

# ELECTRIC RAILWAY JOURNAL

## Progress

At every point on this map new manufacturing facilities and an added source of engineering information have been provided during the past year.

The introduction into America of the Mercury-Arc Power Rectifier is one interesting example of the benefit of this development.

**American Brown Boveri  
Electric Corporation**  
Camden, New Jersey

See Pages 17-20 inclusive  
for details

ST. LOUIS

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# Hauling Crowds

## —Without Crowding

**O**UT of this apparent paradox—hauling crowds without crowding—is dawning the new era of profitable street railway operation. The truth of it is being demonstrated in more and more cities and communities. Almost every week some railway company makes available facts and figures that indicate the wisdom of far-sighted planning and management.

And if you will delve far enough into

these data, you usually will see that “hauling crowds without crowding” is not so inconsistent after all; modern, easily-handled cars attract the patronage. Modern, easily-handled and *comfortable* cars take the curse out of crowding—so far as it can be taken out.

And the public—at heart being considerate and appreciative of well-directed effort for transportation efficiency—rides and pays.

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East Pittsburgh Pennsylvania

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the United States and Foreign Countries



1927

# Westinghouse

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# ELECTRIC RAILWAY JOURNAL

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Vol. 69  
No. 11

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Change of Address—When change of address is ordered the new and the old address must be given, notice to be received at least ten days before the change takes place. Copyright, 1927, by McGraw-Hill Publishing Company, Inc. Published weekly. Entered as second-class matter, June 23, 1908, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

Cable Address: "Mashinst, N. Y."

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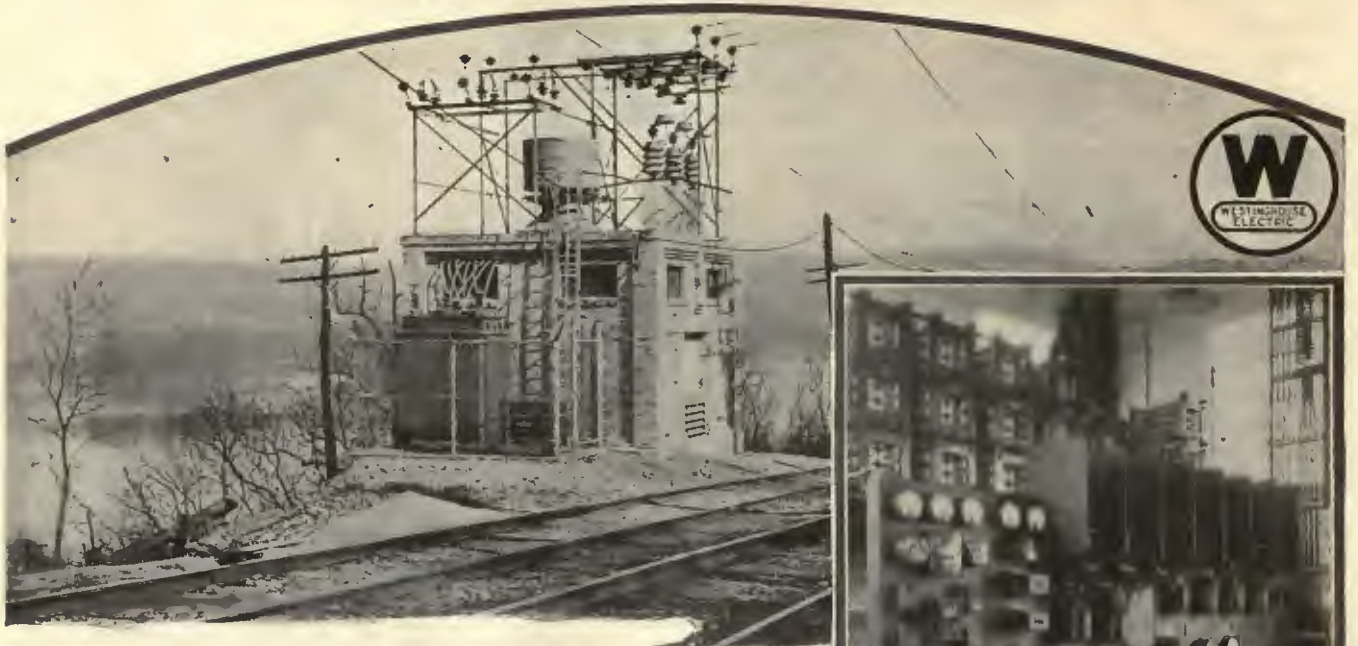
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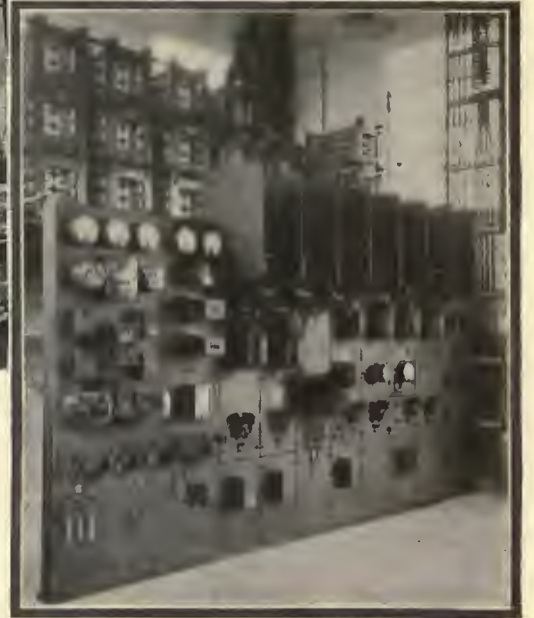
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**T**HROUGH lower operating and maintenance costs, a more efficient use of power, and increased patronage—there lies the road to greater profits.

And each Westinghouse automatic substation installed on your system is a milestone along that road.

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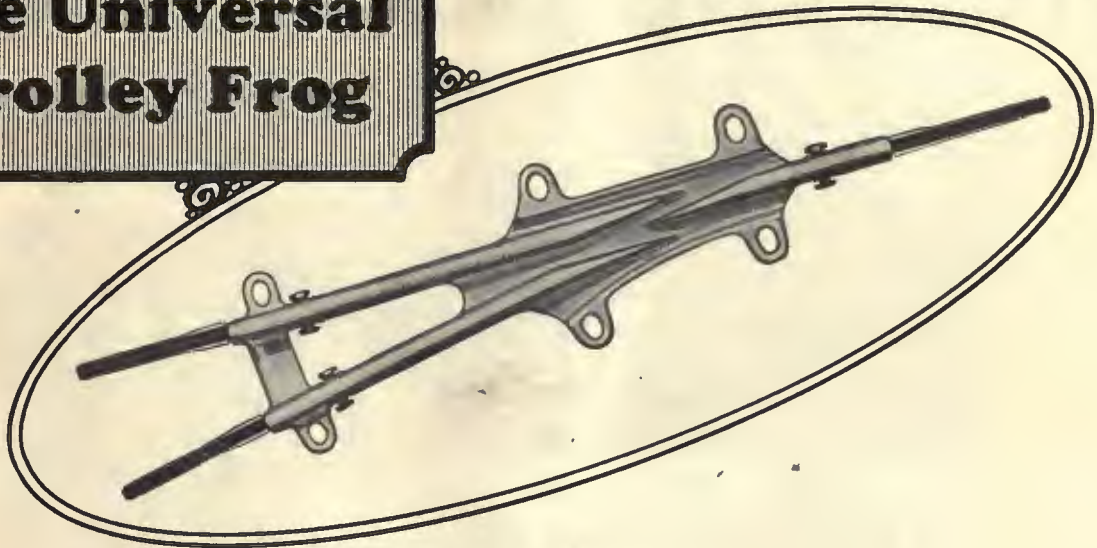


1927

# Westinghouse

X91050

**Type BC—  
the Universal  
Trolley Frog**



**Used on any Curve—  
Stays up Longer**

**B**BETTER results may be obtained at almost any turnout by the use of the Type BC Trolley Frog. Because of its design it may be located nearer the switch point, which reduces the side drag, or angular movement, of the trolley wheel. This means longer life for both the frog and the adjacent trolley wire.

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Ohio Brass Company, Mansfield, Ohio  
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320B



**O-B CAM TIPS  
(Renewable Bronze)**

Are incorporated in the design of all the latest type trolley frogs and crossings. Cam Tips afford an unusually smooth approach to malleable iron special work. They are easily and quickly installed and never become loose or troublesome on the wire. When worn they may be renewed, without displacing the wire or the need of special work.

**Ohio Brass Co.**



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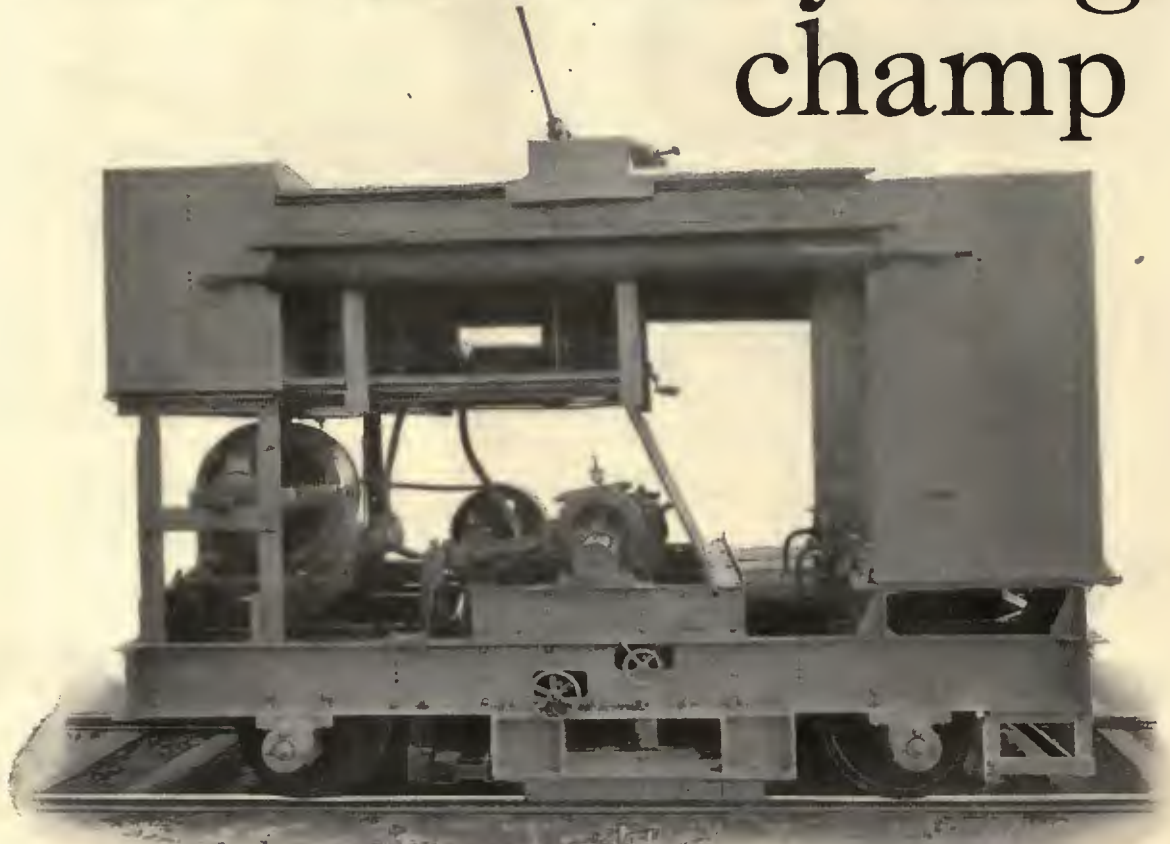
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 SAVING THE RAIL SAVES THE RAILWAY
 

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# Meet the heavyweight champ



## Heavy Duty Reciprocating Grinder

Perhaps yours is one of the big roads on which it's almost impossible to grind out corrugations as fast as new ones appear. Perhaps a lot of your rail is corrugated and you want to smooth the way so that you can sell comfortable rides. In either case, this Heavy Duty Reciprocating Grinder was made for you.

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The car is propelled by a standard 25 H.P. motor. Water storage tanks hold 1000 gallons. The whole outfit weighs approximately 20,000 pounds. A crew of three can do all the work.

*A word from you brings complete details and a quotation.*

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 SAVING THE RAIL SAVES THE RAILWAY
 

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## New Cars Need New Track

**N**EW track in pavement need no longer be a financial catastrophe now that new cars have shown the way to profitable operation and such low first costs are being obtained with Twin Tie construction.

Look up the money saving possibilities of Twin Tie construction in your "Paved

Track Notebook" and send for a delivered price on standard or renewable type Twin Ties expressed in cost per track foot for use with the man-hour detailed estimate sheet furnished with the Notebook. It takes into account your local conditions affecting labor rate and local material costs. Write *today* for price on Twin Ties delivered at your material yard.

The INTERNATIONAL STEEL TIE COMPANY, Cleveland, Ohio

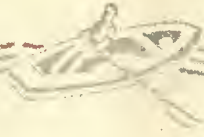


Renewable Track? Rail Tilting?  
Rigidity? Flexibility? Noise? Old  
Concrete Base? Costs? Bearing?  
Construction Methods?

Look it up in your "Paved Track Note Book"

# Steel Twin Tie Track

# Would you try to row a boat with one oar?



It can be done, but the inefficiency of steering against the turning effect of the one-sided force is obvious.

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In other words, dozens of advantages—all making for economy and better transportation service.



## AMERICAN MULTIPLE-UNIT CLASP BRAKES



# AMERICAN STEEL FOUNDRIES

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12, 1927

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HUNTER KEYSTONE SIGNS



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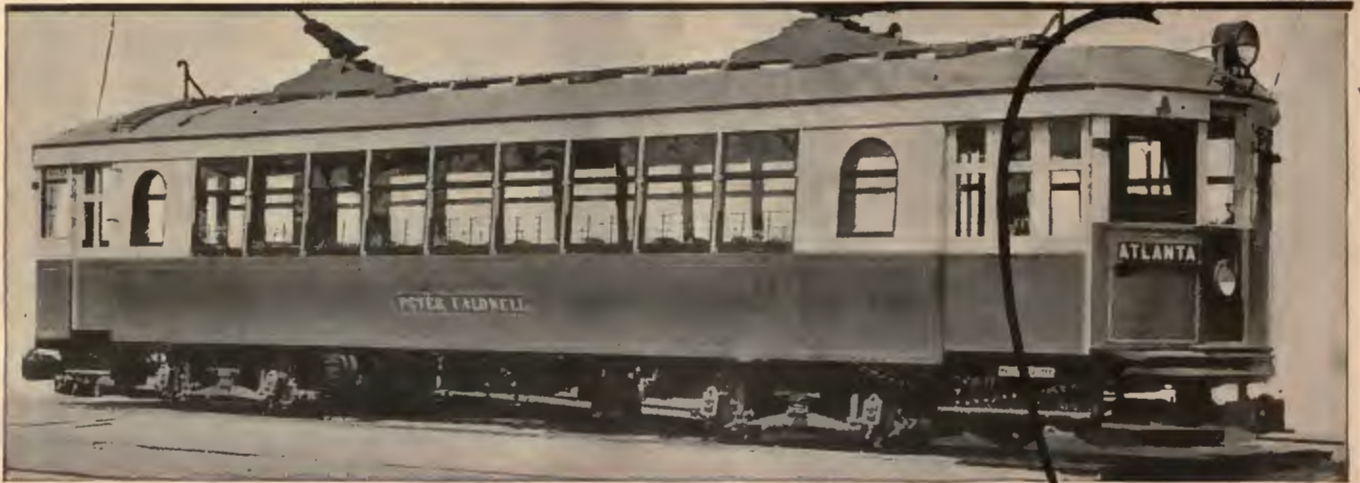
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STABILIZED STOPABILITY throughout the entire range of car-loading means—  
—safe and swift car movement, through congested districts;

—ability to hold traffic position with other moving vehicles, inasmuch as peak speed can be held longer between stops;

—a precise and systematic movement of shopping and business crowds;

—seconds saved, that may collectively be counted as dollars;

—stimulation of public good will, through a gratifying on schedule record over the entire system.

Many traction companies, recognizing the auspicious part Westinghouse Variable Load Brakes can play in effecting these far-reaching advantages, are specifying this new type equipment for their new modern light weight cars.

Westinghouse Traction Brake Company  
General Offices and Works: Wilmerding, Pa.

gives  
Uniform Braking  
with  
Varying Load

Information regarding Westinghouse Variable Load Brakes may be obtained upon application to our nearest district office—

Ask for Descriptive Catalogue T-2045.



