existence, as the jineys operate on a 5-cent fare, against 6 cents charged by the company.

Abandonment Petition Deferred.—The hearing on the petition of the International Railway for permission to abandon part of its line in the city of Niagara Falls, scheduled for Dec. 17 in Buffalo, was postponed by the commission to a date to be announced after Jan. 1. Corporation Counsel Robert J. Moore of Niagara Falls asked for postponement because of pressing municipal matters.

Gold Notes Offered.—Dillon, Read & Company, New York, are offering at 99½ and accrued interest, yielding about 6.40 per cent, \$3,500,000 of the Philadelphia Rapid Transit Company's two-year 6 per cent secured gold notes. The notes are dated Dec. 1, 1923, and are due Dec. 1, 1925. The notes will be secured by deposit with the trustee of \$4,667,000 Philadelphia Rapid Transit Company fifty-year 5 per cent sinking fund gold bonds, due March 1, 1962, the bonds thus being pledged at 75 per cent of their face value. The fifty-year 5 per cent gold bonds, due March 1, 1962, are a direct obligation of the Philadelphia Rapid Transit Company, specifically secured by a first lien on all of the capital stock and the leasehold of the Market Street Elevated Passenger Railway. In addition, payment of

the principal and interest of these bonds is guaranteed by the Union Traction Company of Philadelphia.

Sale of Certificates Approved.—The Public Utilities Commission has approved the petition of the Memphis Street Railway, Memphis, Tenn., for permission to issue \$344,000 in car trust certificates. The funds secured by the sale of the certificates, together with a \$160,000 cash payment, is the purchase price of forty new double-truck cars which will be placed in service at an early date. The specifications of these cars were given in the ELECTRIC RAILWAY JOURNAL, issue of June 2. The certificates will become due and payable in annual installments of \$35,000 beginning Dec. 1, 1924.

Sale Declared Legal.—Sale of common stock of the Chicago Elevated Railroad collateral trust, which controls the elevated lines, was recently declared legal by the Illinois Appellate Court. The stock in 1914 was pledged as collateral for a \$14,000,000 gold note issue of the trust. The court reversed an order of Circuit Judge Hugo M. Friend. That judge enjoined the proposed sale on the petition of two holders of preferred stock. Those plaintiffs alleged the sale would be the first step in "a conspiracy to place the elevated roads under the control of Samuel Insull and the Commonwealth Edison Company." In view of the decision it is believed immediate steps will be taken to effect the sale, which had been set for Oct. 3 in New York and was stopped by temporary injunction.

Payment of Dividend Rental Deferred.—At a special meeting of the board of directors of the Interborough Rapid Transit Company, New York, N. Y., on Dec. 14 it was determined that payment of the installment of the Manhattan Railway quarterly dividend rental due Jan. 1, 1924, to Manhattan Railway stockholders participating in the plan of readjustment should be deferred. Under the plan, the Manhattan dividend rental at the rate specified in the agreement (4 per cent for the current year) is cumulative, and must be met in full before any dividends can be paid on Interborough stock.

Settlement of Lease Problem Postponed.—Official announcement has been made that it may be found desirable to postpone the question of the lease of the West Jersey & Seashore Railroad, operating steam and electric service from Camden to Atlantic City, to the Pennsylvania Railroad until the future. The Pennsylvania already owns a controlling interest in the West Jersey company. Some minority holders of West Jersey favored a rental, which would provide for a straight 6 per cent dividend, while others favored the capitalization of some part of the surplus through declaration of a stock dividend in such way as would provide a return of not less than 6 per cent on present holdings. The Pennsylvania is reported to have favored a 5 per cent return.

Traffic and Transportation

Fares Cut in Des Moines

New Rate of Seven Cents Put Into Effect Because Stabilizing Fund Has Reached \$150,000

The Des Moines, Iowa, City Railway surprised its patrons at Christmas with the announcement of a reduction in fares from 8 cents to 7 cents. The fare cut was actually announced on Dec. 22. On account of the franchise provision, which requires that five days' notice be given to the City Council of any change in fare, the new rate becomes effective on Dec. 27. The decrease really has come about as a result of the stabilizing fund reaching the \$150,000 mark.

As a matter of fact, when the company's books were closed for the month of November the so-called cushion fund, provided under the franchise adopted in November, 1921, had reached \$150,902 and immediately upon closing the books F. C. Chambers, president, hastened to keep faith with the public by announcing the reduction. Mr. Chambers gives credit for arriving at the goal to the co-operation of the public and the efficiency of the railway employees. He calls attention to the fact that the reduction is in excess of 12½ per cent, which is noteworthy in the case of a business operating upon such a narrow margin.

Further evidence of the company's desire to keep faith with the public is shown by the fact that coincident with the 7-cent fare becoming effective to city car riders, it will also become operative on the three lines which run outside of the city limits. Since the adoption of the new franchise patrons on the Valley Junction, Fort Des Moines and Urbandale lines have paid an additional 2 cents upon reaching the city limits. In the future 7 cents will cover one complete ride from Des Moines to the end of any of these lines.

In this connection it is also interesting to note that while the franchise entitled the company to charge 16 cents for fares on owl cars and 4 cents for school children, these provisions have never been exacted and the fare on owl cars has been 10 cents and that for school children 2½ cents.

The fare reduction is also more noteworthy when it is considered that during the past eighteen months the company has made very heavy expenditures for reconstruction and has practically completed the new Crocker Street line.

According to the terms of the franchise, if the stabilizing fund should be decreased to \$100,000, the fare will revert to 8 cents, but Mr. Chambers has said that every effort will be made by his company and its employees to prevent such a contingency.

At the very time the fare reduction was announced a hearing was being

held in the Polk County District Court upon the suit brought by Grant Van Horn for the North Des Moines Improvement League to test the reasonableness of the 8-cent fare provided in the franchise. Van Horn originally attempted to revoke the franchise on the score that it was invalid, but upon losing this case he amended his petition so as to confine his attack to the question of the reasonableness of the fare.

Efforts made by the company since the adoption of the franchise have been so sincere and have produced such improvements in service that the average citizen of Des Moines is taking no interest in the Van Horn case, being satisfied that the franchise is a good bargain.

Jitneys Prohibited in Gadsden

Jitneys have practically been legislated out of Gadsden, Ala. On Dec. 17 the City Council of Gadsden adopted a city ordinance prohibiting the operation of jitneys on streets where street cars of the Alabama Power Company operate. This puts the jitney out of business in Gadsden's downtown section. This ordinance was referred to in the ELECTRIC RAILWAY JOURNAL, issue of Nov. 17.

The city ordinance also prohibits the operation of jitneys from Gadsden to Alabama City and Attalla, both connected with Gadsden by electric railway. For some time past numerous jitneys have operated between Gadsden and these two towns. Taxicabs are excepted in the ordinance.

The jitney owners' association of Gadsden threatens to contest the ordinance in the courts.

New Crosstown Service in Indianapolis

Crosstown service in Washington Street, Indianapolis, became a reality on Dec. 16. At intervals from four to eight minutes throughout the day cars of the Indianapolis Street Railway will be run between Irvington and Mount Jackson, straight across Washington Street. All the cars now on the West Washington Street line will make the crosstown run, while several of those now on the East Washington line will make the entire trip. Four-minute service will be given on the crosstown line in the rush hours and from six to eight-minute service at other periods of the day.

The cars on the East Michigan Street and Brightwood lines will be rerouted downtown as a result of the establishment of the crosstown line. A plan of running two cars an hour between Irvington and Mount Jackson was tried by the company last year, but it did not prove a success.