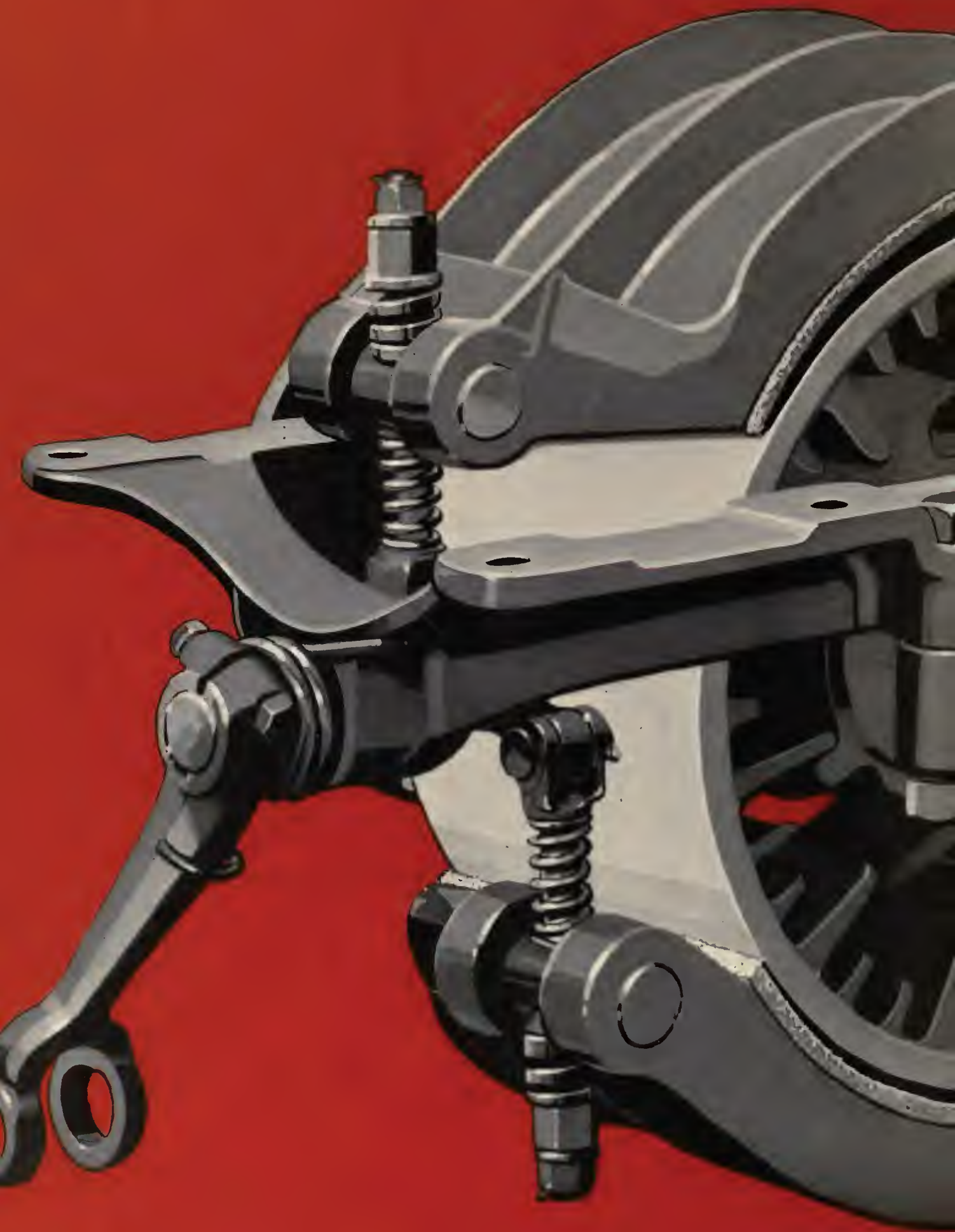
# WESTINGHOUSE TRACTION BRAKES

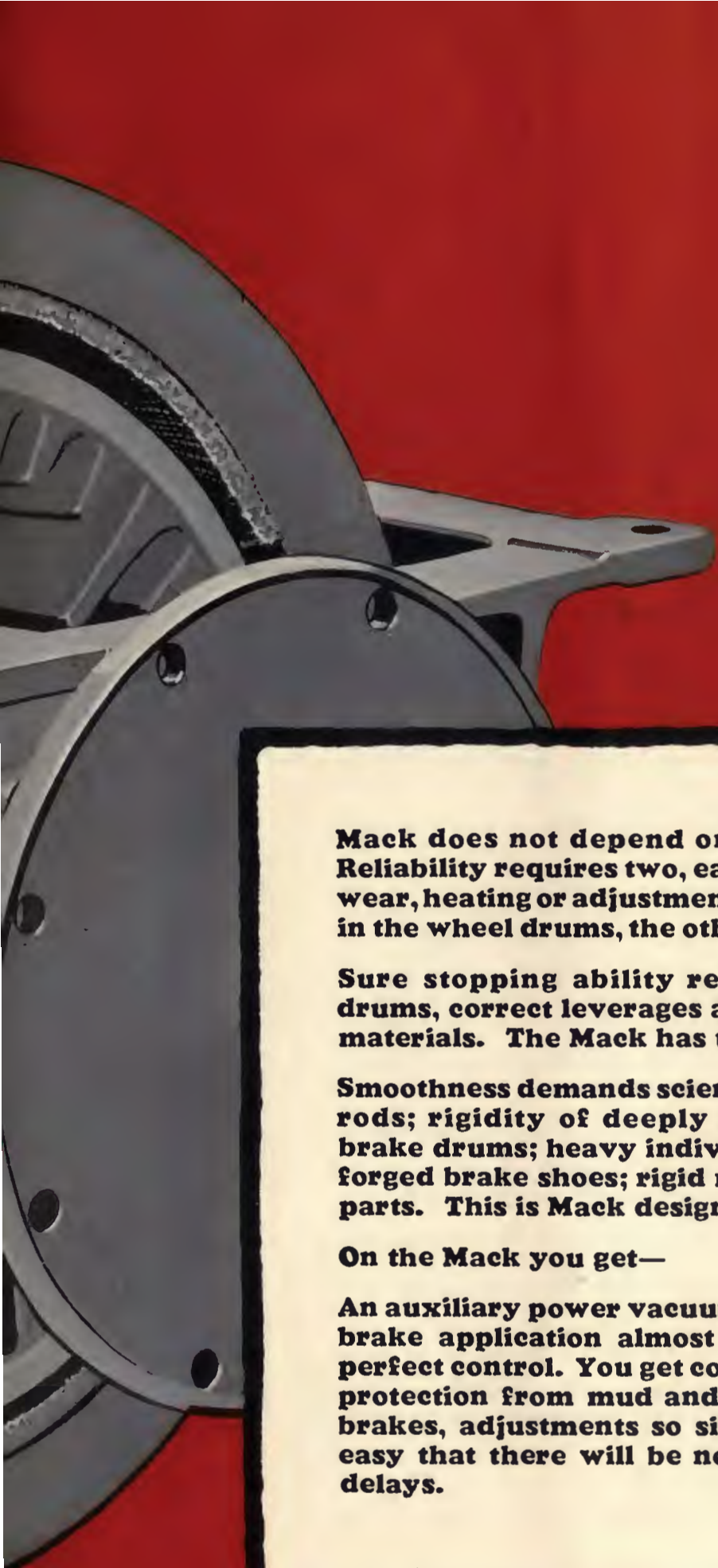
# **Such Reliable Brakes!**

**For safety, good schedules, good tempered, alert and confident drivers a bus must have good brakes.**

**Brakes that work smoothly, effectively easily and are reliable.**

**Mack has them.**



A detailed close-up photograph of a Mack truck's wheel drum and brake assembly. The image shows the heavy-duty metal drum with its characteristic ribs, the brake shoes, and the mounting hardware. The background is a solid, vibrant red color.

**Mack does not depend on one set of brakes. Reliability requires two, each unaffected by the wear, heating or adjustment of the other. One set in the wheel drums, the other on the driveshaft.**

**Sure stopping ability requires ample sized drums, correct leverages and the right friction materials. The Mack has these.**

**Smoothness demands scientific lay-out of brake rods; rigidity of deeply flanged and ribbed brake drums; heavy individually-hinged drop-forged brake shoes; rigid mounting of all brake parts. This is Mack design.**

**On the Mack you get—**

**An auxiliary power vacuum booster that makes brake application almost effortless. You get perfect control. You get complete inclosure and protection from mud and water for the wheel brakes, adjustments so simple, accessible and easy that there will be no cause for operating delays.**



The Tampa Electric Company Provides City Transportation  
For The Residents of Tampa, Florida with MACK Buses

## Putting Brakes on Expenditures!

An operator with a fleet of over a hundred buses of several makes reports that for shop labor and parts alone his Macks run for 3c. less a mile than any make he has—and as much as 5c. less than some others. Who can figure in such service, what they saved in operating hours—itsself worth more than the saving in maintenance costs?

This saving—this economy—making larger profits possible, explains why Macks breed so rapidly.

On Stone & Webster properties, in Florida, in Richmond, on the Pacific Coast, in City and in Interurban Service—Macks are used.

They will tell you that Mack Brakes with their easy adjustment—their long life—their positive control and ease of application, contribute their share to making the Mack the economy bus.

**Mack Trucks, Inc.**  
International Motor Company  
25 Broadway, New York City

# STREETS ARE FOR MOVING TRAFFIC—



## NOT FOR STORAGE

THE congestion of boarding and alighting passengers slows car movement and makes a standing street car even more of a public nuisance than a parked automobile. To keep cars moving, equip them with the most modern loading and unloading apparatus. National Pneumatic Door and Step Controlling Systems are adaptable to all conditions and afford the most rapid and efficient circulation of passengers in all types of one and two-man service.



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Railway & Power Engineering Corp., Ltd.

PHILADELPHIA  
1010 Colonial Trust Building





## The simple way to a perfect result

Any rail joint—no matter how good—is still a joint. There's a gap no matter how small. There's a rough spot, no matter how much care is taken. Bar plates, bolts and rail bonds add to the complications of a job which is far from ideal at best.

Thermit welding makes a solid rail where most other processes make a joint. There's no gap, and grinding levels off the surface once and for all. There's no more probability of trouble at a Thermit weld than anywhere else along the rail.

Thermit welding has been made easier and more simple than the average welded joint process. It costs no more but gives a more perfect result.



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# PROGRESS



**E**IGHTEEN months ago, American Brown Boveri was only a name embodied in a plan in the minds of a small group of men. That plan contemplated the formation of a comprehensive engineering-manufacturing corporation, designed to offer in its products the highest type of available engineering thought and experience.

The founders of the corporation obtained through contract all American rights to the patents and engineering design and experience of Brown Boveri & Co., Ltd. of Baden, Switzerland, and the great plant of the New York Shipbuilding Corporation at Camden, N. J., was acquired to become the main works of the new corporation.

In addition, long established American electrical manufacturing companies were purchased and included in the corporate structure. During the past year a comprehensive engineering staff, included in the plan to which the Corporation committed itself at the time of its inception, has been established in Camden. This staff consists of American engineers drawn from the central station, steam railway, electric railway, marine and industrial fields, together with engineers from the staff of Brown Boveri.

New manufacturing equipment and facilities for conducting electrical and mechanical tests have been added at Camden, so that these works will soon be one of the most modern and best equipped in the world for making electrical and mechanical apparatus for use in the fields of power generation and transportation. Production on equipment of this character has begun at Camden.

In addition to this, the plants of each of the associated companies have been enlarged and their plant equipment expanded.

There exists today in America, therefore, a new source of manufacturing and engineering experience designed to assist in the development of the fields of electric power, electrified railways, electrified industry and electrified marine equipment.

The value of this new force in American industry has been recognized and orders received, some of which were for history making equipment. Among the most notable were the orders for the 160,000 Kw. two cylinder turbo-generator for The United Electric Light & Power Company in New York, the two turbo-blowers for blast furnace operation for Bethlehem Steel Corp., which are the largest ever projected in the world, seven of America's largest electric locomotive for main line operation, and the use of the mercury-arc power rectifier for converting power to propel railway main line trains and on city and interurban traction.

The affairs of the Corporation have shown rapid development, and engineers and operators are invited to inform themselves as to the present status and plans for future development.



A 20,000 kw., three-cylinder A-B-B Steam Turbo-generator unit of the type that offers the very desirable combination of high efficiencies and compactness.



**Views of the South Works of the  
the installation of facilities for  
and parts distinctly electrical is**



The A-B-B Mercury-Arc Power Rectifier is bringing to power and railway companies many advantages not found in earlier types of converting equipment.



**Main Plant at Camden, N. J. where the manufacture of products undergoing rapid development**



**T**HIS engineering-manufacturing corporation includes among its products several outstanding developments which have gained acceptance during the period just passed.

Mercury-Arc Power Rectifiers for A.C.-D.C. conversion; Turbo-Blowers for steel mill applications; Steam Turbo-Generators for power generation; Automatic Generator Voltage Regulators; Electric Locomotives for heavy traction service have all offered fresh advantages to engineers and operating personnel in utilities, industries and railways and have, in a short time, gained not only acceptance in actual orders but have shown proof of performance in actual installation.

#### PRINCIPAL PRODUCTS

*Mercury-Arc Power Rectifiers (steel enclosed)*

*Electric Locomotives—for any system of current, high or low tensions*

*Complete equipment for railway electrification*

*Complete equipment for indoor and outdoor substations*

*Rotary Converters*

*Motor Generators*

*Diesel-Electric Locomotives*

*Automatic Regulators*

*Steam Turbo-Generators for normal or high pressures and superheats*

*Oil Switches and Circuit Breakers*

*Turbo-Compressors and Blowers*

*Transformers*

*Ships*

*Diesel Driven*

*Turbine Driven*

*Electrical Driven*

*Dredges and Harbor Equipment*

# AMERICAN BROWN BOVERI Electric Corporation

165 Broadway, New York, N. Y.

Camden, New Jersey

# BALANCED DESIGN

—has behind it sufficient operating data to *prove conclusively* its claim as a practical contribution to low-cost, passenger-preferred electric railway service.

Such data, and the experiences of many successful Cincinnati NEW Car operators, are kept in our files—available to any interested electric railway executive on request.

CINCINNATI CAR COMPANY  
Cincinnati, Ohio

CINCINNATI  
*New*  
CARS

*Built on the Principle of* BALANCED DESIGN



Grade-M Gearing typifies those products of General Electric which have profited so much from adequate facilities as well as from a sincere desire to produce equipment that will render the fullest measure of satisfying service.

**D**AY after day Grade-M Gearing is making new records of superlative service. Despite the exacting conditions from which the operation of railway gears and pinions is inseparable, Grade-M continues to exhibit an endurance that measures up to the highest modern standards.

330-11

# GENERAL ELECTRIC

# Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

Published by McGraw-Hill Publishing Company, Inc.

CHARLES GORDON, Editor

Volume 69

New York, Saturday, March 12, 1927

Number 11

## Attempt to Return to Home Rule Fails

LEGISLATION inimical to the best interests of the railways of Minnesota, and in the last analysis inimical to the best interests of the citizens there, apparently has failed. By a vote of 41 to 23 a committee has recommended an indefinite postponement of the bill to repeal the Brooks-Coleman law, which placed the regulation of electric railways in the hands of the State Railroad and Warehouse Commission. Senators Henry Morin and Charles Hausler, authors of the repeal bill, contended that the law had failed to work as promised and had been unfair to the people of the city. Senator Sullivan, defending the committee report, said that the 1921 Legislature passed the law because it realized that the railways in the large cities were being made political footballs. The chambers of commerce in the three interested cities opposed the repeal of the act. Quite naturally the railways were concerned. The position they took was made plain in the article in the JOURNAL for March 5, in which comment was made to the effect that the repeal of the state regulatory act was not a prospect which the people of the Twin Cities could contemplate with equanimity. They really stood to lose more than did the railways.

Since the legislation has failed this comment may seem like a case of much ado about nothing, but that is not really so. Administration of regulation in Minnesota appears to have been beyond suspicion. Attempts made there and elsewhere to undo the work of the past in building up regulatory structures that are essentially sound are persistent. Perhaps in some cases fault does lie in commission personnel or some phase of commission administration, but that is no reason for upsetting a plan which, by and large, has proved itself effective and in the best interests of all concerned.

## Where Unification of Transport Facilities Sometimes Strikes a Snag

LITTLE things often influence a man's opinion more than do those of greater importance. This is particularly true of his ideas on public utility management. Months of dependable service are forgotten because of irritation over small shortcomings. Trifles rather than the actual merits of the situation are likely to determine his attitude toward the company. An evidence of such reaction sometimes is found in public opposition to the placing of all local transportation facilities under the control of a single management.

An important aspect that may have a great influence is the dehumanizing process that frequently follows the absorption of a small independent operator by a large transportation corporation. The individuality of employees is lost. Old familiar faces disappear. Mere numbers replace names. The patron becomes simply a passenger instead of being a friend of the

company. New rules promulgated by some far-away office govern operation. "Step lively" is the slogan instead of the former "good morning." The rider cares not that the efficiency of transportation has been increased. For him a mechanical process has replaced a friendly journey.

To any one who has carefully studied this matter the advantages of unification seem self-evident and outweigh the minor disadvantages. The quantity and quality of transportation service must be adjusted to the traffic requirements. Only when the street car, the bus and the taxicab are rendering the service for which each is best suited will community transportation be on a sound basis. Obviously, this cannot be done when these various facilities are under separate managements.

If the human element is lost to sight in the change of management, the loss reflects chiefly the desire on the part of the company to supply a quick and efficient service. On every hand transportation companies are trying to establish friendly personal relations with their patrons. It is well that constant vigilance be exercised to this end, so that important unification plans of the future will find public opinion favorable.

## Getting Down to Brass Tacks in Production Practices

NO MOVEMENT in American industry deserves higher commendation or support than the one that seeks simplified practice in production. Born in the hectic days of the World War, it has gained tremendous impetus due to co-operation between the Department of Commerce, producers, distributors and consumers. Elsewhere in this issue of the JOURNAL is a review of a primer just released by the Department of Commerce which not only outlines the results of six years intensive study in eliminating a needless variety of sizes, dimensions and types of commonplace articles, but reveals the enormous savings effected. From milk bottles to structural steel it is one splendid story of what common sense and co-ordinated effort can accomplish. Estimates of savings in money by some of the industries now producing on the simplified practice plan recorded in the primer are: Paving brick, \$1,000,000; sheet steel, \$2,400,000; steel reinforcing bars, \$4,500,000; warehouse forms, \$5,000,000; inquiry, purchase, order, and invoice forms, \$15,000,000; and lumber, \$200,000,000. These figures are proof that much so-called individuality in production in the past was superficial and useless, and further that odd sizes gave the producer no competitive advantage. As the primer points out, "the passing of this misconception has led to a point where today industries as a whole are very generally competing with other industries through simplification to broaden markets and induce the widest possible consumption of their respective products.

Perhaps one of the most gratifying aspects of the

movement is that it has gained world-wide recognition, so that industrial experts, writers and others from foreign countries are urging their industries to follow the example of the American producers. Abroad the approach is for a reduction of variety through standardization rather than simplified practice. "In Anglo-Saxon countries," the primer states, "the relatively greater weight is put on specifications. In continental Europe emphasis is put on dimensional standards. Germany now has more than 1,000 approved standards, while Austria, Switzerland, Holland, Czechoslovakia and Sweden are working along dimensional standardization." All of this is a healthy indication that eventually our friends across the sea will come to simplified practices as the ultimate solution.

When considered from the standpoint of the electric railway field, the movement for simplified practices in production is one that should demand co-operation from every purchasing agent and manufacturer. Already there is sufficient evidence of what economies have resulted from co-operation in determining the essentials and non-competitive items that affect the needs of the industry. Nothing but good has resulted from such co-operation, and as the primer reminds us, elimination of the non-essentials and the false efforts toward individuality "still leaves room for the development of individuality." Every new friend of the movement will be reflected by decreasing production costs, greater efficiency and a broader conception of what is meant by getting down to brass tacks in production practices.

### The Spirit Must Be Backed by Knowledge

MUCH has been said and written about the consequences of the car operator's dealings with the public. Discussion of the importance of courtesy and of the need for transportation salesmanship have occupied a prominent place in the councils of the industry and have been considered among its most important immediate objectives.

It may well be said that the success of public transportation depends on the attitude taken by employees in their contact with their riders. The spirit is the thing. That is the first and indispensable requirement. A disgruntled or a grouchy employee is the very antithesis of a salesman. Loyalty, interest, cheerfulness and courtesy constitute the big four of personality upon which the industry must build. With these factors anything is possible; without them failure is a foregone conclusion.

Consequently the industry has been wisely concentrating on the job of building up and improving the attitude of both management and employees toward the public. But something more is required. There is the need for knowledge and training. It is probably safe to say that every day, on every car, there arise public relations problems that require expertness in their handling. Without proper training the average man finds himself faced many times with situations in which the best of intentions may prove of no avail.

The transportation salesman must be trained for his work. He must know in advance the best method of handling a specific problem which arises in his dealings with the public. The principles and methods to be used are not established. Their determination is a job for experts with a peculiar combination of talents. After

that, the problem or case method of instruction probably will be most effective in transmitting this to the men on the job. That is to say, the student will be required to handle in the class room definite situations that are set up to duplicate actual experiences gathered by careful surveys of the problems that arise on a car platform. Training of car men may be expected to become much more thorough than at present. The spirit of employees is important, but the activity of a salesman must be backed by knowledge.

### Wood Preservation Becomes Increasingly Attractive

MANY times this paper has called attention to the desirability, if not the absolute necessity, of preservative treatment for ties and timber used by electric railways. It has been shown that treated wood lasts from twice to several times as long as wood in its natural state. Furthermore, it has been found possible to substitute cheaper grades of wood, particularly those which are not inherently able to withstand rot, for the so-called hard woods which formerly were used almost to the exclusion of others for ties and structural timbers.

In the past, most of the activity in wood preservation has been by the steam railroads. Though the A.E.R.E.A. wood preservation committee has done excellent work in showing the value of treatment, for some reason electric railway men have not taken kindly to the use of preservatives, and at times have attempted to prove that the cost of treatment offsets the gain in life and in ability to use the cheaper grades of wood. It also has been argued that treated wood is hard to handle. If complete refutation of statements of this character were needed, it is found in the article by C. A. Smith published in this issue. The Georgia Railway & Power Company, with which he is connected, was a pioneer in the use of treated timber, having begun it in 1895. Results have been so satisfactory that the company has extended the use of the process very greatly.

Proof of the value of treatment is seen in the cost figures presented by Mr. Smith. Savings as high as \$290 per mile of open track have been made. Where the track is beneath paving, much depends on the type of pavement and the length of time it can go without being ripped up. Savings of \$528 to \$1,188 per track-mile have been obtained with creosoted ties in paving.

Proportionately, for ties the saving runs from 26 to 30 per cent of the cost for non-treated wood. For timber the saving shown is 17 per cent, while for poles it is as high as 52 per cent. This large economy is in part due to the use of a relatively cheap pine instead of chestnut, although the life of the treated pine pole is 22 years, against five years for untreated chestnut.

With such figures before him, it is difficult to see how an engineer can fail to appreciate the money value of preservative treatment. If unsatisfactory results have been obtained in the past it may have been due to wrong methods of treatment, and further investigation should be made to ascertain the reason for poor success. Incidentally, the supply of first grade timber is being exhausted at a rate so rapid that present costs are not likely to obtain for any considerable time. With all grades of timber becoming increasingly expensive, the value of preservative treatment is becoming greater at an accelerated rate.



### "Look Here, upon This Picture, and on This"

**P**UBLIC debt today is much in the same position of a man taking one step forward and then slipping back two. A few statistics illustrate the point: From Jan. 1, 1920, to Jan. 1, 1926, the national debt was reduced about \$4,250,000,000. During the same period state and local government debts increased about \$6,750,000,000. Between these same dates expenditures of the national government were reduced about \$2,000,000,000 a year, while on the other hand current expenditures by state and local governments increased more than \$2,000,000,000 a year, and are still increasing—almost a clear case of inertia as regards removing the burden of taxation. And further, while the national debt is being reduced about \$750,000,000 a year, state and local government debts are on the increase at the rate of more than \$1,250,000,000 every twelve months.

Taking the same five years as a base it is revealed that state governments contracted new debts about twenty times as fast as they paid off old debts, and that the orgies in state and local government debt were being indulged in at a pace 4½ times as fast as was the case before the war. And to cap the climax, the amount of state and municipal bonds sold during the past 25 years has risen from \$131,549,300 in 1901 to \$1,399,637,900 in 1925.

Top this off with the fact that the total public debt of all form of governments in this country is higher now than when our war debt was at its peak in 1919, and it is child's play to envisage the enormous sieve into which is being poured the people's money, to say nothing of that squeezed from public utilities and the manufacturers.

Examine this sieve closer and it is discovered that some of the big holes are formed by 40 per cent of national expenditures, 20 per cent of local expenditures and about 10 per cent of state expenditures being required to pay interest and to amortize existing public debt.

As Hamlet advises: "Look here, upon this picture, and on this," then decide who is the garroter that is strangling the life out of not only those who struggle to furnish adequate local and national transportation, those who manufacture what is vital to transportation, but those from whom public utilities receive their revenues. It is a tremendous problem, which can be solved only by a national movement. Those who sit in the council chambers, and those who dance while they fiddle, must be impressed with the truism that when transportation is strangled the heart of commerce ceases to beat.

### Cincinnati Has a Problem in Co-ordination

**O**VEREMPHASIS should not be placed on the vote of residents of Mount Lookout, a residential section of Cincinnati, Ohio, to refuse the offer of a four-month trial of motor coach service to replace electric railway service, but the vote is not without its significance, particularly since this is the second time a similar proposal has been rejected. These two instances would seem to bear out the theory of R. N. Graham, also based on experience, that any choice between the two vehicles on the part of the passenger is simply one of greater

convenience. But more important than this is the concern that the losses on its buses is causing the Cincinnati Street Railway. Particularly interesting is President Draper's answer to the question, why the motor coach operation of the company loses money when independent companies apparently made a profit.

The remedy suggested does not include discontinuance of any coach lines at this time. The ultimate object is so to fit the coaches into the service that they may be run to the best advantage. This is in line with the ideas of Mr. Draper that there is a place in a unified transportation system for all forms of transportation that can demonstrate their lasting qualities. Mr. Draper says that being charged with the responsibility and obligation of providing unified transportation, the company cannot neglect to adopt any reasonable form of transportation that the public desires and is willing to pay for. It is merely seeking to find out how best to attain its objective. The proposals advanced by Mr. Draper, outlined elsewhere in this issue, are of more than local interest in Cincinnati in that they represent to a considerable extent the objects sought by the industry as a whole in its efforts to co-ordinate service at a reasonable fare in a way least burdensome to the company and to the best advantage of the public.

### Review of the Past Gives Hope for the Future

**R**ETROSPECTION is good in that it makes the individual or the industry pause for a moment to take stock after a review of the past. That is what Lucius S. Storrs, managing director of the American Electric Railway Association, did in his address this week before the Oklahoma Utilities Association. His review of the past ten years of transportation history portrays vividly the worst period the industry ever has seen. Due largely to lack of understanding and failure to appreciate the situation, both by the operators and by their customers, the public, the electric railway industry all but collapsed under the combination of burdens thus heaped on it.

It is greatly to the credit of those men influential in the financial life of the properties that they had the vision to see that local transportation is essential to community growth and the courage to carry on despite every sort of discouragement. As Mr. Storrs pointed out, they are investing their own money and the millions of their stockholders in local transportation enterprises, confident that there is a demand for local common carrier transportation and that, having learned its lesson, adverse conditions similar to those of the past few years will not recur in the future.

While it is agreed that there always will be a demand for community transportation service, and that it can best be supplied with a co-ordinated electric car and bus system, there is still much work to be done. Heed should be taken of Mr. Storrs' statement that the bus problem has not yet been solved. The bus has proved a very efficient tool for certain phases of transportation, but it has been demonstrated also that it cannot effectively do the work that has been performed so well by the street car. The problem is being worked out, but it will require the careful attention of transportation men for some time to come if the most satisfactory solution is to be reached.

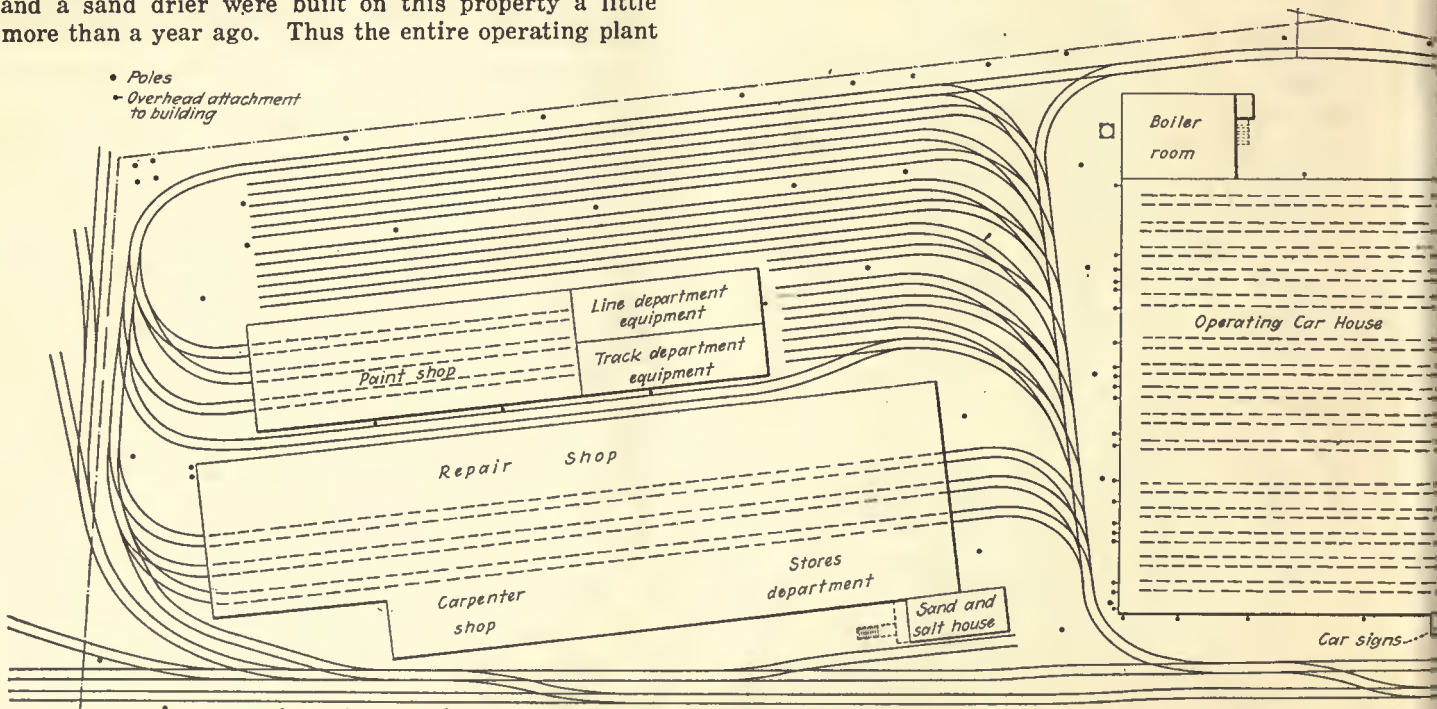
# Extensive Improvements! Made at Waterbury



**Connecticut Company Has Spent More than \$600,000 in Construction of New Administration Building, Operating Carhouse, Sand Drier, Steam Heating Plant and Yard Track Layout**

**S**INCE the completion last fall of extensive improvements to the property of the Connecticut Company bordering the Naugatuck River at Waterbury, this railway has had one of the most up-to-date car operating and maintenance plants in the country. The principal elements in this development are a new administration building accommodating all the local offices of the division, a new operating and inspection carhouse, and a central steam heating plant. A paint shop and a sand drier were built on this property a little more than a year ago. Thus the entire operating plant

is new. Altogether more than \$600,000 has been spent by the company in making these improvements. Prior to this development, facilities at this location, excepting the general repair and overhauling shop, were antiquated and unsatisfactory. The administrative offices were housed in a two-story wooden building erected during the war to accommodate trainmen recruited in other cities who came to Waterbury and found it difficult to secure lodgings. This structure,



Improvements on Connecticut Company Property in Waterbury Include a New Administration Building, Operating Carhouse, Steam Heating Plant, Sand Drier, Paint Shop, Carpenter Shop, Repair Shop, Stores Department, Sand and Salt House, Car Signs, and Operating Car House.



Three Bays of Five Tracks Each Accommodate a Total of 55 Cars Under Cover in the New Operating Carhouse at Waterbury

however, was ill-suited for use as an office building and was inconveniently located across the river from the operating headquarters. A shed of wood and corrugated iron, known familiarly as the "tin barn," and three other dilapidated structures constituted the only shelter provided for the rolling stock which was not in the overhauling shop. Plans had been under consideration for a long time to improve the car storage, operating and office facilities of this division, but their execution was postponed for various reasons. In 1924 the paint shop and sand drier were built, and last year the improvement was practically completed.

By itself, the Waterbury division of the Connecticut Company constitutes a good-sized local transportation system. Rail lines total approximately 85 miles of single track. In winter 95 passenger cars are operated. In summer this division has assigned to it some 30 additional open cars that are stored elsewhere under cover during the seasons when they are not in use. Bus operations require a total of 22 vehicles. The operating personnel consists of 150 trainmen, 20 bus drivers and eighteen inspectors and starters. The relatively large number of inspectors and starters is accounted for by the heavy rush-hour traffic characteris-

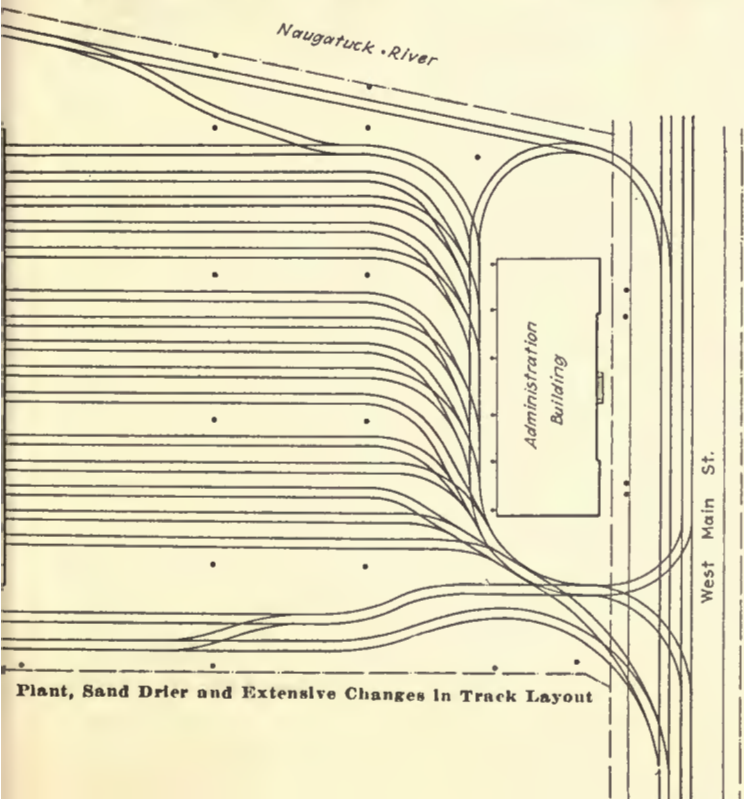
tic of this industrial city. From the foregoing it will be seen that extensive facilities are required for car storage and inspection, as well as for operating and administrative offices.

Approaching the property from the center of town, one sees first the new administration building, fronting on West Main Street. Constructed of red brick and concrete colored to resemble Georgia marble, this building presents a simple and businesslike appearance. On the second floor are housed the offices of the division manager, the superintendent of transportation, the timekeeper, the dispatcher and the local officials of the claims, track and line departments. On the first floor are the office of the receiver, a trainmen's room, a locker room and a room for inspectors and starters. A school of instruction is located in the basement. This is equipped with the usual control and fare registering apparatus as well as with signal apparatus, because in the Waterbury division there is considerable single-track mileage protected by automatic signals.

Behind the administration building is an open storage yard with fifteen tracks. These tracks terminate in the new operating and inspection carhouse, which has three bays of five tracks each. Its walls are of red brick. The roof is of steel truss construction, supporting slabs of gypsum, making the structure thoroughly fireproof. Numerous glass skylights render the interior bright and cheerful. The general floor level in two sections is about 4 ft. 6 in. below ground, while the rails are supported on reinforced concrete columns spaced 5 ft. apart, as shown in an accompanying illustration. Between the tracks reinforced concrete flooring is provided, but the space between the two rails forming each track has been left open to facilitate inspection of equipment underneath the car. The construction of the building in this way was comparatively simple because it is located on filled land. The other or westerly section is not filled.

At present the capacity of this building is 55 cars, and it is planned to extend it in the direction of the administration building. Ample room exists in front of the present structure where there is now a car storage yard to build an extension equal in size to the part already completed. The overhaul and paint shops have capacity for a considerable number of additional cars, but these facilities are not used for ordinary night storage.

Alongside the operating carhouse a steam heating plant has been built. From this point steam is sent to all buildings on the property. Coal is brought to the



plant by the company's own cars, a track passing close to the boiler house making it possible to dump directly from a car into the bins. Construction of this heating plant was made necessary by the closing down of the Connecticut Company's local power station. Energy for railway operation is secured from the Connecticut Light & Power Company through a substation owned by the latter.