Fare Plea Makes Progress

Council at Atlanta Appoints Committee to Inquire Into Appeal for Ten-Cent Fare

Progress is being made by the Georgia Railway & Power Company, Atlanta, Ga., in connection with its appeal for a 10-cent cash fare and the right to charge 2 cents for a transfer. The Council has appointed a committee, with Councilman Bachman at its head, to audit the company's books, investigate the statements made by the company and call a public hearing on the question.

Following this public hearing the committee will recommend to the council whether or not the petition should be granted in whole or in part. If the report is favorable, the case will be taken up with the Public Utilities Commission of the State. Several months may intervene before the matter is finally settled.

There are several features of the matter that have new angles. In the first place the company has realized the necessity for stating its case to the public fully and frankly. To this end it has opened its books to the public, told the facts in the case, and appealed for a chance to make a fair return on its earnings. In this connection it should be borne in mind that the company is seeking a return of 8 per cent on the money invested so as to establish its earning capacity and permit it to increase its borrowing power. This, in turn, will enable it to secure funds to add new track and equipment and improve its service.

Beginning several months ago the company started putting placards in its cars to show how much money it spent on the various items connected with the railway. Starting with the 7-cent fare, it showed each week how much of that 7 cents went to pay for supplies, for new equipment, for salaries, for repairs and for other purposes. At the end of this series of posters, the fraction of a cent the company actually lost was graphically shown.

The attention of the public was next turned to transfers. The company showed—still by the poster method—how each transfer was issued at a loss of more than 2 cents. It showed why the transfer system was an unfair burden.

From transfers, the advertising was turned to the increase in the cost of maintenance. Item by item, the company showed how the cost had risen in the past five years 100 or 150 or 200 per cent as the case might be. This established the increase in the cost of operation in the public mind beyond a doubt.

Next came a series of total figures—showing the great cost of maintenance and the volume of material needed just to keep the railway in operation without providing new track and new equipment.

Finally the company presented its petition to the City Council. Simul-

taneously, in every car in the city, there went up this placard.

"What will you do with your street railway?"

That is the appeal the Georgia Railway & Power Company has made all the way through on this campaign—the slogan under which it will fight for 10-cent fares and an 8 per cent return on its invested capital. It is an open invitation to the public to help the company solve its problems. In its petition the company said in effect:

We have studied this thing from every angle—and we do not see any other way out of it.

We must get more money—make a larger return in our investment—or we are stopped. We have already borrowed all the money we can. The state will not permit us to issue any more bonds.

Either we must increase our income through an increase in fares—or quit.

But if you, Mr. Commuter and Business Man, know any better method of getting around the situation—sit down and let us know about it.

We need your help.

Immediately after the request was printed, letters began to come into the office of the company. Some were good, some bad, some indifferent. All of them indicated an interest on the part of the public, and many of them expressed a desire to help the company out of its difficulties. In a way, this was the most remarkable feature of the entire campaign.

The petition could have been taken to the Public Utilities Commission direct, but the company desired to explain the matter in advance to the public and thus to win its support by the soundness of its claims.

1,928 Los Angeles Trainmen Receive \$90,000 Bonus

The fourth annual Christmas bonus was paid by the Los Angeles Railway to 1,928 trainmen, in checks ranging from \$5 to \$160 and totaling \$90,000. The regular bonus is \$60 a year, on a basis of \$5 a month. Trainmen come under the bonus system when they have been in service six months. They start with an efficiency record card of 100 per cent and credits and demerits are assessed under the company's merit system, which was described in the *ELECTRIC RAILWAY JOURNAL*, issue of April 28, 1923, page 721.

For every month that a trainman's record is 100 per cent or better he is credited with a \$5 bonus. The ten top motormen and conductors of each division and the ten top men of the safety car list were selected for special prizes running from \$10 to \$100 in addition to the regular bonus. In selecting these men, officials of the company were governed to a considerable extent by the general attitude and appearance of trainmen as well as by the figures of their record.

Two changes have been announced in the administration of the merit and bonus system for 1924. Demerits for which a trainman might lose some of his bonus will be canceled providing the offense is not repeated in three months. This is intended to make the system more corrective and less dis-

ciplinary. The second change is that the special awards which go to 110 men will be in even amounts. The company budget for the year assumes that every trainman participating in the bonus will receive the full amount for the time he has served. Money remaining due to some trainman not receiving full bonus will be divided evenly among the 110 men whether it amounts to \$5 or \$100 extra.

Saginaw Makes Good Showing

The Saginaw Transit Company, Saginaw, Mich., reported gross earnings for November of \$29,646, with net after taxes of \$6,044, to meet monthly interest requirements of \$2,475. The company carried 465,000 passengers during November. When partial railway service was resumed in Saginaw on Nov. 1 the city had been without railway accommodations for two years. It was not until Dec. 1 that the full measure of service was restored, there.

Working Out Bus Plan in Spartanburg

While the South Carolina Gas & Electric Company, Spartanburg, S. C., is awaiting a decision of the Supreme Court on the petition of the city to make the company renew operation of its cars or forfeit its franchise the City Council and George B. Tripp, president of the company, are getting together and working out a satisfactory system of handling the buses. At a recent conference which was the outgrowth of complaints made to the City Council that buses were stopping in the middle of the city blocks to take on and discharge passengers, Mr. Tripp suggested to the Council that a space of 50 ft. should be set aside on the blocks where the buses must stop to receive and unload passengers. No automobiles would be allowed to park in these areas. Mr. Tripp will prepare a map containing his ideas with reference to handling traffic for the buses and this will be later submitted to the City Council.

Commission Hears Ten-Cent Fare Petition of Kingston Company

A hearing was held before the Public Service Commission on Dec. 11 in the matter of the petition of the Kingston Consolidated Railroad for permission to charge an 8-cent ticket and a 10-cent cash fare in lieu of the 7-cent fare now charged in Kingston, N. Y. Howard Chipp, attorney, and G. B. te Bow, general manager, represented the company.

Mr. te Bow testified as to revenues and expenses covering operations of the Kingston road for several years. He said the operating revenues for the first seven months in 1923 were \$169,588. The operating expenses for the same period were \$129,026 and the taxes paid by the company amounted to \$11,367. Another hearing will be held on Jan. 8.

Los Angeles Urged to Hire Traffic Expert

The Los Angeles Traffic Commission recommended on Dec. 18 to the Los Angeles City Council and the Board of Supervisors of Los Angeles County that a transportation expert be employed with a view to working out a plan for rapid transit both within the city of Los Angeles and to all outlying points. It is reported that Major R. F. Kelker, Jr., Chicago transportation expert, who prepared the plans for the Chicago rapid transit system, would be recommended to work out the proposed Los Angeles metropolitan railway system. The plans of the traffic commission involve the construction of elevated lines, subways and open cuts. One of the difficulties encountered by expert engineers in the past in studying the transit situation in Los Angeles is the lack of existing loop lines and the comparatively few crosstown lines.

The traffic commission outlines in its resolution to the City Council and county officials that it was prompted in making the recommendation for a proposed transportation survey because of the "ever increasing and harassing congestion" in the city, and that for that reason there is a need "for a thorough survey of the entire problem of public transportation in the metropolitan area of Los Angeles."

P.R.T. Plans Ordinances for Bus Development

The Philadelphia Rapid Transit Company plans the early introduction of enabling ordinances for consideration of the incoming city administration in order to meet the growing demand, through the newspapers and otherwise, for a bus line on Broad Street. This service as proposed will provide increased carrying capacity into and out of the delivery district. The universal fare will be 10 cents. Passengers originating at or destined to points away from motor bus lines will continue to use the 3-cent exchange ticket privilege between buses and connecting street cars to complete their ride. Transfers between buses cannot be given, because each passenger is to be supplied with a seat, which serves to limit the maximum carrying capacity of the buses.