Behind the carhouse are the repair shop and the paint shop, housed in separate buildings. Each of these shops has three tracks, while a service track runs through between the two structures. Beyond the paint shop on the river side is a storage yard with six tracks. As the entire capacity of the paint shop is not required at this time for car painting, a section has been par-

of this improvement program to the general appearance of the property. At each end of the administration building a small lawn has been laid out. Evergreen shrubs and flowers have been planted in various locations throughout the area. The buildings themselves are necessarily of simple and substantial design, but their neat and businesslike appearance gives a pleasing aspect to the property.

### Farm Demonstrations via Interurban

**P**HENOMENAL interest is attending the demonstration of electric farm equipment on board the farm electric railway car fitted out by Purdue University agricultural extension department in co-operation with



In the Operating Carhouse the General Floor Level Is 4 Ft. 6 In. Below Ground, with the Rails Supported on Reinforced Concrete Columns. The Space Between the Two Rails of Each Track Is Left Open to Facilitate Inspection of Running Gear of Cars

tioned off for storage of equipment belonging to the line and track departments.

At one corner of the car overhaul shop a sand drying plant has been built. This is of unusual size on account of the hilly territory served by the lines of the Waterbury division and consequently large use of sand. Several unusual features have been embodied in its design. These will be dealt with in another article to appear in a future issue of *ELECTRIC RAILWAY JOURNAL*.

#### BUS GARAGE PROVIDES FOR ORDINARY MAINTENANCE WORK \*

To accommodate the 22 buses now operated as part of the local transportation system, a section of the trolley express building on this property has been converted into a garage. Facilities for ordinary maintenance work have been provided. Heavy overhauling of buses, however, is done at the company's New Haven garage. The remainder of this building is still used for trolley express purposes. Particular attention has been paid in the execution

the Indiana electric companies and interurban lines. The car is now making a tour over all the electric lines of Indiana. Farmers along the line interested in studying the costs and production possibilities of electricity on the farm will have an opportunity to inspect the car en route.

Truman E. Hinton of the agricultural engineering staff, who is in charge of the car, broadcast on the radio recently, telling of the purposes of the tour. The car is equipped with a model farm kitchen. Electrical appliances on board include milking machines, cream separators, poultry house lighting systems designed to increase egg production, ensilage cutter, feed grinder, incubator, fanning mill, water supply system, cider press, wood saw, churn and grindstone.

Officials of the university predict that many thousands of farmers will have seen the car before the tour is ended. Interest during the first few days of the tour was acute and those in charge were kept busy with explanations of costs and like information.

# Transportation Winning Hardest Business Battle in History

By *Lucius S. Storrs*

Managing Director American Electric Railway Association,  
New York City

**P**ROGRESS and prosperity of all utilities are closely identified with the growth of the communities. Just as cities go forward so do the utilities serving them grow and prosper. It behooves us for selfish reasons, if for no other, to do everything within our power to encourage and help them. Thus it becomes apparent that there is need for all of us to work together, shoulder to shoulder. We should extend our services jointly, have a common interest in seeing that all of us render the best possible service and obtain a square deal from public officials and the public generally.

I know that all of you will be pleased to hear that the industry is on a better basis than it has been at any time in many years and that there is no great problem before us today which does not seem possible of solution, provided we have the united support of all the branches of the utility business.

Not a little of this advance has been due to co-operation. Local transportation men are joining hands with other utility men in carrying out the plans of state committees on public utility information, state associations, sectional associations and, finally, national associations.

Initially, I want to impress upon you that the local transportation industry is not decadent. If you have been led to believe that its funeral is imminent, put that thought out of your mind now. It is not true.

In urban centers, particularly, there never has been greater need for high-class local transportation both by electric cars and buses than there is today. It has been proved conclusively that the bus is not going to replace the electric car in mass transportation, that private automobiles cannot furnish all of the required service and that co-ordinated electric railway and bus service under single managements is the logical solution of the local transportation problem. Electric railway men are going forward throughout the country to supply this great public requirement.

The industry is emerging from its ten or more years of reverses more physically fit, with a broader vision and with an increased appreciation of its opportunities, just as the United States emerged from the great World War a stronger nation: Today, instead of being a de-



*Lucius S. Storrs*

**I**N AN ADDRESS before the Oklahoma Utilities Association at Oklahoma City on March 9 Mr. Storrs presented an unusually strong plea for co-operation on the part of all utilities and portrayed in vivid manner the momentous economic struggle from which the industry is emerging head up and shoulders back. Every transportation executive will get new inspiration from this abstract of Mr. Storrs' thinking.

crepit plant waiting for the undertakers to carry it away to the boneyard, the electric railway industry is charged with new energy and is more capable of rendering good service and more determined to render it well than it has been at any time in the last fifteen years. Out of ten years of discouragements, marked by rising costs, bus competition and many other reverses, the industry is emerging head up and shoulders back, working with keen mind and willing hands and going forward to a constructive and profitable future.

You have heard much of abandonments of electric railway mileage, so I want to set you right on that situation. Despite private automobile and bus competition, the total electric railway mileage in the United States today is only 4 per cent less than it was at the peak record for all time in 1917. And virtually all of these abandonments have been in towns of from 8,000 to 25,000 persons, or in rural sections where not one foot of the track ever should have been laid. The pioneer builders made two serious mistakes that have exerted a great in-

fluence on the industry during the recent years. First, they built many lines without regard to the traffic demands, and, second, they tried to operate them on a fixed 5-cent fare in cities and a much lower fare than steam lines in rural sections. Not one property in a city of 50,000 or over ever has been permanently abandoned. Those are the facts about electric railway abandonments in this country, and they supply a most eloquent answer to the assertion that the electric railway is doomed.

The cost of producing rides varies in different communities and, naturally, the sales price of them also will differ. The public generally, in most cities except New York, now has come to realize this, and practically all communities are willing that fares shall be adjusted with changing costs.

The advent of the European war, with skyrocketing wage and material costs, brought about revolutionary changes. Almost over night the cost of wages and material doubled, but fares were not changed. Service had to be continued, so it was necessary to meet these rising costs and hope that fares would be raised pro-

portionately. Unfortunately, the industry had put in some 30 years educating the public to a fixed 5-cent fare, so it was impossible to change fares rapidly enough to meet rising costs.

For several years fare raises came about very slowly. Coincident with rising costs and almost stationary fares had come jitneys, private automobiles and bus competition. As a result, when President Wilson in 1918 appointed the Federal Electric Railways Commission, composed of representatives of the public, labor, financial houses and electric railways, to investigate the conditions of electric railways throughout the country, about one-sixth of the total mileage of the industry either was bankrupt or in receivers' hands.

The stock-taking by the industry before the commission in 1919 certainly showed a deplorable condition. The fact that the industry has come back to render the excellent service that it does today proves conclusively the essentiality of it and also the measure of the men engaged in it. If the industry had not been an essential one, or if it had been manned by weaklings, it would have passed out under the conditions existing shortly after the close of the European war.

The inquiry resulted, however, in a remarkably constructive report on existing conditions and a series of suggested remedies of a high order. The outstanding declaration was that public transportation by rail cars not only was a necessity but would be for many years to come and that good service could be obtained only by closer co-operation between the public, managements and men. The fixed fare system and independent jitney and bus competition were scored heavily as economically unsound and the need for better public relations, obtainable through frank dealings, stressed.

Mere acceptance of the federal report did not restore the industry to its present improved state. Local transportation men turned back toward home from those Washington hearings to face one of the hardest business battles in history. Included in the program they sought to carry out were creating better public feeling, obtaining equitable fares, eliminating unfair competition, improving service, co-ordinating the rail car and the bus and obtaining a readjustment of their taxes.

#### PUBLIC FRIENDSHIP BEING WON

The problem of enlisting public support was the initial one approached. Managements which carried their story to the public honestly and showed themselves willing to be friendly soon found a friendly response. The printed word was used widely, executives and employees made speaking campaigns and gradually public understanding began to be created. After a foundation had been laid through an explanation of conditions, the advertising campaigns quickly shifted to salesmanship, and today rides are being merchandised as intensively and as intelligently as are many commodities.

The bus problem is a grave one and it is not entirely solved to date. Although it has been demonstrated that the bus will not supplant the electric car, it also has been proved that the bus has a place in local transportation. It has, for instance, proved a very efficient tool in replacing some small electric railway lines which never should have been built. There is a place for it in new territories until their traffic is so dense that they demand rail lines. Likewise, it is a splendid tool to use in co-ordination with rail lines in cities. Progressive executives are using the bus where it can best serve.

That a bus ride cannot be supplied as cheaply as a

street car ride and that buses occupy more street space per passenger than electric cars has been proved conclusively, and these two factors enter very largely into every proposal to supply bus service. Furthermore, although to date the bus has been able to escape regulation and taxation to a far greater degree than the rail car, this, of course, cannot continue indefinitely. It must compete with the rail car on a similar footing, and as the control of service and taxes becomes equalized, the economy of the rail car steadily becomes more apparent and its continued place more assured.

I beg you, however, not to labor under the delusion that electric railway men generally have tried or are trying to save their properties and restore their service to public favor merely by fighting the bus; far from it. They realize that the only way to obtain and retain public favor is to give good service. There is a great demand not only for buses but also for electric car service more nearly approximating automotive rides. To meet this demand the electric railway industry is modernizing its equipment rapidly and, happily, this modernized service—embracing principally lighter, faster and more comfortable cars and smoother roadbed—is increasing business.

#### ADVISORY COUNCIL BACKING MODERNIZATION MOVEMENT

Standing squarely behind this great modernization movement is the Advisory Council of the American Electric Railway Association, formed in 1925. Under the leadership of B. C. Cobb of Hodenpyl, Hardy & Company, this council during the last two years has sought with all its power to convince companies that they must equip their properties with the most comfortable conveyances, both in rail cars and buses, and aggressively seek business. When I tell you that its members are convinced of the future of the local transportation business and are giving much of their valuable time and effort toward advancing its interests, you will realize fully the truth of the statement that it is not a "dead or dying industry." A very large majority of them, too, are investing their own money and the millions of their stockholders in local transportation properties, confident that there is a demand for local common carrier transportation and that soon all of the clouds of uncertainty will be rolled away and it will come into its own again.

As a result of the co-ordination movement more than 7,000 buses are now being operated by approximately 275 electric railway companies over more than 15,000 miles of route. Buses generally are being used in extending transportation routes and little service parallels the main rail lines. Destructive competition is growing less because buses cannot operate profitably at electric railway fares and also because it is no longer possible to purchase efficient buses except upon reasonable financial terms.

That there will always be a demand for common-carrier local transportation admits of no argument. That it can best be supplied with a co-ordinated electric car and bus system has been amply demonstrated. That eventually this service must be paid for in such measure as will give an adequate and fair return to managements and investors cannot be disputed. Accepting these three statements, the future of live progressive local transportation companies seems to be plainly charted. They cannot help but go ahead. It is inevitable. Even though they held back, which they did not, public demand for service would drive them into profitable progress.

# Automatic Washing for Pittsburgh Cars

Electrically Controlled Equipment Providing for Rapid Washing Is Being Installed in the Various Carhouses of the Pittsburgh Railways—Details of the First Installation Are Given

**R**EPEATED efforts have been made by various electric railways to design car-washing equipment which will combine the operations of brushing and washing as the car moves forward and do this mechanically rather than by hand labor. The Pittsburgh Railways has been working out such a process for some time and a preliminary description was published in the Aug. 14, 1926, issue of *ELECTRIC RAILWAY JOURNAL*. This device has now been perfected to a point where a complete shower bath equipment has been installed at the Craft Avenue carhouse of the company and it is planned to provide twenty additional showers at other carhouses. The equip-



Car Entering the Preliminary Wetting Spray by Passing Between Two 12-In. Upright Pipes Perforated with  $\frac{1}{4}$ -In. Holes Spaced 1 $\frac{1}{2}$  In. Apart. By Staggering the Holes the Water Is Sprayed on the Car in Two Directions

ment has been perfected and manufactured under the direction of John D. Barr, assistant engineer of the Pittsburgh Railways.

By use of the new equipment a car can be washed, brushed and rinsed in about five minutes, with only two men employed in the process. Compared with previous methods of cleaning used by the railway this is a great reduction, since previously about one hour's time for one man was needed to wash a car. A great advantage also lies in the increased number of cars that can be cleaned quickly between rush-hour periods. The reduction in time enables the entire equipment to be washed more frequently than by old methods, so that cars can be kept on the street in much better appearance, which is one of the essential details for keeping the public pleased.

With the new apparatus the car is passed first between two spray arms which throw the water with sufficient force onto the sides, ends and top deck to moisten thoroughly any dirt and wash off a considerable portion of it. The 1 $\frac{1}{4}$ -in. diameter upright pipes have  $\frac{1}{4}$ -in. holes spaced 1 $\frac{1}{2}$  in. apart. The operation of the spray is controlled automatically by circuit breakers which

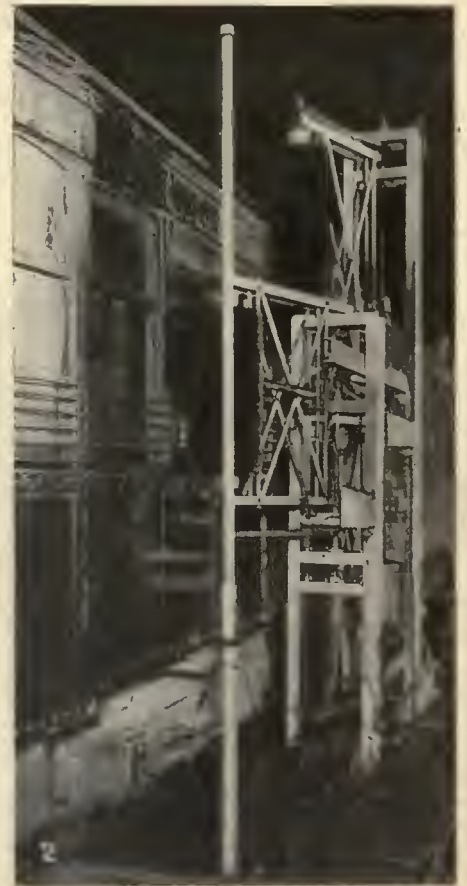
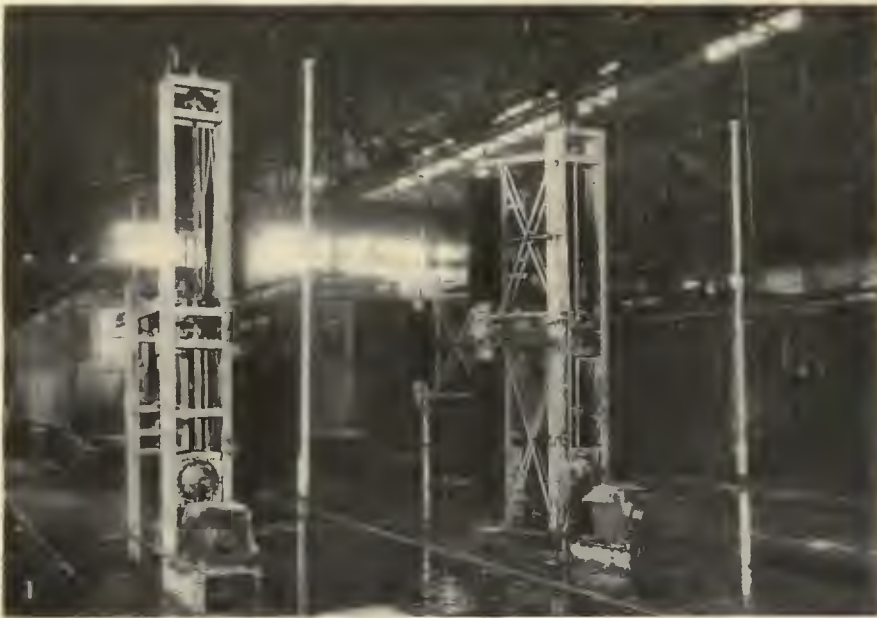
start the flow of water as the front end of the car enters the spray equipment. The water is cut off automatically as the car passes out.

Following the initial wetting one man at each end of the car goes over the ends with a round bristle brush. The brush is 5 $\frac{1}{2}$  in. diameter and has a handle 4 ft. long. This scrubbing has been found better than mechanically operated brushes for the ends, as these at present have not been perfected so as to be entirely practicable. With a good type of brush this task can be performed easily without the use of any water additional to that which remains on the car after the initial sprinkling. If necessary a barrel of water can be placed

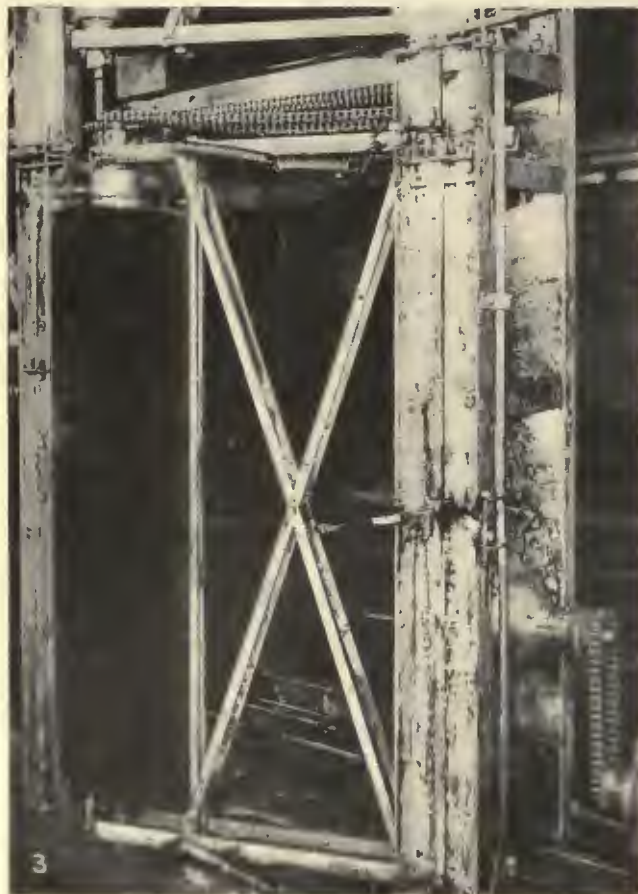
in a convenient position alongside the car washing track for dipping the brush.

Following the brushing of the ends the car is advanced to the automatic brushing machine, which is equipped with additional spray apparatus. Circuit breakers start both the revolution of the brushes and the action of the spray as the car approaches the machine, and similar equipment shuts off both as soon as the car has passed through. The brushes used were developed by the Wolfe Brush Company, Pittsburgh, Pa., and are made on wooden cores with an over-all brush diameter of 13 in. The assembly of the brushes and also the number of brushes required depend on the profile of the cars that are to be washed. A total brushing length of about 14 ft. is required in Pittsburgh. A single brush of this length has not been found practicable on account of its weight and because one brush will not follow the profile of the car and properly brush all sections.

In the Pittsburgh installation three brushes on each side have been found satisfactory. The length of these varies somewhat according to the type of cars to be washed. The lower brush is a little longer than the flat



## Scrubbing and Washing of Cars Are Made Automatic with This Equipment

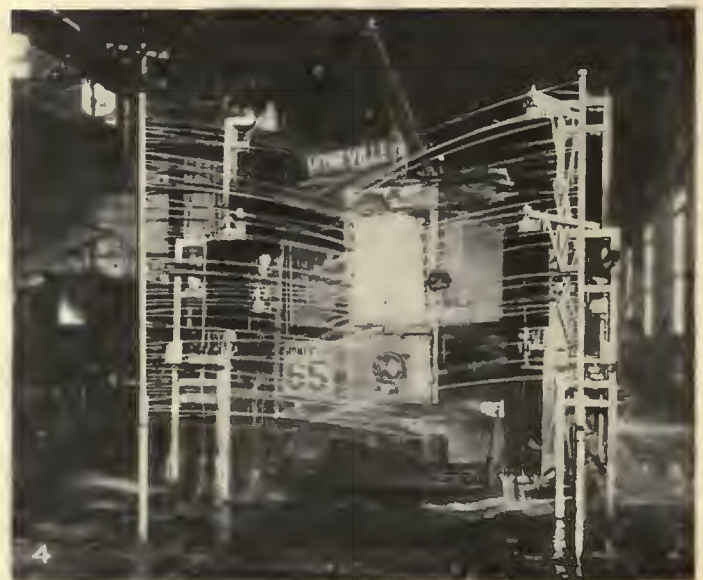


No. 1. View of brushing equipment with two spray arms in the foreground.

No. 2. Brushing the sides as the car passes through.

No. 3. Close-up of brush drive to show equipment.

No. 4. Car entering between the brushes with spray in operation.





surface of the car side panel below the windows. The center brush is long enough to brush the window surfaces. The top brush projects farther from the body of the machine than the center one and must not be so long that its action will be hampered by contact with parts of the car which project as far out as the window guards. In Pittsburgh it has been found that to accommodate the various classes of equipment the most convenient axial lengths for the brushes are 60 in. for the bottom, 48 in. for the top and 33 in. for the center brush.

The brushes are placed so as to overlap each other and the whole equipment is designed so that as the car



Method of Using Strip Brush to Clean Window Glass Behind Guard Rails When Rotating Brushes Do Not Remove Mud

passes between the two sets each brush will be forced against its sides with just enough pressure to give the right brushing effect on the particular part of the surface it is intended to cover. The pressure of the car against the brushes operates the switch of the motor which revolves them. Brush rotation is contrary to the movement of the car and is adjusted at a speed necessary properly to scrub the surface. When pressure is released the brushes cease turning. As the car approaches the brushes it is sprayed first with water and then rinsed in a similar way after the brushes have done the scrubbing.

The framework of the machine is made of 4-in. x 8-in. channels and the arms are of light 4-in. channels, braced to make them rigid. A common type of sprocket chain is used throughout the machine for driving. A 5-hp.

motor drives the equipment through a bevel gear. Ball bearings are used throughout the machine.

After the scrubbing and rinsing the car is placed for drying. It has been found that the appearance of the car is better than would have resulted had hand operation been used. There is no streaking or smearing with the mechanical method. When washing cars by hand it has been found that the appearance is usually fairly good as long as the water is on the surface, but that hand methods do not give sufficient scrubbing or washing and the result is that streaks and smears are observed as soon as the surface dries.

The hydraulic window washer which is used for washing the window glass back of the guard rails was described in the *ELECTRIC RAILWAY JOURNAL*, Aug. 14, 1926. This is used only in case the glass has been smeared with mud which cannot be removed thoroughly by the brushes. The hydraulic window washer consists of a thin metal holder 20 in. long which carries a supply of water from a small flexible hose so that it is distributed through the openings with a spraying effect. The strip is equipped with a brush just heavy enough to clean the surface of the glass and thin enough to allow its insertion behind the guard rails. When necessary this operation is performed just after the ends of the car have been washed and before it passes the large brushes. The rinsing of the car will then complete the window washing so that the glass will be perfectly clean. Extra hand cleaning of the window glass has been found desirable in some cases, although it can be dispensed with.

### Davenport Tells the World

**R**ADIO broadcasting has a value of unknown extent in reaching new fields. This was brought out when a lay listener hundreds of miles east of Davenport mentioned to the local railway executive that he had heard an interesting talk on electric railway transportation. The clue was followed up, with the result that *ELECTRIC RAILWAY JOURNAL* is enabled to present the high spots of an address made from radio station WOC by R. J. Smith, vice-president and general manager Clinton, Davenport & Muscatine Railway.

This particular evening had been set aside for a discussion of local industrial and transport problems. Talks were made by representatives of the Rock Island, Milwaukee and Burlington systems on steam railroad subjects, while Mr. Smith talked humorously about the little electric brother who had interchange connections and through rates with them all. He emphasized, in particular, that the electric line by its tie-up with the Chicago & Northwestern helped the other three great trunk carriers in serving the Tri-Cities.

After explaining the nature of the connections and the character of products handled, Mr. Smith presented some data in such a popular way that others may be interested in the text for the sake of doing likewise. Thus:

In the past twelve months this 70 miles of electric road carried 263,000 passengers and 188,000 tons of freight. In order to do this, the Clinton, Davenport & Muscatine Railway ran just under 1,000,000 car-miles. How does that stack up with the past year's mileage of your Rolls-Royce? We moved 5,664 freight cars; and paid out more than \$19,000 in taxes and more than \$141,000 in wages. Two million kilowatt-hours of electricity were consumed in this work, or enough to run your washing machine, on the ordinary basis of four shirts a week and other apparel in proportion, about 100,000 years. Our statistician has calcu-

lated that this consumption of electricity would heat my Saturday night bath for 7,915 years.

This railway has been a part of this community since 1903, and although those 23 years have brought about many changes in the way of doing things, and particularly in transportation through the widespread use of the automobile, nevertheless a great need continues to grow for the movement cheaply of passengers and goods 24 hours a day and 365 days a year, regardless of weather conditions.

So great is this modern need of transportation of all sorts that each sort is sometimes wrongly chosen. The palatial flier of the trunk line railroad, or that same railroad's enormous coal "drag" of 70 cars; the airplane's flight; the interurban and street car; the automobile's flexibility; the ocean, lake or river craft; even the horse and our own feet—yes, our own patient "dogs" that in this modern age have almost forgotten how to walk—all have their proper place in the transport system.

That place must be determined by each individual for his own special need. And in determining it, cost and reliability must always be considered. For low cost and dependability the railroads are, more than ever before, this country's bulwark of transportation. The Clinton, Davenport & Muscatine Railway is proud, indeed, to furnish its small part in this great transportation scheme and to contribute to the further upbuilding of these thriving communities.

## Modernization Continues in Memphis

**Initial Investment of \$475,000 for 32 New De Luxe Cars  
Followed by an Additional Expenditure of \$130,000  
for Reconstruction—65 Cars Remodeled  
for One-Man Operation**

**S**TIMULATION of riding and bettering its public relationship led the Memphis Street Railway, Memphis, Tenn., to decide on a program of modernization. The initial step in this program consisted in the purchase of 32 low-level, double-truck, semi-noiseless de luxe cars from the St. Louis Car Company, St. Louis, Mo., at a total cost of \$475,000. Details of these new cars, together with the public reaction to their introduction, were given in the Sept. 4, 1926, issue of **ELECTRIC RAILWAY JOURNAL**.

As they met with such hearty public approval it was decided to go a step further and rebuild 40 of the low-

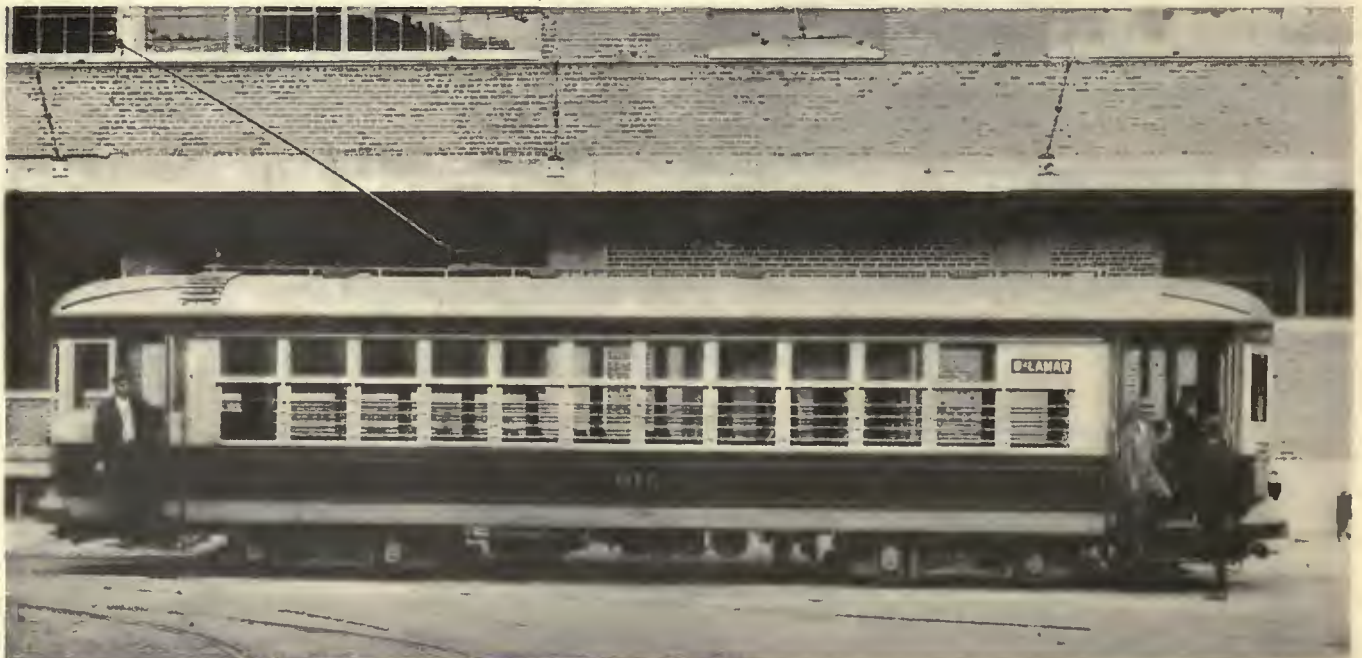


Comfortable Seat for Motorman and the Convenient Location of Controlling Apparatus Are Features in the Reconstructed Cars of the Memphis Street Railway

level cars purchased in 1923 to make them suitable for single-end one-man operation. Work was started last October and completed on Jan. 1, at a cost of approximately \$80,000. The front platform was redesigned to provide sufficient space for the installation of an entrance and exit door with folding steps. The rear platform was rebuilt with only an exit door. The front and rear exit doors are treadle-operated. All platform apparatus was relocated to permit of unobstructed passenger entrance and exit and convenience of operation. They are now practically duplicates of the 1926 cars with the exception of seats and floor covering. These rebuilt cars were so well received by the public that it encouraged the company to rebuild along the same lines 25 cars purchased in 1914. They were completed about March 1 at a cost of approximately \$50,000.

Of the 187 cars owned by the company 97, or about 50 per cent, are designed for single-end, one-man operation.

These cars with their bright color combinations present a very favorable appearance.



One of the 40 Cars of 1923 Type Reconstructed by the Memphis Street Railway. Arch Roof, Excellent Color Combination, Front and Rear Treadle-Operated Doors Present a Fine Appearance and Provide Safety Features

# Substantial Economies Obtained by Use of Treated Timber

Georgia Railway & Power Company Has Reduced Cost of Ties by \$1,188 Per Year Per Mile of Track—Prior to Installation All Timber Now Receives Preservative Treatment by the Rueping Process

By C. A. Smith

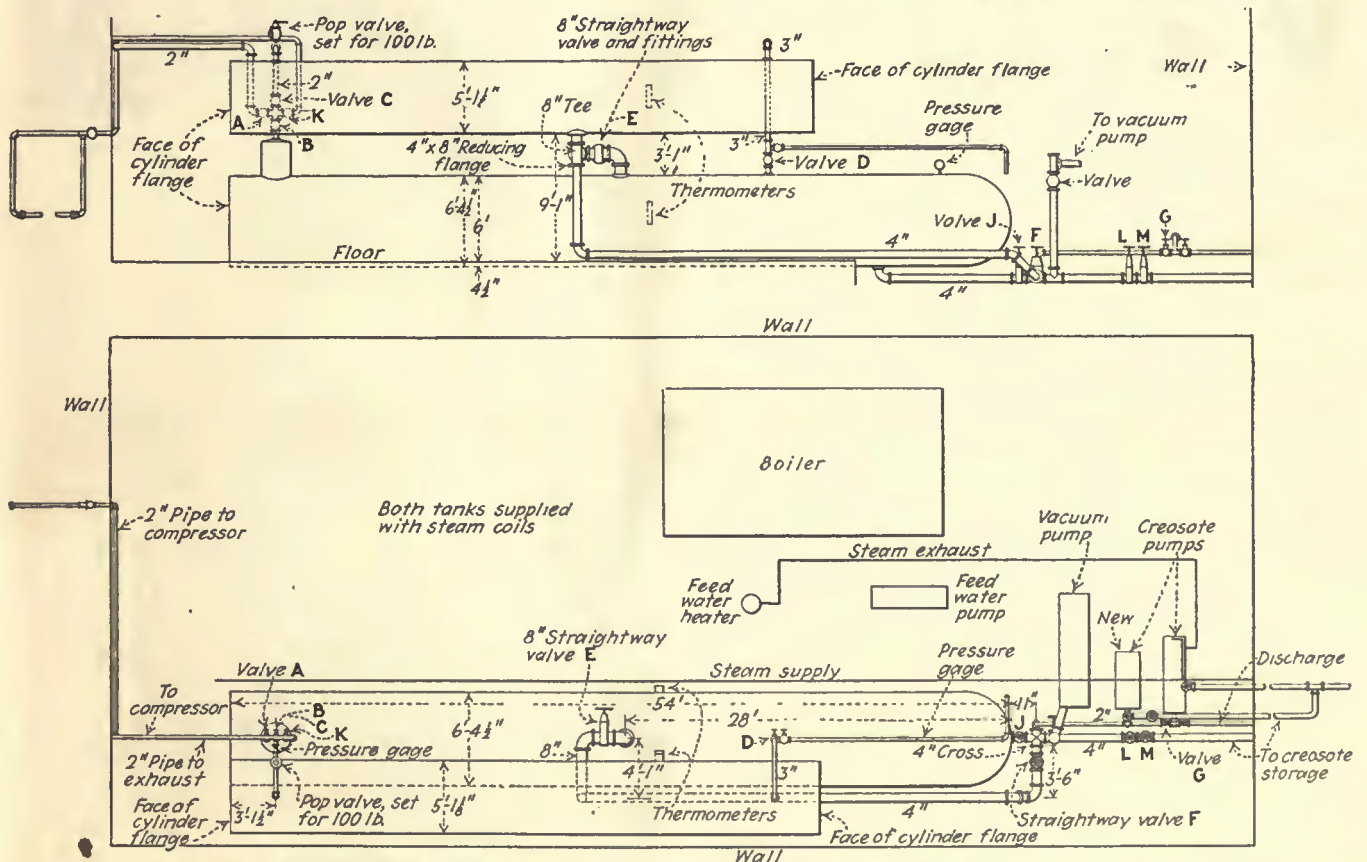
Superintendent of Roadway Georgia Railway & Power Company, Atlanta, Ga.

**M**ORE than 30 years of experience with preservative treatment of timber by the Georgia Railway & Power Company, Atlanta, Ga., has proved that substantial economies are produced by the practice. This company was one of the pioneers in wood preservation, having begun the use of creosoted timber as far back as 1895. Recently some ties laid in that year were taken up, and a large proportion of them were found to be in good condition. In comparing the costs of treated and untreated ties, however, twenty years is taken as the useful life of a treated tie. At the end of that time it usually is necessary to remove the tie for reasons other than deterioration. Wearing out of the rail or pavement may make it necessary to rebuild the whole track structure, and old ties are removed even when sound. Experience with treated ties shows savings ranging up as high as \$1,188 per year per mile of track, as compared with untreated ties.

The original creosoting plant of the Georgia Railway & Power Company had one pressure cylinder 5 ft. in diameter by 40 ft. long with the necessary storage tanks, pumps, etc. It was located close by the power house boiler room from which it took steam, and was constructed in the open with simply a shed for shelter. The full cell pressure process was used, as creosote at that time was very cheap, costing around 6 cents per gallon. Timber was impregnated by this process with a retention of from 10 to 14 lb. per cubic foot of timber.

Good results were obtained by this old plant. In 1926 we removed ties from a stretch of track which was built in 1895 using creosoted pine. These ties had been in service for 31 years and a large proportion of them were in sound condition. The small amount of deterioration is seen in the accompanying illustrations showing these ties after removal.