Three-Cent Fare for School Children.

—Half fare for Oakland school children or a rate of 3 cents went into effect on Dec. 10. The San Francisco-Oakland Terminal Railways placed books of tickets on sale which will not be accepted on Sundays, Saturdays, holidays or during periods of vacation. They will be honored only during such hours as school attendants use the company's service. This is in accordance with the ruling of the State Railroad Commission.

Must Come to Dead Stop.—The Public Service Commission has directed the Hudson Valley Railway to cause all of its cars to come to a full stop before crossing what is known as the Pratt's

crossing on the Waterville Mechanicville highway in Half Moon, Saratoga County, N. Y. In view of the heavy traffic over the trolley crossing and the frequency of trolley car movements the crossing is of such character as to make it dangerous. In addition the speed of cars has been restricted at the crossing, but the commission holds that as a further need to protect the traveling public all cars must come to a dead stop.

Rochester-Erie Freight Service.—Through freight service will be installed over the Rochester, Lockport & Buffalo Railroad and Buffalo & Lake Erie Traction Company from Rochester, N. Y., to Erie, Pa., according to an announcement at the Rochester, Lockport & Buffalo offices. The institution of this service will permit thirty-six-hour delivery between the two cities and will eliminate trucking charges in Buffalo, through the two companies using the same freight station in Buffalo. The Rochester, Lockport & Buffalo also has opened half-hour passenger service between Rochester and Brockport during eleven hours of the day. It was planned to start the new service on Dec. 29.

Railway Wins Injunction.—An injunction obtained several months ago by the Kansas City Railways, Kansas City, Mo., against the enforcement of an ordinance specifying changes in street car stops at Thirty-first and Main Streets was made permanent Dec. 19 by Judge Stone in the United States Circuit Court. The ordinance came as a result of a protest made by property owners on the north side of Thirty-first Street, who maintained that their business suffered because the cars stopped at a point distant from their stores. The railways held that the stopping of the cars before crossing Thirty-first Street would delay the traffic. According to the ruling of Judge Stone the cars will continue to stop at the present designations.

Parked Automobiles Tagged.—In connection with the recent safety campaign conducted by the motormen and conductors of the Lehigh Valley Transit Company, Allentown, Pa., the members of the Safety Committee went out and tagged all parked automobiles on the Saturday afternoon and evening before Christmas in the various cities and towns along the line with a ticket which is a facsimile of the Police Department tag. One side of the tag shows three automobiles with safety signals for drivers, namely, "Turn to the Right, Stop and Turn to the Left." The other side said: "You are tagged for safety by the General Safety Committee, Transportation Department, Lehigh Valley Transit Company." The tag gave statistics on the number of people killed by automobiles in the United States and asked for the cooperation of the tagged one in stopping accidents. The safety campaign of this company, referred to previously in these pages, was entered into very enthusiastically by the employees and patrons.

Personal Items

Mr. Livers Resigns

Achieved Success with Charlottesville & Albemarle Railway—Active in Local Improvement Projects

John L. Livers has resigned as president of the Charlottesville & Albemarle Railway, Charlottesville, Va., and vice-president of the Virginia Western Power Company, with which the railway and light properties were recently merged. The first week in January he will leave with his family for Florida, and intimates that he plans to pay a long intended visit to Cuba and possibly Mexico. It is understood that Mr. Livers will continue to make Charlottesville his home during the summer and will keep up his interest in the suburban development of the community notwithstanding. He is president and the principal stockholder in the Redland Land Corporation, which is developing the Jefferson Park and the Meadow Brook additions at Charlottesville.

"Johnny" Livers, as Mr. Livers is familiarly known, took over the Charlottesville properties as manager in 1912. Later he was made vice-president as well as manager, and in 1921 he was elected president. He completely rehabilitated the utility properties there and placed them on a dividend paying basis. This was certainly no inconsiderable job, but in carrying it through Mr. Livers resorted to many new and novel ideas. He was quick to realize the value of consumer co-operation, but this is difficult to achieve even in a small community. As a result of his efforts Charlottesville, a city of 7,000 population, has a five minute headway the year round, and a 5-cent fare. Not only this but Mr. Livers has been conspicuous for his uniform and cordial support of every project that would make for the improvement of local conditions and the industrial and civic betterment of the whole section.

The extent to which he endeared himself to the entire community is attested by the editorial "A Model of Civic Conduct," published by the Charlottesville *Daily Progress* in its issue of Dec. 22. In the course of a column editorial expressing its regret at his loss to the community that paper said:

The most conspicuous trait of Mr. Livers was a remarkable modesty that amounted nearly to self-effacement. He was everything for the cause he had to serve, or object to attain, but next to nothing for himself. And he was indifferent in this way as to his own recognition, without being in the least shrinking or diffident in pushing the cause or interest in which he had faith. He was, however, essentially a man of achievement and vision that amounted to genius, and this community will long miss his far-seeing and sympathetic mind in its future counsels, and wonderful talent for overcoming difficulties in execution.

Mr. Livers was born in Gettysburg, Pa., in 1878. Starting as a lineman at the age of eighteen he worked for several years in various phases of con-

struction work. He then entered the operating and contracting field, and during a period of twelve years constructed more than 100 electric light and power plants. As stated previously he took charge of the Charlottesville property in 1912.

John Kelly has replaced John A. Roach as roadmaster of the East St. Louis Railway, East St. Louis, Ill.

Floyd E. Harper has succeeded H. B. Hurd as secretary of the Dubuque Electric Company. C. B. Zeigler has replaced J. N. McCallum as treasurer.

Harry T. Edgar has assumed the presidency of the Paducah Electric Company, Paducah, Ky. He is also president of the Keokuk Electric Company, Keokuk, Iowa.

J. W. Muir has succeeded J. A. Shepherd as auditor and assistant treasurer of the Alabama Power Company with office in Birmingham.

S. W. Willers has succeeded E. Curtis as chief engineer of the power station of the Fort Smith Light & Traction Company, Fort Smith, Ark.

Charles Dunn has succeeded Hamilton Baluss as general manager of the Susquehanna Traction Company, Lock Haven, Pa.

F. A. Brown, who has been in charge of the statistical department of the Wisconsin-Minnesota Light & Power Company in Eau Claire for more than a year, has been transferred to the Northern States Power Company's office at Minneapolis as head of the company's statistical department.

William Mangold has completed twenty-five years' service with the United Railways & Electric Company, Baltimore. He has served in different capacities from clerk and stenographer until he became chief clerk under the present superintendent.

Scott S. Crane, general manager of the Altoona & Logan Valley Electric Railway, Altoona, Pa., has completed his twenty-eighth anniversary as general manager at Altoona. Mr. Crane entered the Logan Valley service in 1895 following three years in Altoona as a telegraph operator for the Pennsylvania Railroad.

Harry A. Brinkerhoff, consulting engineer, was recently elected the first city manager of Portland, Me., at the organization meeting of the new City Council. He has had large experience in handling important engineering projects in many parts of the United States and Canada. Until two years ago, when he established himself as a consulting engineer, he was for more than twenty years with Westinghouse, Church, Kerr & Company of New York. Mr. Brinkerhoff is a member of the

American Society of Mechanical Engineers.

John J. K. Caskie, for several years associated with the claims and legal department of Mitten Management in the operation of the Philadelphia Rapid Transit Company, will become general attorney for the International Railway, Buffalo, Jan. 1, 1924, according to an announcement by Herbert G. Tulley, president of the International. Mr. Caskie will have charge of all negligence claims and litigated cases. The appointment of Mr. Caskie does not affect the status of Thomas Penney, who remains general counsel for the International Railway.

Charles H. Quinn, chief electrical engineer of the Norfolk & Western Railway, has resigned. His first railroad experience was on the Southern Pacific at San Antonio, Tex., where he entered the service as machinist's apprentice. In 1901 he went to the Norfolk & Western as a draftsman. One year later he was promoted to electrical foreman, which position he held for five years. In 1906 he was appointed assistant engineer of motive power. Nine years ago Mr. Quinn was promoted to chief electrical engineer of the road, which position he held up to the time of his resignation.

Obituary

Alfred Hare, railroad builder of Oklahoma, died recently in Oklahoma City. He was a prominent factor in the promotion and building of the interurban railway between the cities of Tecumseh and Shawnee.

J. W. Waggener, formerly secretary of the Atchison Railway, Light & Power Company, Atchison, Kan., died on Nov. 23, 1923. Mr. Waggener was general superintendent of the company from 1909 to 1922, at which time he became secretary and C. A. Leland, Jr., became general superintendent. Mr. Waggener belonged to one of the prominent families of Atchison. His death was a distinct loss to the general industrial life of the city.

Stephen C. Mason, president of the National Association of Manufacturers from 1918 to 1921, died recently at his home in Pittsburgh. Since 1896 he was secretary and director of the McConway & Torley Company and was widely known in the railroad field. At the age of nineteen he went to work on the Connecticut & Passumpsic Railroad. Eight years later he joined the Interstate Commerce Commission and here he was in charge of the compilation and publication of the commission's statistics of railways in the United States. He was a member of the National Industrial Conference Board, Pittsburgh Chamber of Commerce, the Railway Club of Pittsburgh and of other prominent associations. He was one of the leading advocates of the open shop as a solution of the labor problem.

Manufactures and the Markets

News of and for Manufacturers—Market and Trade Conditions
A Department Open to Railways and Manufacturers
for Discussion of Manufacturing and Sales Matters

Market for Second-Hand Safety Cars

Heavier Traffic Has Caused Substitution of Larger Cars and Safety Cars Are Available at a Low Price

A fairly good market for safety cars is reported by dealers in second-hand railway equipment. At the present time a street railway in one of the larger cities is replacing a number of its single-truck one-man safety cars by larger units. This is being done because the traffic on the line where these cars were formerly used has been built up to a point where the railway feels that cars of larger capacity are needed. As a result of the change there are available a number of one-man Birney cars at a comparatively low price. These cars have been operated for a short period of time only, and they have been well maintained. They are therefore in first class condition.

A considerable saving in first cost might be accomplished by the purchase of such cars. It is pointed out that the operating cost being much lower than that of a heavier double-truck car, railways could save money by the use of safety cars in the off-peak period. The fact that these cars can be purchased at such a reduced price might make it possible for the railway to make such an investment for use only during those hours. Hence, they might be used on a route where traffic was sufficiently heavy to demand two-man cars in the rush hours. Such a proceeding would scarcely be economical if the cars had to be purchased at the original cost at which they were obtained from the builders.

A number of railways have recently purchased second-hand safety cars. In one case this was done because it was desired to increase service slightly on lines where these cars were already in service. In another case they were bought for service on lines with very light traffic, and it was apparently the idea of the railway to purchase rolling stock as cheaply as possible.

The light weight of the safety car is a favorable factor where shipping charges are to be considered.

Railways Buying Auto Sweepers

In preparation for their annual snow-fighting campaign many railways have recently been buying automobile snow-sweeping equipment. The Fox Rotary Snow Broom Company reports that this apparatus is being used to augment the regular snow sweepers on many properties. In one case the railway uses the automobile sweeper to clean out wyes where the rail sweepers operate

with difficulty and which were formerly cleaned by hand labor. This apparatus has been found useful also for removing the ridge of snow left by the rail sweepers between the tracks. Another advantage claimed is that an auto sweeper is not tied up by other vehicles stalled on the tracks. They are useful also where storage battery cars are operated and the power is insufficient to climb a steep grade and at the same time operate the brooms.

Dividend to Be Paid in Stock

A plan for taking care of dividends accumulated on the preferred stock since 1913 has been proposed by a committee of stockholders of the Laconia Car Company. It provides for an increase of the present authorized common stock from 10,000 shares to 65,000 shares of no par. In lieu of accumulated dividends on preferred, 10,000 shares of the increased authorized common are to be given preferred stockholders, this to be made convertible into common on the basis of four and a half shares of common for each share of preferred, if converted prior to March 1, 1924, and four shares of common for each share of preferred thereafter.

Record Set by Wire Works

The weekly average production by the Chicago Works of the Western Electric Company during November was 565,795,000 ft. of conductor wire. The total production for the month was 2,263,180,000 ft. In four weeks the Chicago factory almost surpassed the best previous record for a five-week month. Output is stated in "conductor feet" because of the fact that different sizes of cable are made up of a different number of pairs of wire. The conductor foot is a term representing the amount of wire going into cable of all sizes and is a standard unit of measurement for purposes of comparison.

Metal, Coal and Material Prices

Metals—New York		Dec. 26, 1923
Copper, electrolytic, cents per lb.	.....	13.00
Copper wire base, cents per lb.	.....	15.625
Lead, cents per lb.	.....	7.45
Zinc, cents per lb.	.....	6.62
Tin, Straits, cents per lb.	.....	47.25
Bituminous Coal, f.o.b. Mines		
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	.....	\$4.67
Somerset mine run, Boston, net tons	.....	2.125
Pittsburgh mine run, Pittsburgh, net tons	.....	2.00
Franklin, Ill., screenings, Chicago, net tons	.....	1.95
Central, Ill., screenings, Chicago, net tons	.....	1.575
Kansas screenings, Kansas City, net tons	.....	2.00
Materials		
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	.....	\$6.65
Weatherproof wire base, N. Y., cents per lb.	.....	17.50
Cement, Chicago net prices, without bags	.....	\$2.10
Linseed oil (5-bbl. lots), N. Y., per gal.	.....	\$0.93
White lead, in oil (100-lb. keg), N. Y., cents per lb., carload lots	.....	\$11.255
Turpentine, (bbl. lots), N. Y., per gal.	.....	\$0.92

Paving Brick Shipments Remain High

Considering seasonal influences, shipments of vitrified paving brick for November were running above normal, according to a report just made by the National Paving Brick Manufacturers' Association. For the first time since last spring the total number of brick manufactured for the month ran greatly in excess of shipments, indicating that companies are manufacturing for stock in anticipation of late winter and early spring shipments.

Larger Motors Being Installed on Salt Lake City Cars

Installation of larger motors in the equipment used by the Salt Lake & Utah Railroad and the construction of new sidings for accommodating longer trains are now going forward on this line, involving an expenditure of \$50,000. The additional sidings are being placed at the towns of Bringhurst and Cutler.

With the installation of the larger motors, fifteen cars of freight can be hauled at one time and double this number of empty cars can be handled by the new locomotives. The electric locomotives will weigh 120,000 lb. and will be equipped with larger axles than the present equipment and also with journal boxes. The new equipment is expected to arrive in time to handle the heavy freight work of the early fall of 1924.

Railroad Tie Producers Will Meet

The sixth annual convention of the National Association of Railroad Tie Producers will be held in Kansas City, Mo., at the Hotel Muehlebach, on Jan. 17-18, 1924. Prominent speakers will discuss subjects of interest to cross-tie producers. A feature of the meeting will be round-table talks, in which the producers themselves will discuss their problems.