In 1909 we rebuilt our creosote works and installed a



Creosoting Plant of the Georgia Railway & Power Company, Where All Tie and Structural Timber Is Treated by the Empty Cell Process

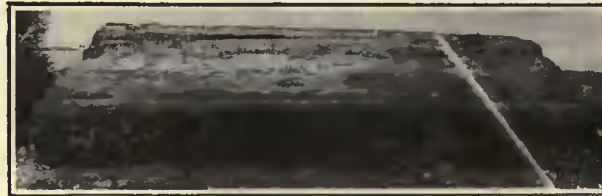
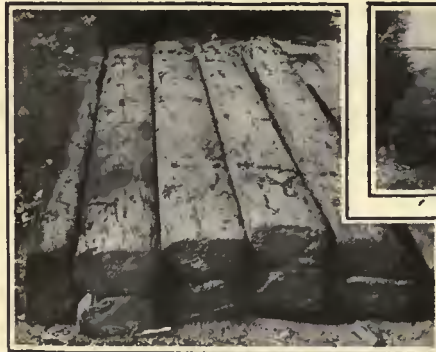
new pressure cylinder 6 ft. in diameter by 50 ft. in length capable of handling 300 ties per charge. The cylinder, pumps, boiler, etc., were housed in a brick building. The storage tanks were located in a pit back of the building at such a level that creosote could be emptied from railroad tank cars by gravity into the storage tanks.

This plant was operated under the full cell pres-

sure process until 1917. By that time the price of creosote had advanced from 6 cents per gallon to 15 or 20 cents per gallon. For that reason we rearranged our plant, adding a storage cylinder above the pressure cylinder and installing an air compressor with necessary

piping so as to use the Rueping or empty cell process with initial air. By the use of this process, penetration is obtained equal to that obtained by the full cell process with a retention of about 6 lb. of oil per cubic foot of timber, instead of from 10 to 14 as with the full cell process. The layout of this plant and its general appearance are shown in accompanying illustrations.

Practically all of our tie and structural timber is



Creosoted Ties Installed in 1895 on the Property of the Georgia Railway & Power Company Were Removed in 1926. A Large Majority Were Found to Be in Good Condition After 31 Years Service

sure process until 1917. By that time the price of creosote had advanced from 6 cents per gallon to 15 or 20 cents per gallon. For that reason we rearranged our plant, adding a storage cylinder above the pressure cylinder and installing an air compressor with necessary

treated. We use sap pine timber in all work which does not require a high fiber stress, because this timber can be bought at a very moderate price. In our track construction we use the same class of timber with a steel tie plate beneath the rail on each tie. A creosoted

COST PER YEAR OF A TIE BENEATH PAVEMENT

	Cost of Pavement \$1 per Sq.Yd.		Cost of Pavement \$3.50 per Sq.Yd.	
	Plain Tie	Creosoted Tie	Plain Tie	Creosoted Tie
Life, years.....	10	20	10	20
Cost of tie.....	\$0.96	\$1.15	\$0.96	\$1.15
Surfacing.....	1.50	1.50	1.50	1.50
Paving.....	2.00	2.00	7.00	7.00
Total.....	\$4.46	\$4.65	\$9.46	\$9.65
Interest, 7 per cent.....	\$0.31	\$0.33	\$0.66	\$0.68
Depreciation.....	0.45	0.23	0.95	0.48
Cost per year.....	\$0.76	\$0.56	\$1.61	\$1.16
Saving per tie per year.....	.....	\$0.20	.....	\$0.45
Saving per mile per year.....	.....	\$528.00	.....	\$1,188.00

COST PER YEAR OF A TIE IN OPEN TRACK

	Plain Tie	Creosoted Tie
Life, years.....	7	15
Cost of tie.....	\$1.02	\$1.15
Cost of installation.....	0.75	0.75
Total.....	\$1.77	\$1.90
Interest, 7 per cent.....	\$0.12	\$0.13
Depreciation.....	0.25	0.13
Cost per year.....	\$0.37	\$0.26
Saving per tie per year.....	.....	\$0.11
Saving per mile per year.....	.....	\$290.40

COST PER YEAR OF 1,000 BOARD-FEET OF BRIDGE TIMBER

	Plain	Creosoted
Life, years.....	12	25
Cost, erected.....	\$65.00	\$75.00
Interest, 7 per cent.....	\$4.55	\$5.25
Depreciation.....	5.42	3.00
Cost per year.....	\$9.97	\$8.25
Saving per year per 1,000 b. ft.....	.....	\$1.72

COST PER YEAR OF 30-FT. POLES, CLASS A

	Chestnut Plain	Pine Creosoted
Life, years.....	5	22
Cost of pole.....	\$9.00	\$11.35
Cost of setting.....	10.00	10.00
Cost per year.....	\$19.00	\$21.35
Interest, 7 per cent.....	\$1.33	\$1.49
Depreciation.....	3.80	0.97
Cost per year.....	\$5.13	\$2.46
Saving per pole per year.....	.....	\$2.67
Saving per mile per year (105.6 poles).....	.....	\$281.95



A Load of Ties Has Just Been Run Into the Treating Tank at the Atlanta Creosoting Plant

sap pine tie protected against wear by a steel tie plate will last as long as the rail under light traffic and frequently as long as two sets of rails under heavy traffic.

Cost figures for treated and untreated ties and poles are given in accompanying tables. In track with pavement costing \$1 per square yard the annual saving has



Ties for Treatment Are Stacked on a Carriage so that They Nearly Fill the Interior

been found to be \$528 per mile; with pavement costing \$3.50 per square yard the saving is \$1,188 per mile. In open track the saving is \$290 per mile per year.

Similar savings have been made by preservative treatment of structural timber and wood poles. Savings per year per 1,000 ft. b.m. are estimated at \$1.72. Savings per mile of double-pole line are estimated at \$281.95.

We must consider not only the actual economies in the use of treated timber at the present time, but we should endeavor also to anticipate conditions as they will be some years hence. The annual cutting of timber in this country far exceeds the annual growth. It requires from 35 to 100 years for a second growth tree to reach the size of pole timber, and this pole will last only from five to fifteen years untreated in the ground. It is estimated that with the present rate of cutting, the supply of commercial timber will be exhausted in 35 years. Under these circumstances every effort should be made to conserve the existing supply.

## Louisville Editor Lauds Electric Dining Car Menu

Meal Set Before Minnie Maddern Fiske by Interstate Public Service Company Considered Good Substitute for What Once Made Kentucky Famous

DINING car service as supplied by the Interstate Public Service Company, Indianapolis, Ind., has recently aroused the enthusiasm of a Blue Grass editor, as evinced by the following editorial which appeared in the Louisville *Herald-Post* recently:

### KENTUCKY'S NEW FAME

There is more than one road to fame. Kentucky used to rely on its production of fine whiskies, fast horses and fair women to lend distinction in foreign parts, but since one of this trilogy has been forcibly suppressed, the state has been considerably puzzled to supply a substitute. An idea of filling this hiatus is supplied by the *Interstate News*, which isn't a newspaper, but a house organ of the Interstate Public Service Company. It informs us that Mrs. Fiske and her company, who recently played an engagement of Ibsen's "Ghosts" at the Brown Theater, left Louisville for Indianapolis via electric car, and in a dining car operated by that company were served the following meal: Dix River tomato soup; Black Mountain turkey; Cranberry sauce à la Middleboro; Cynthiana dressing; Winchester spuds; asparagus Madisonville; hearts of lettuce, Richmond dressing; Harris pumpkin pie or Paducah plum pudding; Louisville roquefort cheese; wafers; coffee; mints.

The significance of this menu is more apparent when it is observed that every mouthful of food was consumed while the players were rolling through our sister state of Indiana. It is tantamount to the suggestion that if you want a good meal while anywhere in the Hoosier State run down to Kentucky.

A reputation for good food is not to be despised. For New Orleans and Paris it has won immeasurable affection. A single article of diet has made the names of some cities known the world over. Boston has lost her culture, but her pre-eminence in baked beans and brown bread is unchallenged. How many on this side would ever have heard of Bologna had not a patriotic butcher of that city once upon a time invented a convenient way of supplying soldiers with spiced minced meat while on the march? Munich and Muenchner, Bermuda and onions, Vienna and bread, Messina and lemons, Ireland and potatoes—they are as twined as roast beef and ale.

In honoring Kentucky's comestibles the Interstate shopped in the Blue Grass, in the mountains and in Louisville. It may never have occurred to Kentuckians before that they live uncommonly well. The Interstate deserves gratitude for discovering us to ourselves and to the rest of the world.

## Powerful Locomotives Built for Paris-Orléans Railway

Record Made for Fast Long-Distance Operation—  
Designed for Maximum Speed of 81 M.P.H.  
—Each Axle Has Individual Drive

WITH the opening of the electrified section between Paris and Vierzon on the Orléans Railway in France, a new European record was made for long-distance, high-speed operation. On Dec. 22, 1926, the first train, drawn by a powerful express locomotive specially designed for this service, covered this run of 204 km. (127 miles) in one hour and 57 minutes, at an average speed of 105 km. per hour (65 m.p.h.). Over considerable distances a speed of 125 km. per hour (78 m.p.h.) was maintained. The locomotive used on this initial trip was one of two built by the Swiss Locomo-

pull of 47,600 lb. can be exerted at starting, i.e., 30 per cent of the 72 metric tons adhesion weight. The loading of the driving axles is 18 metric tons, which is the limit for this railway; the axles of the guiding trucks, which are non-symmetrically placed, carry 10.5 tons and 13 tons, hence the total weight of the locomotive is 119 tons.

Conditions of design were that the locomotives should attain a speed of 130 km. per hour (81 m.p.h.) on a suitable permanent way, and also, at low speeds, be able to traverse curves having a radius of 80 m. (265 ft.). These conditions led to the use on each locomotive of a two-axle truck, fitted with a spring centering device. Individual axle drive was used. This type of drive has been in service for a considerable period on 50 locomotives of the Swiss Federal Railways and elsewhere.

The electrical equipment consists of four 1,500-volt d.c. driving motors, provided with both self-ventilation and external ventilation. Motors can be connected in



Paris-Vierzon Express on Paris-Orléans Railway Drawn by One of the New 1,500-Volt High-Speed Locomotives

tive & Machine Works, Winterthur, and equipped electrically by Brown, Boveri & Company, Baden, Switzerland.

Since these express locomotives have been in use on the Paris-Vierzon section it has been possible to shorten the running time substantially. Formerly the journey between Paris-Austerlitz and Les Aubrais occupied 92 to 100 minutes, and that from Aubrais to Vierzon 74 to 76 minutes. After electrification it became possible for trains of 530 metric tons (584 U. S. tons) to operate over these two sections in about 75 minutes and 55 minutes respectively.

The axle arrangement used on the new locomotives is 2-D-2, there being a four-wheel guiding truck at either end, with eight driving wheels between. A one-hour rating of 4,000 hp. is obtained at the wheel treads at a speed of about 73 km. per hour (45 m.p.h.). A continuous rating of 3,300 hp. at a speed of about 78 km. per hour (48 m.p.h.) can be developed. The one-hour tractive effort on the wheels is about 31,960 lb. and that at the continuous rating is 25,350 lb. A drawbar

series, series-parallel or parallel, according to requirements. By the application of field-weakening taps and by shunting parts of the field eleven economical running steps are provided in one of the two locomotives and in the other, thirteen. By the arrangement of each motor group, twelve resistance steps can be obtained, so that besides the running positions already mentioned, 36 other steps are provided which make smooth starting possible. An auxiliary motor-generator set for 1,500/72 volts, connected in parallel with a battery, operates the pilot motor connected to the main controller. This auxiliary set also supplies current to the lighting circuit. The motor compressors and the ventilating motors are designed for a potential of 1,500 volts and are switched in or out, over a small resistance, by a contactor. Current may be obtained from the contact wire by means of two pantograph collectors, or it may be obtained from the third rail by shoes. Experience thus far indicates that the electrical equipment will prove satisfactory and suitable for the work required.

# The Readers' Forum

## What Does the Public Want — Low Car Fares or Service?

RICHMOND BOROUGH  
NEW YORK CITY, Feb. 28, 1927.

To the Editor:

Staten Island, being the borough of Richmond of the city of New York, is vitally interested in the local bus situation. Trolley service has been given on Staten Island for the past 30 or 40 years. Two years ago an independent company started a bus system, most of which is in competition with the trolley company. There is, however, a real need for bus service in newer sections not reached by the rail lines, and also to replace the municipally operated trolley which the city seems anxious to abandon. The bus system now operates without a franchise.

Both the bus system and the trolley company, through a subsidiary, have made application to the Board of Estimate for a permanent bus franchise. The Staten Island Coach Company, the trolley subsidiary, offered an 8-cent fare with universal free transfers from and to all cars and coaches north of Richmond, which includes all but two unimportant lines. The Tompkins Bus Corporation offered a 5-cent zone fare. Transfers were offered at a 2-cent charge, at some points free and at other points none. The transfer feature of the offer was not well understood.

The borough president favors one of these parties, though he has expressed himself as willing to abide by the decision of the public. To obtain the general public sentiment, a local newspaper started a voting and letter-writing contest, in which prizes of \$25 were offered for the best letters on the bus franchise question.

An examination of these letters as printed in the newspaper is very interesting. The following is a compilation of the subjects discussed in the 116 letters published:

Priority of service.....	23
Courtesy of employees.....	31
Amount and quality of service.....	84
Condition of equipment.....	37
Financial responsibility.....	45
Fare .....	70
Safety .....	12
Speed .....	7
Public relations.....	33

Naturally the number of subjects exceeds the number of letters, since each letter, on the average, discussed about three topics.

In interpreting these data, a number of things must be kept in mind. For one thing, the letter writers may not represent a fair cross-section of the community, since there were but 116 letters from a population interested of at least 125,000. Also the people of Staten Island may not be representative of the country at large, the people in New York City being notably uninformed about transit matters in general and unacquainted with the progress which has been made in cities where the political influence against efficient transit service has not been so great.

Many of the writers undoubtedly considered speed,

safety and equipment under the general heading of service, although the topics discussed under service in most of the letters were about headway, reliability, freedom from breakdowns, territory covered, night cars, etc. The speed of both prospective operators may have been taken for granted as about alike. Courtesy must have been in the minds of those letter writers who discussed the service.

On the subject of fare, those who live within a 5-cent ride of the ferry were strong for the zone system. Those who live further out, where 10, 15 or 20 cents for two, three or four zones would be charged, preferred the 8-cent fare with universal free transfers. One thing stood out, that almost every letter admitted the absolute impossibility of a straight 5-cent fare. The losses of the municipal venture here were offered as proof. There was also a strong sentiment for a straight 10-cent fare with good service, although unfortunately a few writers haggled over pennies here and there. If a clear-cut conclusion may be drawn from the letters printed, with the complicated fare structure outlined, it was that the people wanted good service, and realized that they would have to pay a fare that would purchase the service desired.

The interesting deduction may be drawn that even in New York City service is preferred to the fare, though the fare looms large over other factors. The surprising thing is that speed and safety, at least in city service, were mentioned by so few people.

FELIX E. REIFSCHNEIDER.

## Atlanta Devotes Much Attention to Car Appearance

GEORGIA RAILWAY & POWER COMPANY  
ATLANTA, GA., Feb. 2, 1927.

To the Editor:

Atlanta is evidently doing her part to get rid of those 25,000 obsolete electric cars. In the last three years she has set the torch to 170 old cars, with ages ranging from 20 to 28 years; and in their place are 196 new four-motor, low-floor cars, weighing 37,500 lb. each. This has resulted in better looking cars, increased rates of acceleration, higher speed, quicker stops and a more satisfactory service.

Free discussion indicates that today individuals are expecting more comfort and speed, and in response to this many electric cars now have rubber tile flooring, deep-cushioned individual seats and streamline exteriors in attractive colors. Present-day cars cost a lot of money, all the way from \$14,000 to \$18,000 each, and there is no doubt that in many cases the providing of new equipment has been a Herculean task. Now that there are a lot of them in service throughout the country "all dolled up" and looking good, an increased responsibility falls on the maintenance department in order to keep them attractive.

If the rubber tile floor cannot be kept clean, if the upholstered seats are not re-covered perhaps every two or three years and if the attractive exterior is not kept clean by running the car through the paint shop at least every sixteen months, much of the attractiveness may be lost. It is also necessary to provide a fairly smooth and comfortable track for these new cars to run on or else the looked-for gain in receipts may not be realized.

W. H. MCALONEY,  
Superintendent of Equipment.

# Maintenance Notes

## Headlight Resistor Withstands Climate

**S**PECIAL headlight resistance units are being installed on the Key Route cars of the Key System Transit Company, Oakland, Cal. The unit is placed in series with the head-

*Use best renewals; substitutes  
Will soon leave you destitute.*

The unit is of a special material known as Chromalux, manufactured by the Edwin L. Wiegand Company. It has the properties for withstanding the salt air, fog and sewer gases

encountered on the pier route of the Key System. The units are mounted on a wood framework which is suspended under the car, either at the center or under the end frame, where the resistor is subject to all climatic and road conditions. As will be seen in the accompanying illustrations, the resistors are protected by a copper mesh screen.



Special Headlight Resistor, Made of Chromalux Units, Which Withstands Sewer Gases, Salt Air and Fog on the Key Route



The Units Are Mounted on a Wood Framework Which Is Suspended Under the Car

light to cut down the trolley voltage to approximately 110 so that a 250-watt, 110-volt lamp may be used.