Rolling Stock

Des Moines City Railway is expecting to put ten new cars into service early in the new year. Twenty cars were ordered July 1, but there have been numerous delays and no promise of delivery has yet been secured for the second ten. The detailed specifications of the cars follow:

Builder of car body	McGuire-Cummings Manufacturing Company	
Type of car	Semi-convertible motor passenger	
Seating capacity	48	
Weight	Car body	20,000 lb.
	Trucks	10,000 lb.
Total	Equipment	8,000 lb.
		38,000 lb.
Bolster centers, length	20 ft. 6 in.	
Length over all	46 ft. 0 in.	
Truck wheelbase	5 ft. 6 in.	
Width over all	8 ft. 2 in.	
Body	All steel	
Interior trim	Light cherry	
Headlining	Agasote	
Roof	Arch	
Air brakes	General Electric	
Armature bearings	Sleeve	

Axles	Quenched and tempered
Bumpers	Channel
Car signal system	Faraday
Car trimmings	Polished bronze
Center and side bearings	Plain
Couplers	K 35-JJ
Curtain fixtures	Portable
Curtain material	Curtain supply
Destination signs	Pantasote
Door-operating mechanism	Keystone
Fenders or wheelguards	National Pneumatic
Gears and pinions	H. B. Grade M
Hand brakes	G. E. Peacock
Heater equipment	Consolidated electric
Headlights	Golden Glow
Journal bearings	Plain
Journal boxes	McGuire-Cummings
Lightning arresters	General Electric
Motors	Four G. E. 247-I
Motors	Outside hung
Paint, varnish or enamel	Vitrolite
Registers	International No. 5
Sanders	Des Moines City Railway type
Sash fixtures	Dayton Manufacturing Company
Seats	Wakefield
Seating material	Cane
Springs	Railway spring
Step treads	Kass-Feralun
Trolley base	U. S. -13-E
Trucks	McGuire-Cummings
Ventilators	Utility
Wheels	Rolled steel—26 in.

Track and Line

Long Beach Railway, Long Beach, L. I., has applied to the Public Service Commission for authority to construct and operate the entire street railway in Long Beach as contemplated in the articles of incorporation of the company. The company has constructed and operated a part of the line and it has now asked the necessary state authority to build and operate from Park Street and Minnesota Avenue to Beach Street to New York Avenue and then to Park Street, making a continuous loop in Long Beach's street railway service.

Power Houses, Shops and Buildings

British Columbia Electric Railway, Vancouver, B. C., will shortly award the contract for the building of the new power house which will house a turbine of 25,000 hp. The entire project will cost in the neighborhood of \$1,500,000.

Trade Notes

Philip L. Thomson, publicity director of the Western Electric Company, has been elected president of the Association of National Advertisers. His election follows successful service as director and since 1921 as vice-president of the association. Mr. Thomson began his business career in 1903 following his graduation from Union College and from Harvard University. For two years Mr. Thomson was employed in the Chicago office of the Western Electric Company. In 1905 he went to Kansas City. Then he became successively manager of the company's headquarters at Pittsburgh and publicity director, in charge of all publicity activities. In this capacity Mr. Thomson has been identified with the development of Western Electric advertis-

ing and publicity in this country, and last spring he spent two months in Europe in connection with the publicity problems of the International Western Electric Company.

Nicholas M. DuChemin has assumed the duties of general superintendent of the West Lynn plant of the General Electric Company following the death of William J. Lloyd. He joined the General Electric apprentice school at the River Works in Lynn and also the engineering school. In addition to this he attended the Suffolk Law School in Boston and took a year's course at the Boston University. During the years 1917 to 1919 he was in the United States navy, enlisting as a seaman and finishing with the commission of lieutenant in charge of construction work for aviation uses. Following his naval service he returned to the Lynn plant of the General Electric Company as a boring mill hand. He soon won promotion and his safety work caused his being put in charge of the Bedeaux point system in the West Lynn plant, the position he occupied when he received his recent appointment as general superintendent.

New Advertising Literature

Combustion Engineering Corporation, New York, N. Y., has published a pamphlet describing the new Frederick stoker. The pamphlet contains a list of a few representative installations of the new Frederick stoker.

Irving Iron Works Company, Long Island City, N. Y., has issued a pamphlet entitled "Safety Under Foot." This pamphlet contains a table of safe loads showing the maximum allowable fiber stress on Irving subways of all types.

Fuller-Lehigh Company, Fullerton, Pa., has issued bulletin No. 900, "Pulverized Coal for Boilers," Fuller-Lehigh Equipment pamphlet and Fuller News, featuring the Fuller-Kinyon conveying system. These three pamphlets, recently released, embody the latest information on pulverized coal as a fuel, both preparation and application.

Carnegie Steel Company, Pittsburgh, Pa., has available to users of steel the ninth edition of the shape book. The new edition is the result of a thorough check and revision of all the sections rolled by the company on its shape, rail, bar and plate mills. While no important changes have been made in the regular sizes of structural and bar mill sizes of beams, channels, angles, tees and zeos, numerous changes have been made in the special sections, such as concrete reinforcement bars, window and casement sections, automobile rim sections and other miscellaneous bar mill sections. Certain rails and splice bar sections which have become obsolete since the issue of the preceding edition have been eliminated in the present issue.

—more for DETROIT



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100 double-truck
Peter Witt cars
to be equipped with*

Peacock Staffless Brakes the choice of Detroit Municipal Railway

Safety first is a mighty important matter in the eyes of those who are responsible for operating the City's transportation system in Detroit. So they specify "Peacock Staffless Brakes" for all new cars. Why? Because, both in theory and in practice, this equipment proves its reliability, its high braking power and its quick, positive action in emergency.

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Lightest weight
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Tacoma

When writing the advertiser for information or prices, a mention of the Electric Railway Journal would be appreciated.

The Value of the Statistical Number

The following is an excerpt from the record in a recent court proceeding:

Q. Have you some figures taken from the ELECTRIC RAILWAY JOURNAL?

A. I have.

Q. What is the ELECTRIC RAILWAY JOURNAL?

A. It is a publication generally recognized as an authority on street railway operation.

Q. Have you the figures shown by the ELECTRIC RAILWAY JOURNAL of the cars ordered by city railways within the United States during the eleven years past?

A. I have.

Q. How many cars have been ordered during the past eleven years in the United States?

A. 28,417.

Q. Of that number, how many were open cars?

A. 342.

Q. Have there been any open cars ordered within the United States, according to the articles of the ELECTRIC RAILWAY JOURNAL, since 1916?

A. No.

Q. In 1916 how many cars were ordered?

A. 3,046.

Q. How many of these were open cars?

A. 131 were open cars, or 4.31 per cent.

Q. As you state, no open cars have been ordered since 1916. Is that correct?

A. That is correct.

Q. What was the total number of cars ordered in 1917?

A. 1,998.

Q. In 1918?

A. 1,842.

Q. In 1919?

A. 2,129.

Q. And the following year?

A. 2,889.

Q. And in 1921?

A. 1,059. I might add that these figures cover cars for city service only.

Tie-up with this!

Testimony, like that reprinted at the left, indicates the reliance placed on the Statistical Issue of ELECTRIC RAILWAY JOURNAL.

We repeat—the Annual Statistical Issue is depended upon—used—re-used and kept for reference.

Your advertisement in such a medium will command attention.

Wire Your reservation
Last forms close January 2.

JANUARY 5, 1924
ELECTRIC RAILWAY JOURNAL

The Annual Statistical and Review Number

ELECTRIC RAILWAY JOURNAL

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Timken is equipped by experience, by engineering ability and by manufacturing facilities to meet new developments in automotive transportation.

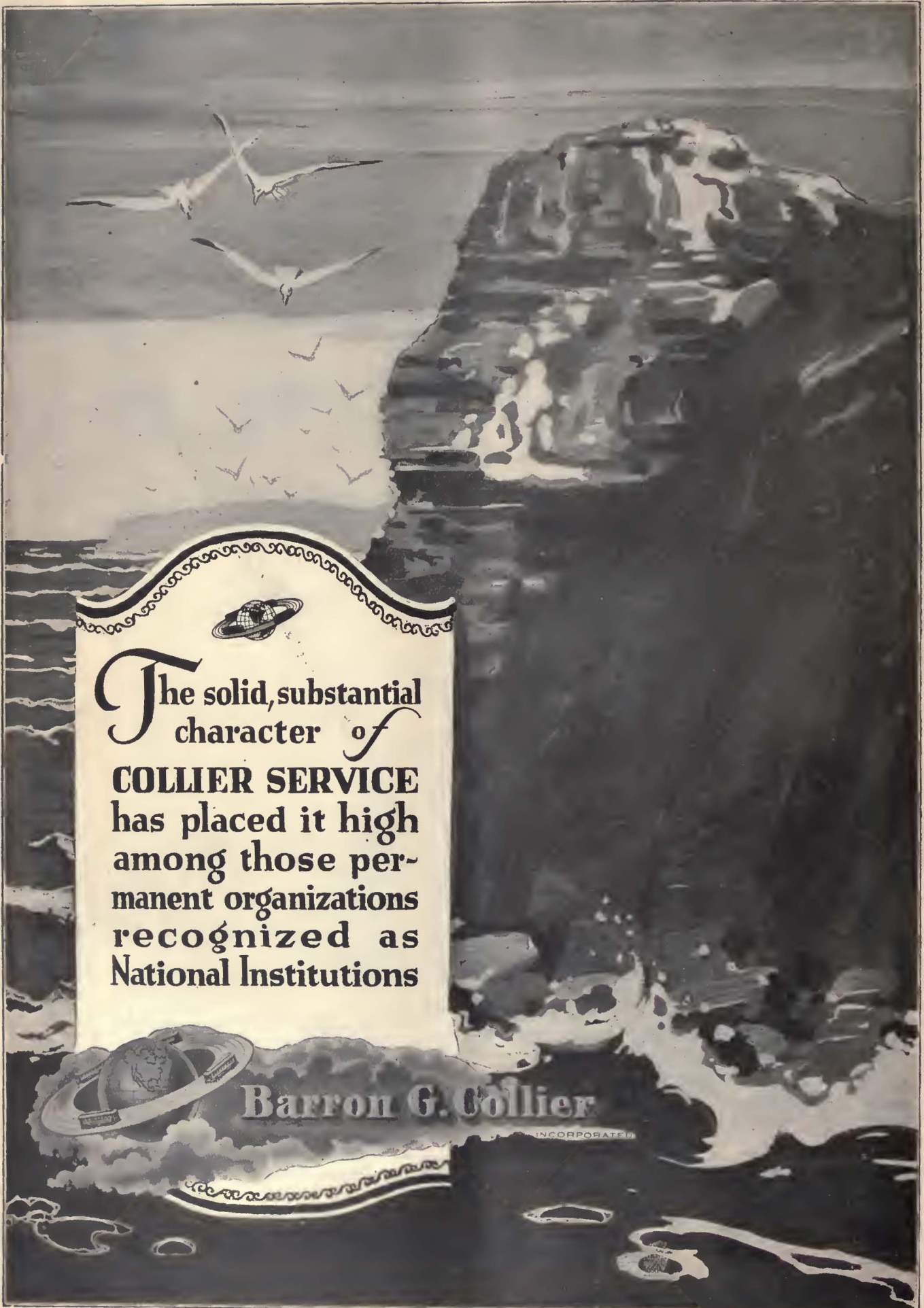
For twenty-five years Timken Axle designing has constantly anticipated and been ready for such developments.

It is not strange that the most forward-looking and progressive motor-bus designers in the field today are building Timken-equipped buses.

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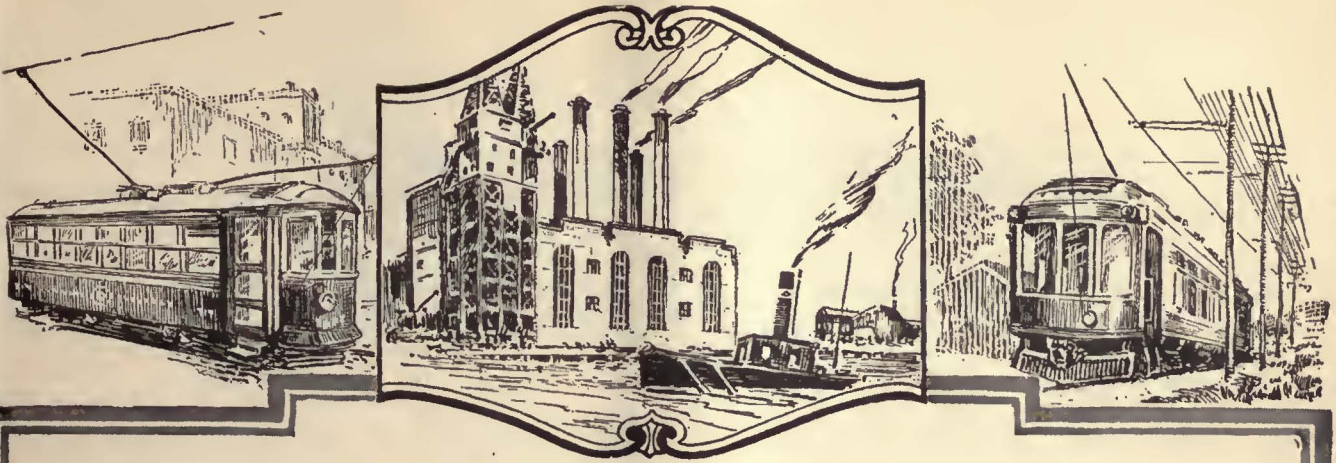
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has placed it high
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manent organizations
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JANVS

the Roman God, after whom January was named, was shown on ancient coins as having two faces—one looking forward, one looking back.

This time of the year is a good time to look back on 1923 and to look forward into 1924.

1923 was a wonderful year for us. More and more Electric Railways came to us for help in conserving Equipment and Power through correct and scientific lubrication.

They have shown their appreciation of Texaco Service (the right oil in the right place in the right amount—and the co-operation of Texaco Engineers) by renewing their contracts.

From where we stand now, 1924 gives every promise of being a mighty fine year for us and a year of satisfaction to numbers of

roads who acknowledge the correctness of the Texaco Policy by the pleasant continuation of their patronage.

We thank them.

For 1924 our Engineering forces have been augmented and our deliveries for service have been expanded to take on all the new business the year will bring us.

We are here for service and shall welcome the opportunity of outlining Texaco Lubricating Service any time you call on us.