## Adjustable Armature Winding Stand

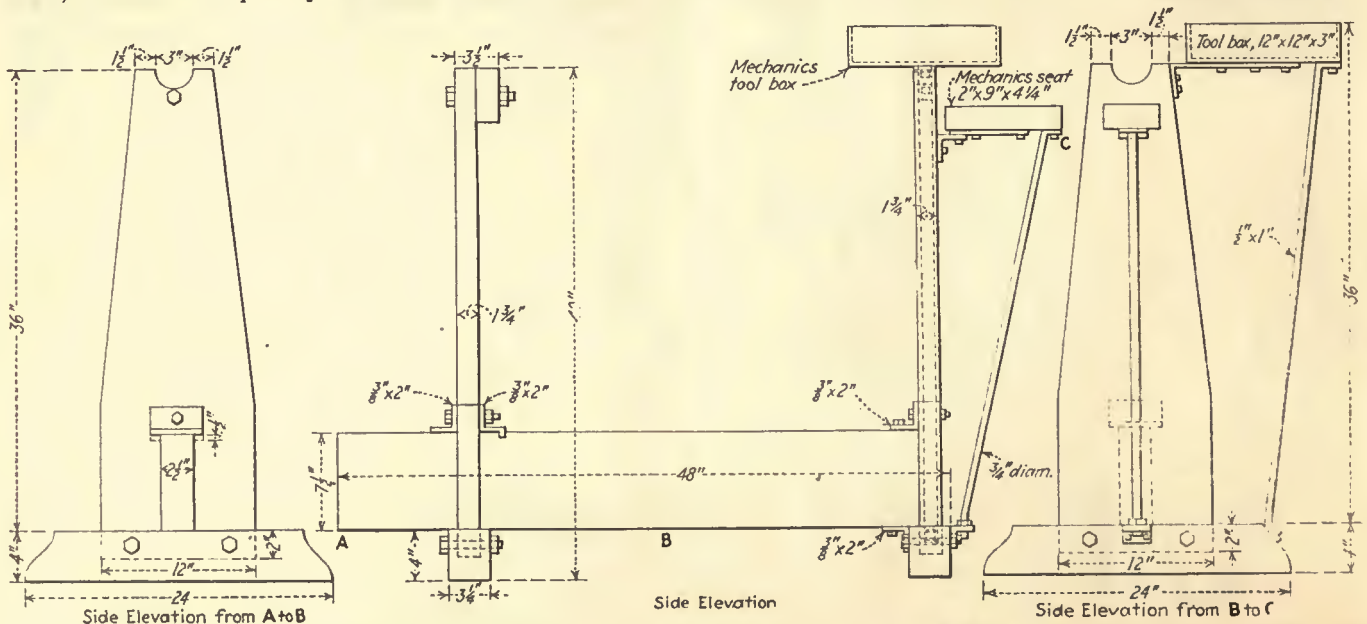
**R**EPAIR and winding of armatures in the shop of the Lynchburg Traction & Light Company, Lynchburg, Va., has been simplified to a marked degree since Master Mechanic Cochran designed and built an adjustable armature stand. The adjustable feature provides a range of pedestal centers that will accommodate the smallest air compressor armature or the largest railway motor armature.

The stand is made of well-seasoned oak. When assembled it occupies a floor space of approximately 24 in. x 48 in. The base consists of two 3 1/4-in. x 4-in. x 24-in. oak beams and the armature supports are made of 1 1/2-in. lumber of semi-tapered design with a 12-in. base and a 6-in. top. Each base beam has a recess gouged out 1 1/2 in. x 2 in. x 12 in., in which is installed the base of the armature support, held in place by two 1/2-in. machine bolts. One end of an oak

timber 2 1/2 in. x 7 1/2 in. x 45 1/2 in. is fastened to the commutator end armature support by two substantial steel angles. The other end is placed through a 2 1/2-in. x 7 1/2-in. hole in the pinion end armature support. This allows the latter to be moved toward or away from the commutator end support as desired for the armature to be worked upon. Two angles are fastened to the movable armature support. One has a projection extending down on either side face of the 45 1/2-in. beam and acts as a brace to prevent tipping and a guide to assure alignment at all times.

An added feature is a workman's semi-revolving seat 2 in. x 9 in. x 4 1/2 in., and a tool and material box 12 in. x 12 in. x 3 in. fastened to the commutator armature support.

Due to its portability this armature stand can be moved to any part of the shop to facilitate working conditions, especially to secure daylight.



General Appearance of Adjustable Armature Stand Used in the Shop of the Lynchburg Traction & Light Company, Lynchburg, Va.





Tilting Table Circular Saw in the Capital Traction Company Shop, with Lumber in Place and Table Set for Angle Cut

### Modern Sawing Machine Saves Material and Labor

LUMBER for window, door and vestibule posts was a very large item in the carpenter shop budget of the Capital Traction Company, Washington, D. C., until W. H. McCarty, master mechanic, installed a modern sawing machine. The magnitude of the lumber item was not entirely due to the number of posts required for repair work but

rather to the unavoidable waste of material on account of cutting posts with a certain angle by means of an obsolete circular saw. The machine installed to obviate this is an individual motor-operated American No. 10 Model 3 tilting table circular saw.

Where it was possible to cut only two door posts from a certain piece of stock three of these posts can now be made and the waste is extremely small. On this one class of work alone

the lumber saving has amounted to at least 35 per cent and the number of operations reduced 75 per cent. Similar saving in material and operations has been shown in practically all of the work where angle cutting is required. It is believed that the machine has fully paid for itself in the few months it has been in service.

### Improving Sweeper Brooms

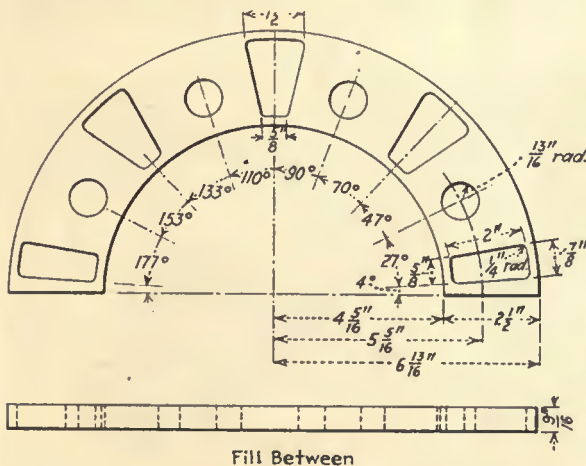
BY WILLIAM J. SMITH

Master Mechanic Community Traction Company, Toledo, Ohio

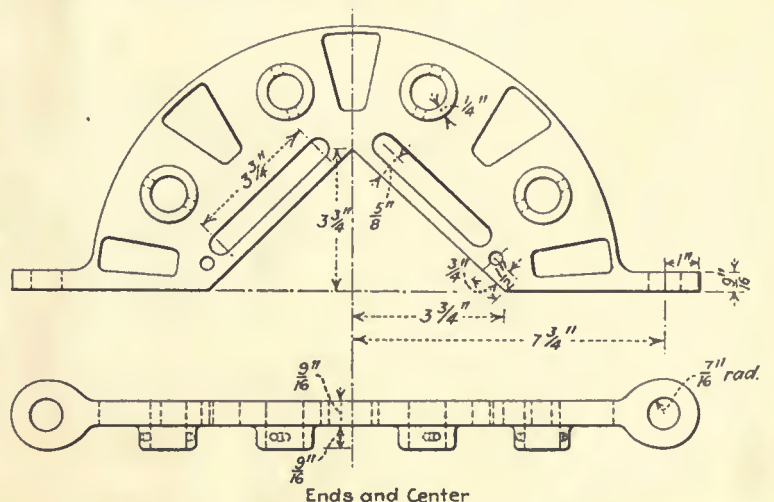
SNOW fighting has not been so great a cause for anxiety on the lines of the Community Traction Company, Toledo, Ohio, since the development in the shop of a new casting for the brooms. Formerly the broomsticks for snow sweepers were inserted through small holes in an iron casting, turned through the back and pushed through a similar hole in the casting about 12 in. away. A board clamped to the back of the casting held the broomsticks in place.

This method proved very unsatisfactory. Not only did the sticks break when they were inserted in the small holes but the board clamped against them turned them at such a sharp angle that they soon broke off in service. During a snowstorm it was customary to have three or four men working overtime to keep the brooms in repair.

A new type of casting has now been developed in which the broomsticks are placed in position in a U-shaped aperture and held firmly in place by an iron rod run through after an entire row has been placed. Since this method was adopted no men have been worked overtime to keep the brooms in repair and they outlast the old style which they replaced.



Fill Between



Ends and Center

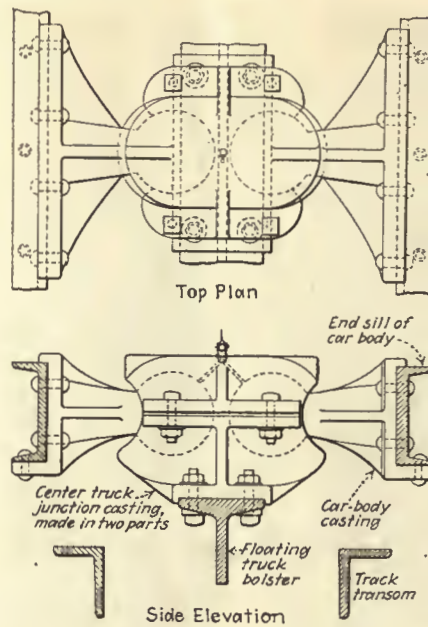
New Broom Castings Overcome Breakage Troubles

## New Equipment Available

### Universal Joint Coupler for Articulated Cars

FOR joining articulated car units a new type of universal joint coupler is being marketed by the Universal Car Parts Corporation, Baltimore, Md. The coupler is the invention of Joseph M. Suarez and includes four castings designated as lower socket, upper socket and two car end connections. Each of these latter parts has a ball which fits into a hemispherical socket in the lower and upper socket members. The lower member is secured to the bolster on the center truck and the upper one is fastened to the lower, thus providing two complete ball sockets which engage the respective balls of the car end connections.

Each car end connection is thus free from engagement with the other and can be disconnected from the center truck without interference with the other car end. The two-ball coupler is designed to take track curves of



Construction of Universal Coupler for Articulated Cars

short radius such as are encountered in electric railway service. The lower sockets retain the lubricant and the pocket construction prevents waste. The upper and lower socket members are separated by gaskets which can be adjusted to compensate for the wear of the ball joints.

## Association News & Discussions

### Prizes to Be Awarded for Papers on Arc Welding

THE sum of \$17,500 has been placed with the American Society of Mechanical Engineers by the Lincoln Electric Company, Cleveland, Ohio, to be awarded by the society for the best three papers disclosing advancement in the art of arc welding, presented under the rules of the competition. The prizes to be awarded are \$10,000 for the first, \$5,000 for the second and \$2,500 for the third. The purpose of the competition is to encourage improvement in the art of arc welding, the pointing out of new and wider applications of the process, the discoveries of improved methods of testing welds to insure their integrity, or indicating advantages and economies to be gained by its use.

The competition will be judged by a committee of the American Society of Mechanical Engineers and any one may compete. Papers must be sent in duplicate to the secretary, Calvin W. Rice, 29 West 39th Street, New York, N. Y. All exhibits must also be in duplicate and captions, titles, legends and notes must be in the English language. All papers must bear evidence of having been sent before Jan. 1, 1928, in order to be considered and must be received by Jan. 31, 1928.

Every paper should include necessary drawings, photographs or other exhibits, in order that the disclosures may be complete. Originality of design is preferable, either in the method of applying the weld or in the design of the welding parts for their arrangement. Designs which are of no practical use will be considered only in case they include suggestions which could self-evidently be applied in other ways than those suggested. Methods of applying the arc or the welding art, which will improve existing machines or make commercially possible machines which in the light of previous engineering have been regarded as impractical, are specially desired.

In submitting papers each competitor gives the American Society of Mechanical Engineers the right to publish the paper should the society desire to do so. No papers will be returned to any competitor. It is the purpose of the American Society of Mechanical Engineers to present these awards at the stated spring meeting of the society in 1928. All competitors will be notified promptly of the action of the judges. The American Society of Mechanical Engineers has issued a bulletin giving complete information regarding the competition. Copies of this may be obtained by addressing the secretary.

### COMING MEETINGS OF Electric Railway and Allied Associations

March 16-17—Central Electric Traffic Association meeting, Lincoln Hotel, Indianapolis, Ind.

March 17-18—Illinois Electric Railway Association, seventh annual joint convention, Hotel Abraham Lincoln, Springfield, Ill.

March 24—New England Street Railway Club, annual meeting and banquet, Copley-Plaza Hotel, Boston, Mass.

April 1—American Electric Railway Association, Metropolitan Section, Engineering Societies Building, New York City, 8 p.m.

April 26-29—Southwestern Public Service Association, convention, New Orleans, La.

May 31—June 1-2—Canadian Electric Railway Association, annual convention, Winnipeg, Man.

June 6-8—American Association of Engineers, annual convention, Tulsa, Okla.

June 24-25—New York Electric Railway Association, annual meeting, Hotel Champlain, Bluff Point, N. Y.

July 27-29—Association of Equipment Men, Southern Properties, 12th semi-annual meeting, Atlanta, Ga.

Oct. 3-7—American Electric Railway Association, annual convention and exhibit, Public Auditorium, Cleveland, Ohio.

### New England Club Banquet March 24

PLANS are well under way for the 27th annual banquet of the New England Street Railway Club. As is customary, it will be held March 24 at the Copley-Plaza Hotel, Boston. Dinner will be served at 6:30 p.m. for members and gentlemen guests. Music will be furnished by the Connecticut Company Employees' Band.

Edward Dana, general manager Boston Elevated Railway, will be toastmaster. The speakers will be Gov. Alvan T. Fuller of Massachusetts, Mayor Malcolm E. Nichols of Boston, Hon. B. F. Cleaves, former chairman Maine Public Utilities Commission, and Frank P. Sibley, special correspondent of the *Boston Globe*.

The annual meeting of the club will be held at the hotel at 3 p.m., at which time officers for the ensuing year will be elected.

### Central Master Mechanics Appoint Committee

COMMITTEE appointments of the Central Electric Railway Master Mechanics Association have been announced for the present year by President G. R. Green. A full list of appointments follows:

Executive — G. R. Green, president C.E.M.M.A., general superintendent Chicago, South Bend & Northern Indiana Railway,

chairman; F. J. Foote, vice-president C.E.M.M.A., Springfield, Ohio; L. E. Earlywine, secretary C.E.M.M.A., Indianapolis, Ind.; Charles Sigler, Warsaw, Ind.; T. H. Nicholl, Anderson, Ind.; J. W. Osborn, Elyria, Ohio; A. W. Reddersen, Fort Wayne, Ind.

**Arbitration**—J. B. Corderman, master mechanic Lima Toledo Railroad, Lima, Ohio, chairman; R. E. Cornwell, South Bend, Ind.; H. F. Coleman, Fort Wayne, Ind.; Theodore Cox, Springfield, Ohio; R. C. Taylor, Albion, Mich.

**Membership**—R. E. Twiggs, master mechanic, Steubenville, East Liverpool & Beaver Valley Traction Company, East Liverpool, Ohio, chairman; A. W. Brownworth, Sandusky, Ohio; W. J. Smith, Toledo, Ohio.

**Reclassification of Accounts**—P. V. C. See, superintendent of equipment Northern Ohio Power & Light Company, Akron, Ohio, chairman; T. H. Nicholl, Anderson, Ind.; A. W. Reddersen, Fort Wayne, Ind.; C. M.

Bange, Scottsburg, Ind.; J. W. Osborn, Elyria, Ohio.

**Standardization**—T. H. Nicholl, superintendent of motor power and equipment Union Traction Company of Indiana, Anderson, Ind., chairman; A. W. Reddersen, Fort Wayne, Ind.; C. E. Snyder, Tippecanoe City, Ohio; Charles Sigler, Warsaw, Ind.; J. F. Seigle, Newark, Ohio; J. D. Barnhart, Decatur, Ill.; C. M. Bange, Scottsburg, Ind.

**Subjects**—A. J. Challeen, superintendent of shops Detroit United Lines, Highland Park, Mich., chairman; J. B. Corderman, Lima, Ohio; J. W. Osborn, Elyria, Ohio; W. J. Fox, Scottsburg, Ind.; G. A. Stiles, Columbus, Ohio.

**Uniform Charges for Repairs to Interchanged Equipment**—W. A. Coleman, superintendent Dayton & Western Traction Company, West Alexandria, Ohio, chairman; A. F. Rolston, Stratford, Ohio; Allan Karns, Bowling Green, Ohio; Theodore Cox, Springfield, Ohio; M. M. Lloyd, Michigan City, Ind.

### Metropolitan Section Keeps Posted

NEW developments in the transportation industry were discussed at a well-attended meeting of the Metropolitan Section, A.E.R.A., held at the Engineering Societies Building, New York City, March 4. Various phases of the business were treated by the several speakers selected by the sponsor group committee, of which C. R. Jones was chairman.

J. B. Donley, director of public relations Pittsburgh Railways, told of the new ideas developed to sell transportation. He outlined the various steps through which the company has passed from receivership to its present enviable position. How new franchises were secured and friendly relations established with municipal authorities and with the general public were brought out. He gave interesting information on the recent "Ride the Trolley Week" which was the subject of a comprehensive article in ELECTRIC RAILWAY JOURNAL for Jan. 29. Particular emphasis was laid on the policy of the management to lay all its cards on the table in dealing with the public and its employees.

On account of the illness of Charles Gordon the subject of recent developments in car equipment was discussed by John A. Dewhurst, associate editor ELECTRIC RAILWAY JOURNAL. He brought out forcibly the influence which the automobile has had upon the local transportation situation. The industry has changed from a non-competitive necessity to a competitive convenience, he said. This has made it necessary to improve the common-carrier vehicle to a point where its service approaches that of the private automobile in comforts and attractiveness. He mentioned the importance of light-weight construction, improved seats, automatic treadle exits and similar features. His talk was illustrated by lantern slides showing new cars operated on various electric railways throughout the country and interesting details.

Moving pictures illustrating the latest transportation developments in the metropolitan area were presented by Horace Sisson of the Sisson Supply Company. Included in this were views taken on the properties of the Richmond Light & Railroad Company, Brooklyn City Railroad, New York Railways and Public Service Railway.

E. M. T. Ryder, way engineer Third Avenue Railway, spoke briefly about the latest things in track construction. He called attention particularly to the method used by his company in making butt-welded joints. H. F. Merker, chief engineer Brooklyn City Railroad, also spoke briefly on track matters, but expressed a view somewhat different from that of Mr. Ryder concerning butt-welds. He spoke of the importance of ELECTRIC RAILWAY JOURNAL as an agency to keep the industry posted on developments.

The meeting was concluded with a talk by James O'Shaughnessey, National Association Advertising Agencies. He told how advertising has made friends for countless manufactured products and pointed out its possibilities as a means of winning public favor.