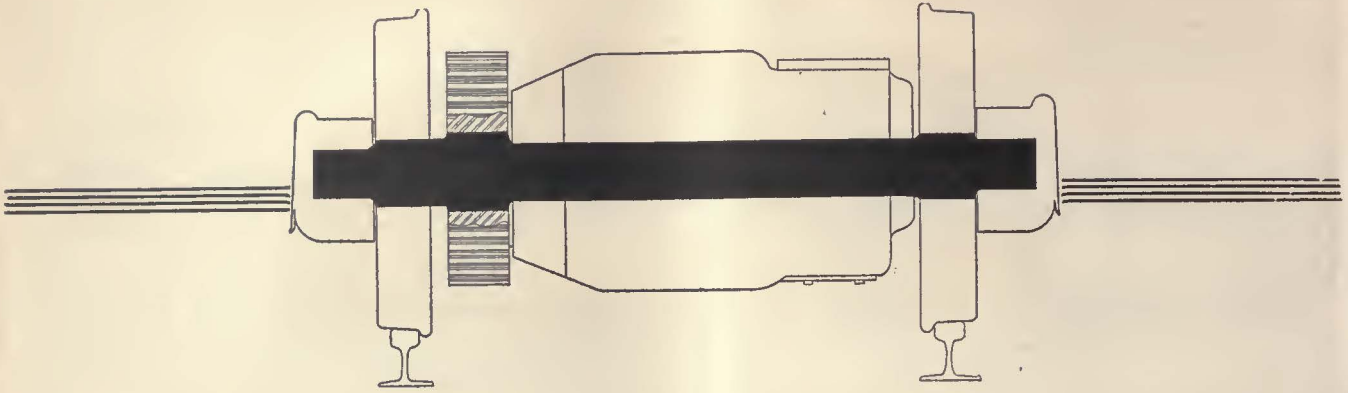
We will thank you for the opportunity—and you will thank us for the *results*.

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Any difference you may find in the cost of Standard Steel Works Forgings is a low price to pay for absolute dependability.

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as use their purchases—this is the privilege, if not the practice
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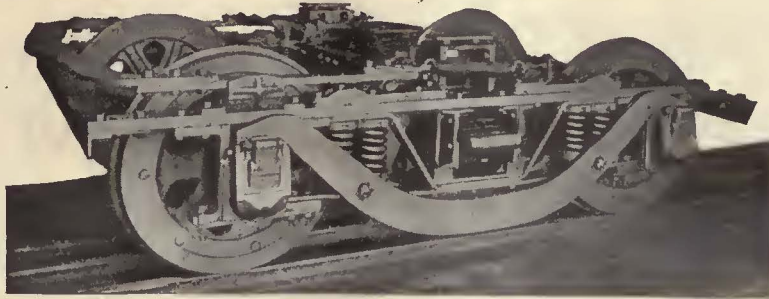
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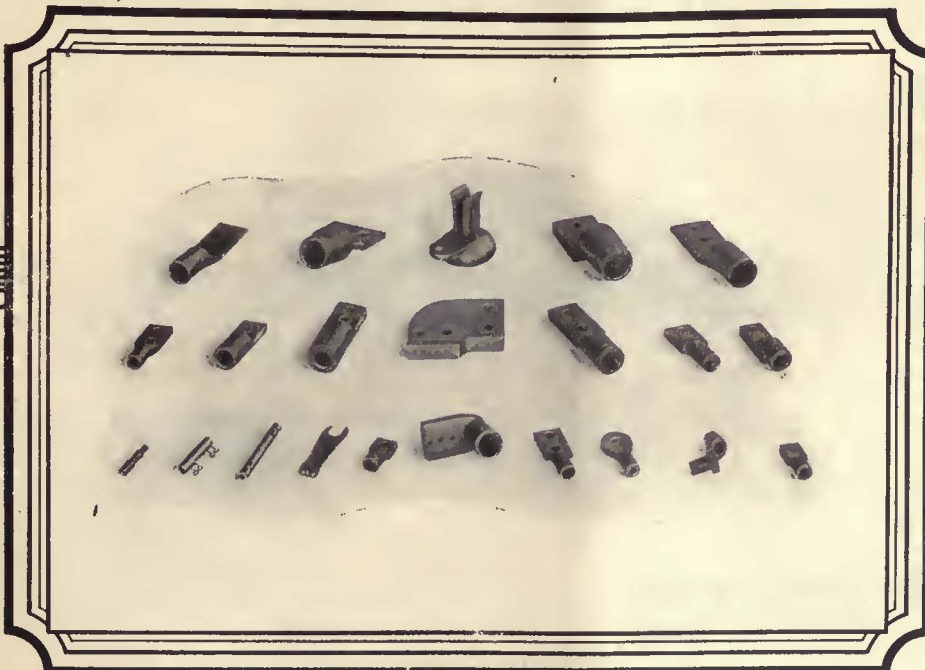
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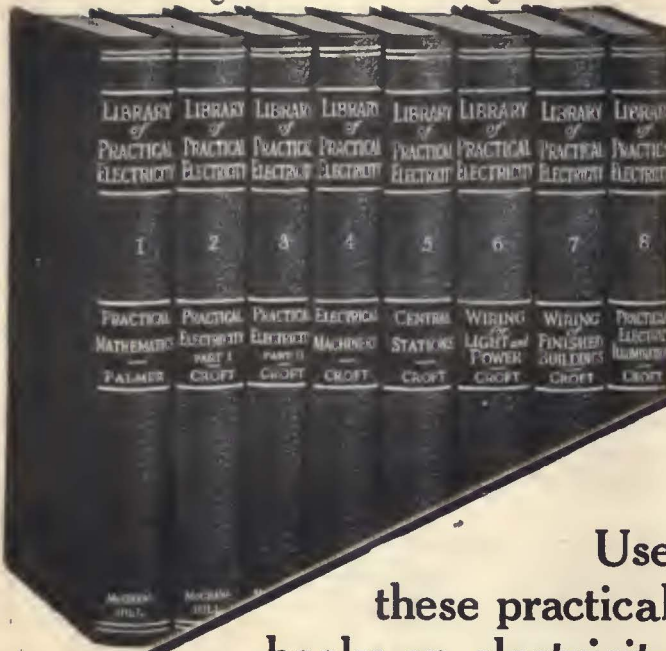
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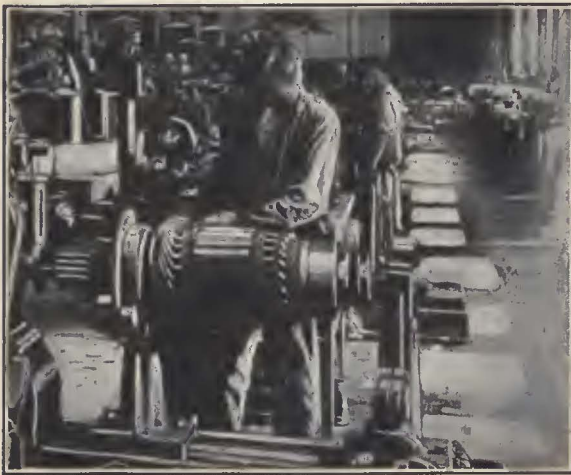
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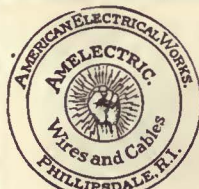
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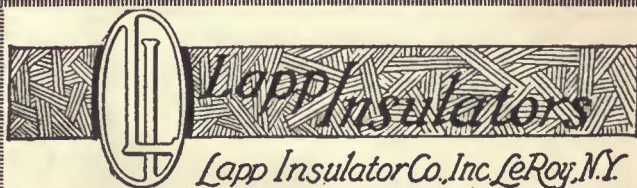
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Types for open and closed tracks
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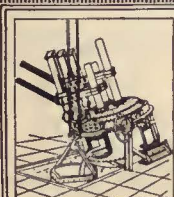
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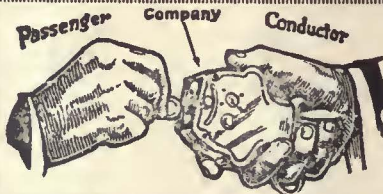
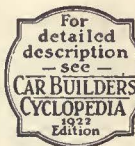
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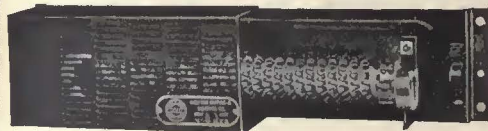


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Applicants must give: name, age, place of birth, details of engineering and administrative qualifications and practical experience of electrical railways.

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Elec. Service Supplies Co.
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Westinghouse E. & M. Co.
- Boxes, Switch
Johns-Pratt Co.
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(See also Poles, Ties,
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Elec. Service Supplies Co.
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Ohio Brass Co.
- Brake Adjusters
Brill Co., The J. G.
National Ry. Appliance Co.
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- Brake Shoes
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- Brushes, Carbon
General Electric Co.
Jeandron, W. J.
Le Carbone Co.
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Manganese
Bemis Car Truck Co.
Brill Co., The J. G.
St. Louis Car Co.
- Cables. (See Wires and
Cables.)
- Cambrie Tapes, yellow and
black varnished
Irrington Varnish & Ins. Co.
- Carbon Brushes (See Brushes,
Carbon)
- Cars, Dump
Brill Co., J. G., The
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St. Louis Car Co.
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Transit Equipment Co.
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Machinery)
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Ingersoll-Rand Co.
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Ingersoll-Rand Co.
- Condensers
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Ingersoll-Rand Co.
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- Crossings
Ramapo Ajax Corp.
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Work)
- Frogs, Trolley
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- Guard Rails, Tee Ball &
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Ramapo Ajax Corp.
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- Helmets—Welding
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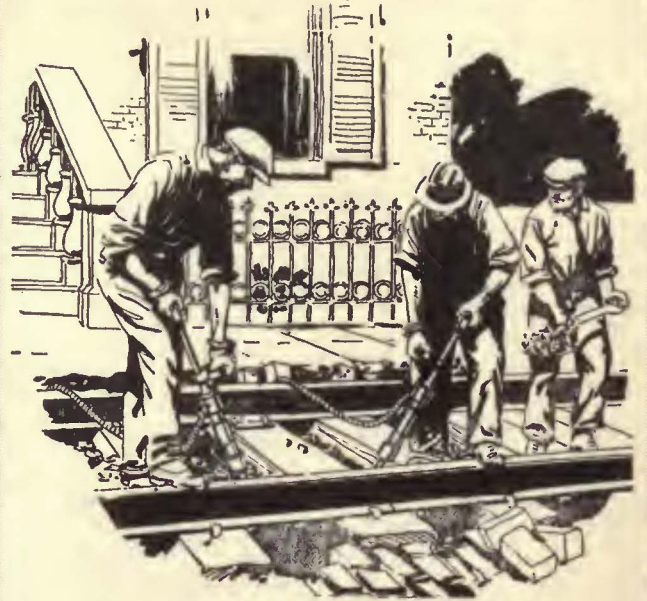
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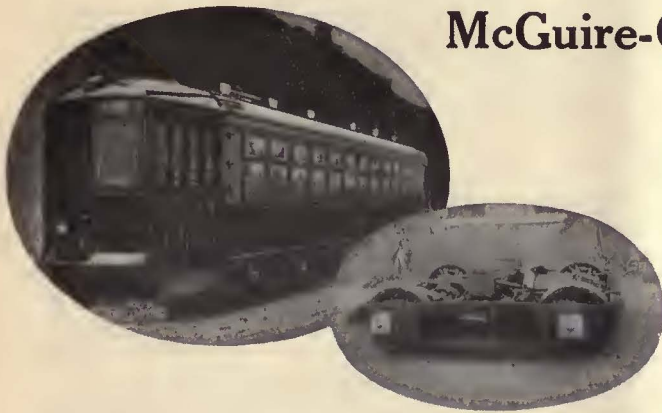


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 Heywood-Wakefield Co.
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 Nachod Signal Co., Inc.
 U. S. Elec. Signal Co.
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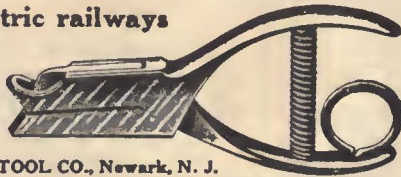
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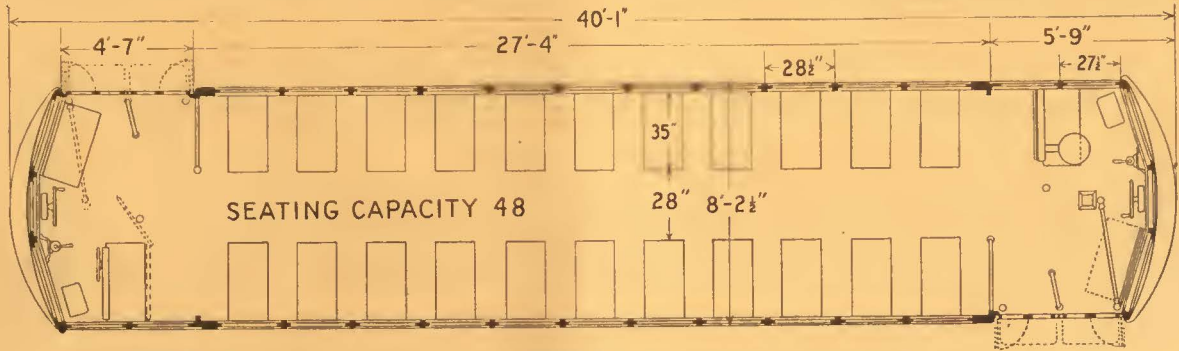


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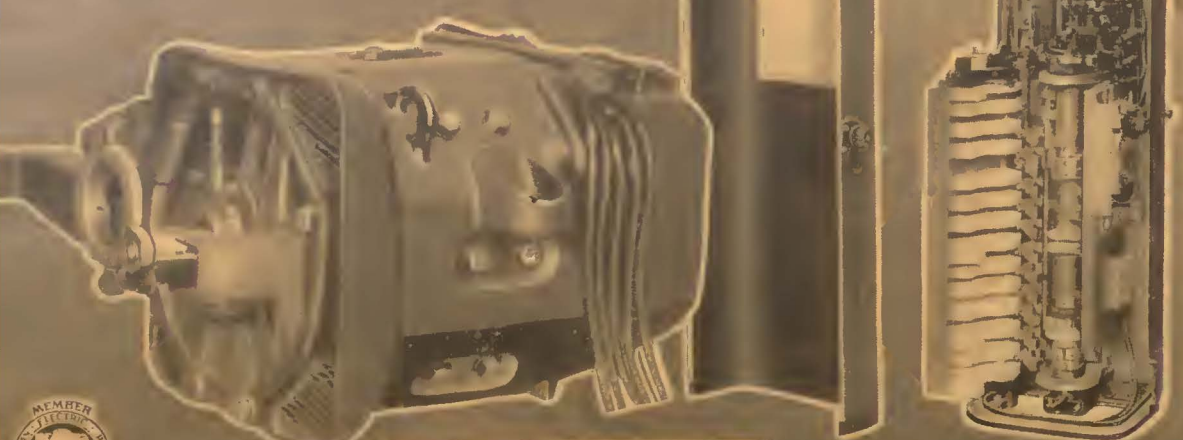
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