## American Association News

### Exhibit Committee Appointed

PRESIDENT W. H. SAWYER of the American Electric Railway Association has announced the personnel of the exhibit committee for the 46th annual convention and exhibit, scheduled to take place in the Cleveland Public Auditorium and Annex, Oct. 3 to 7 inclusive. Col. J. H. Alexander, president Cleveland Railway and chairman of the exhibit committee, has called a meeting of the entire committee at his office, Hanna Building, Cleveland, Ohio, for 10 a.m., Friday, March 18. This meeting is for organization purposes, to go over and approve pending contracts, to lay out floor space showing detailed arrangement of booths, etc. The personnel of the committee is as follows:

- Col. J. H. Alexander, president Cleveland Railway, Cleveland, Ohio, chairman.
- C. E. Morgan, Brooklyn, N. Y., vice-chairman.
- J. W. Welsh, New York, N. Y.
- Fred C. J. Dell, director of exhibits, A.E.R.A., New York, N. Y.
- H. H. Adams, Chicago, Ill.
- L. D. Bale, Cleveland, Ohio.
- Herman Bender, Cleveland, Ohio.
- C. P. Billings, Pittsburgh, Pa.
- R. M. Campbell, Philadelphia, Pa.
- T. W. Casey, New York, N. Y.
- C. H. Clark, Cleveland, Ohio.
- J. F. Collins, Jackson, Mich.
- S. G. Down, Wilmerding, Pa.

- B. C. Edgar, Nashville, Tenn.
- J. F. Egolf, Highwood, Ill.
- H. F. Flowers, Findlay, Ohio.
- Charles Gordon, New York, N. Y.
- L. E. Gould, Chicago, Ill.
- R. N. Graham, Youngstown, Ohio.
- R. A. Hauer, New York, N. Y.
- C. S. Hawley, Albany, N. Y.
- B. A. Hegeman, Jr., New York, N. Y.
- A. P. Jenks, Chicago, Ill.
- A. E. Kasemeier, Cincinnati, Ohio.
- H. J. Kenfield, Chicago, Ill.
- G. L. Kippenberger, St. Louis, Mo.
- S. P. McGough, Chicago, Ill.
- J. S. Pevear, Birmingham, Ala.
- A. L. Price, Mansfield, Ohio.
- Harry Reid, New York, N. Y.
- A. M. Robinson, Philadelphia, Pa.
- S. P. Seward, Cleveland, Ohio.
- L. W. Shugg, Schenectady, N. Y.
- D. W. Snyder, Jr., Springfield, Ill.

### Purchases and Stores

PREPARATION of the report to be presented at the annual convention of the Engineering Association occupied the attention of the committee on purchases and stores at a meeting held on March 1 and 2. The committee met in the offices of the Virginia Electric & Power Company at Richmond, Va., on invitation of J. Y. Bayliss, director of purchases and supplies. Other members present were John Fleming, chairman; B. W. Forkner, A. A. Ordway, W. J. Walker and A. E. Hatton.



Members of Committee on Purchases and Stores at Recent Richmond Meeting  
From left to right—B. W. Forkner, A. A. Ordway, W. J. Walker, A. E. Hatton, John Fleming and J. Y. Bayliss.

# The News of the Industry

## Money for Bondholders

Redemption and Interest on Seattle Railway Paid—Extension of Time on Purchase Bonds Defeated

Ignoring an order of the Superior Court temporarily tying up the funds, City Treasurer Ed L. Terry, Seattle, Wash., with the concurrence of other city officials, on Feb. 28 telegraphed \$1,142,835 to the city's fiscal agent in New York, for payment of the bond redemption and interest due on March 1 on the Seattle Municipal Railway, purchased from the Stone & Webster interests in 1919.

Attorneys for John G. Von Herberg, who is suing the city to force the payment of salaries and other costs of operation ahead of installments on the purchase bonds, refused to enter into a stipulation, as demanded by Corporation Counsel T. J. L. Kennedy, whereby the city would be permitted to make the bond payment when due. Mr. Von Herberg charges as unlawful loans totaling \$735,000 from the city light department to aid the municipal railway in its present entanglement of finances and litigation. In Mr. Kennedy's diagnosis of the situation, a successful prosecution of the specific performance suit brought in federal court by the Puget Sound Power & Light Company against the city would be likely if the city defaulted on the purchase bonds, in which case the city would have to operate the railway from money of the general fund, leaving first revenues of the railway for the holders of the purchase bonds.

### J. G. VON HERBERG CONTINUES PROTEST

Attorney Robert P. Oldham, for Mr. Von Herberg, asserts that his suit for payment of salaries still stands, and the fact that salaries now may be paid from an "unlawful transfer of funds" does not affect the situation. Mr. Oldham points out that the city has violated the temporary restraining order of the Superior Court, and Mr. Von Herberg in an open letter protests against such action, and strongly criticizes the Council for its action in violating a court order.

Efforts of the Puget Sound Power & Light Company to amend the bill now pending in the Washington Legislature providing for an extension of time on the Seattle Municipal Street Railway purchase bonds have failed in the Senate committee on cities of the first class.

The bill that was favored by the city was voted out of committee with the unanimous recommendation that it pass without the Puget Sound company's amendment.

A. W. Leonard, president of the Puget Sound company, after a conference with Mayor Bertha K. Landes, an-

nounced that his company will not pursue further its efforts to attach an amendment to the bill, because while he feels that the amendment is justified, it is feared it may defeat the entire measure, with the result that all negotiations for bond extensions would be held up until another session of the Legislature.

The amendment, in the opinion of Corporation Counsel T. J. L. Kennedy, Mayor Landes and other city officials, would have the effect of making the extended bonds a general obligation of the city, instead of merely a lien on the gross revenues of the street railway utility. Puget Sound officials insist that the amendment was merely for the purpose of restoring the bonds to the same status they have at present.

Another phase of the railway financial troubles came up when the United States Supreme Court in Washington,

D. C., on Feb. 28 announced that it would not act as referee in the \$545,000 tax battle between the Puget Sound Power & Light Company and the city, and dismissed applications for writs of certiorari filed by the litigants. This decision means that the city's general fund is not liable for the payment of the city's share of the street railway taxes for 1919. The Circuit Court of Appeals held that the street railway must pay the taxes, but that the money must come from the revenue of the utility. The Puget Sound company filed application for a writ of certiorari on the ground that the taxes should be an obligation against the city. The city, contending that the city does not owe the tax money, filed application for a cross writ of certiorari. The dismissal of both applications leaves the decision of the Circuit Court of Appeals still in effect.

## Fare Change Sought

Company at Houston Desires Sliding Scale—Needs \$1,000,000 to Keep Pace with Growth of City—Auto Registration Increased in Six Years—Bus Service Unprofitable

IN A petition filed Feb. 28 with the City Council of Houston, Tex., the Houston Electric Company proposes a fare adjustment based on a sliding scale, which would permit regular patrons to enjoy the same rate as heretofore, or possibly less, the occasional rider to pay as high as 10 cents. The company states that an increase in fare is necessary to realize an adequate rate of return on its investment. Profits for 1926 were scarcely more than 3 per cent. Expenditures totaling \$1,000,000 will be necessary in 1927 to keep pace with the development of the city. In a full-page advertisement, signed by Jeff L. Alexander, manager, the people of Houston are acquainted with the plan of the company.

Mayor Oscar Holcombe said that the city would take time to consider whether the adjustment was merited. An investigation will be made and a hearing held, the Mayor explained. While the Council is investigating the requested rate adjustment, the company plans to lodge a campaign of public information by distributing circulars on cars and buses and using newspaper advertising to tell why the increase is needed.

The company introduces its petition with the explanation that within a short time the three-year construction program, outlined in an agreement between the company and a committee of citizens of Houston, will have been completed. The company obligated itself to spend \$1,500,000 within three years on extensions. Other improvements not included in the agreement have been carried out by the company

and the total expenditures to date have been \$1,650,000. The company now claims that \$1,000,000 is needed to keep pace with the growth of Houston and presents the problem of from what source the \$1,000,000 of new money can be secured.

With a record of earning only \$4,905 with which to pay interest on the \$3,627,358 of new money invested during the past thirteen years, it was easy to understand why investors do not want to purchase additional securities of the company. According to the petition the people of Houston have purchased securities liberally, believing, as did the company, in the future of public transportation and the fairness of the citizens and city authorities to permit the company to earn a reasonable return on money so invested. While the interest has been paid on the securities it has come as a sacrifice from the original security holders, and if further securities should be offered and sold the interest paid on them would in turn come as a sacrifice from the present holders of securities located in Houston and elsewhere. Under the circumstances, the company would not be justified in asking people to invest further in the company's securities and could not expect them to do so.

The difficulties through which the company has passed since the outbreak of the European war were enumerated in a brief historical summary included in the petition. Mention was made of the operation of jitneys which depleted the revenues of the company, the expansive improvement program and the

substantial addition to its investment. The relief offered through various means would have proved sufficient to keep the company in good financial condition, except for further depletion of the revenues by diversion of traffic from its cars to privately owned automobiles. The effect of the ownership and use of private cars was shown by the number of revenue passengers on the Houston car lines since 1920 and Harris County's auto registration during that same period. The auto registration for the year ended Dec. 31, 1920, was 22,032, and for 1926, 60,922. The number of revenue passengers in 1920 was 35,222,621 and in 1926 42,082,233. Elimination of the jitneys helped to increase the number of passengers on the car lines from 1923 to 1926. To regain by an increase in fare from present car riders the revenue lost through automobile development would mean an increase in the present fare of more than 3 cents per ride.

Reference was made in the petition to the efforts made to facilitate riding—the means to make the service more attractive, the advertising and general merchandising methods and the investment in buses being proposed to that end. The bus operation, however, has been unprofitable, the amount earned on the investment being less than 1 per cent. However, the petition states the net result is more satisfactory than the investment in car lines would have been to serve the same territory.

The service now needed cannot be provided until new equipment is purchased. Plans and specifications for new cars of modern design are now in the hands of the car builders awaiting orders to begin work. The additional revenue needed for the purposes above enumerated plus added taxes to be paid to the city and state on gross earnings is equivalent to an additional fare of approximately 1½ cents for each passenger now carried.

A schedule of rates should be promulgated which will permit those who use the service regularly to pay a fare considerably less than those who use it occasionally. The wholesale rate would be made available by the purchase of a weekly ticket sold by the trainman, which when presented to the operator would entitle the bearer to ride for a 5-cent fare, the ticket to be transferable and made available for use by any member of the family, or any one else who may present it. Under the plan of a wholesale rate or sliding scale of fares the additional revenue needed by the company would be paid very largely by those who use the service only occasionally. The infrequent rider, who uses the automobile except when it is not available, certainly should not object to paying a cash rate not to exceed 10 cents, particularly if tokens were sold at a liberal discount.

In conclusion the petitioner stated:

In asking for this adjustment, it is not our purpose to secure a rate which will produce any more revenue than is necessary for the company to put its finances in condition to maintain proper service and continue as a factor in the development of the city. There are those who will, of course, hold views different from the conclusions we have reached, and to them or any one else we desire to extend an invitation to ask for or call to secure any further information necessary for thorough understanding of the matters herein discussed.

### Beaver Valley Honors Twenty-five-Year Men

In New Brighton, Pa., there were reunion and rejoicing recently in celebrating the affiliation of thirteen employees with the company for 25 years or more. A feature in this connection has been the organization of the Twenty-Year Club, in which, in addition to the 25-year men, will be included five more men who will reach the 25 years of service mark during the current year.

A banquet was held at the Pittsburgh Athletic Association Club to permit A. W. Robertson, the president of the Philadelphia Company, and Vice-President Thomas F. Fitzgerald, former General Manager W. H. Boyce and Personal Director W. G. Marshall to be present. The trip was made by Beaver Valley motor coaches and was one of the high spots of the occasion, which later reached the point of solemnity when the officers of the company, in their addresses, referred to the loyalty of the group of men and pictured the happenings of joy and sorrow in the 25-year period which they had served their company and the public.

Clinton D. Smith, general manager, presided at the banquet and presented each of the men to the officials of the parent company. In doing this he briefly sketched events in the life of each, saying: "I find inspiration and keen pride in reviewing the service of these men and their contribution toward the prestige, stability and success of our company."

In token of the service rendered and the continuity of it, General Manager

Smith presented a gold watch charm to each of the thirteen men. The face of this charm bore a reproduction of the service with the figures "25 years," while the back bore the name of the employee and the date he began work. A. W. Robertson, president, and Thomas Fitzgerald, vice-president, both made grateful reference to the long term of employment and expressed a bright future for the property in the group represented.

Mr. Boyce, the former general manager, referred to his personal contact and told some of the experiences during the early days of the local lines when track, cars and equipment were not so efficient as they are today.

Of the thirteen men, two have been pensioned and eleven are still in active service with the Beaver Valley Traction Company. They are J. R. Marshall, superintendent of transportation; H. J. Meyer, superintendent of equipment; W. F. Allshouse, track supervisor; I. J. French and David Hall, pensioned employees; W. J. Moffett, P. F. Householder, C. P. Hayward, A. E. Price, H. McMillen, John Myers, William Myers and Robert J. McClymonds.

During 1927 the five men who will reach the 25 years of service mark are M. D. Ayers, W. T. Byers, James Davidson, James Graham, D. Lee Noss and Alex Webster. This will make a total of seventeen men who have been with the company 25 years, practically 10 per cent of the total number employed locally. The Twenty-Year Club will perpetuate for all time the tribute due those who have served and continue to serve faithfully a community of people.



I. J. French      W. J. Moffett      Clinton D. Smith, Manager      John Myers      C. P. Hayward



David Hall      P. F. Householder

### Twenty-five-Year Men of the Beaver Valley Traction Company



Albert Price      Wm. Myers



Henry McMillen      W. F. Allshouse      John R. Marshall      R. J. McClymonds      H. J. Meyer

## Kansas City Grant Ready

The proposed 30-year franchise for the Kansas City Public Service Company, the successor to the Kansas City Railways, was introduced in the Council on March 3 at a special meeting called for that purpose. It was referred, without discussion, to the Council as a committee of the whole for public hearings. Attached to the ordinance was a report of the special committee in whose name the measure was introduced. The report set forth the leading provisions of the proposed grant and unanimously recommended its adoption.

Mr. Gossett, the chairman of the committee, said the ordinance was not introduced at a special meeting in an attempt to hasten matters; that it would take its usual course through the Council, and that public hearings would be had as long as necessary. He said it was the desire of the committee that the ordinance come up for final action on March 21. Should it be passed on that date it would become effective March 31. The company would have twenty days in which to accept it. The grant not being for more than 30 years, the action of the Council is final, under a provision of the charter, and will not have to be submitted to a popular vote.

The franchise committee has been at work since early in November, following the adverse referendum. On Dec. 11 the committee submitted to the Council its recommendations for the basis of the ordinance. Those the Council adopted unanimously on Dec. 20, reserving the right to withdraw its approval if the suggestions were not generally followed.

## Will Appeal for Eight Cents in St. Louis

Receiver Rolla Wells of the United Railways, St. Louis, Mo., is preparing to appeal to the United States Supreme Court in an effort to regain the 8-cent fare or two tokens for 15 cents rate which was temporarily in effect under a federal court injunction from Feb. 7 to March 1. Thomas E. Francis, counsel for Receiver Rolla Wells, has already notified City Counselor Muench that an appeal to the highest court would be made. The city will vigorously resist the petition. A special court composed of three federal judges sitting at Kansas City refused to make the temporary fare permanent and ruled that the company was not entitled to the raise, but should await action by the Missouri Public Service Commission, before which an application for the 8-cent fare has been pending since June 7, last.

## Delay in Brooks-Coleman Act

Proposed repeal of the Brooks-Coleman act of 1921 placing valuation of electric railway properties and regulation of rates in charge of the Minnesota Railroad and Warehouse Commission seems lost at the present biennial session of the Legislature in St. Paul. The Senate adopted a report of the general legislation committee for indefinite postponement, 41 to 23. While the matter is still in the House it is not expected to come up. Five

Minneapolis Senators voted for the report against three opposing. The bill was introduced by Senators Henry Morin of Duluth and Charles Hausler of St. Paul, both cities opposing the present law. The Senators who opposed the change hold that rate making should be in the jurisdiction of a disinterested body, such as the state commission, and that otherwise the law does not take away from cities the control of electric railways. The report of the Senators followed several public hearings in the Capitol.

## Progress in Campaign to Reclaim Michigan Road

After several months of solicitation for stock subscriptions, residents in the villages and communities along the abandoned Grand Rapids, Holland & Chicago Railway at a mass meeting on March 8, in Grandville, Mich., voted to purchase that part of the defunct road between Jenison and Grand Rapids. Authority to purchase was given by the campaign committee of the United Suburban Railway, as the new company will be known. According to Harold T. Slaght, chairman of the finance committee of the new company, the purchase price as arranged by his committee and representatives of the Heyman-Michaels Company, Chicago, which purchased the line at receiver's sale, is \$30,000. The finance committee was also authorized to purchase and string new trolley wire at a cost of \$7,500 and to purchase cars. The committee started on March 9 to complete the negotiations with the Michigan Railway for use of the tracks from the west city limits of Grand Rapids to the downtown station of the latter company. This agreement will be made on a car-mile basis which is considered favorable to economy in operation.

It was estimated that \$52,250 would be required for the United Suburban Railway to begin operation. This would include the purchase price, the expense of the trolley wire, incorporation, insurance and the fund for operation. Reports at the mass meeting showed that \$45,210 had been subscribed, leaving a balance of \$7,040 to be raised before running of cars can be begun.

A call was authorized for a general meeting of the stockholders to be held in Grandville on March 21, to elect directors for one year. In the meantime members of the finance committee of the proposed company will meet with representatives of the Consumers Power Company, which owns the right-of-way, to arrange to have the new interurban lease the right-of-way on favorable terms.

Following a survey, Chairman Slaght said if the new line could carry as many passengers as had been carried by the old line it would make a profit. One big factor, he said, would help the new company. That was the possible elimination of personal taxes, as the line would be a community affair.

Leaders in the new company said there was a possibility of beginning service within the next 60 days. The line, double track, will be 8.3 miles in length. It will serve about 20,000 people in Burlingame, Beverly, Wyoming Park, and other sections.

## Co-operator Greet Operator in Philadelphia

The bonds of a new friendship between the management of the Philadelphia Rapid Transit Company, Philadelphia, Pa., and its employees were tied on Feb. 25 with the premiere of the P.R.T. *Co-operator*, acting as agent provocateur. Many employees have felt the need of this community of interests sheet and have suggested some such avenue of communication which might carry a message to the employees rather than to the stockholder and car rider as does *Service Talks*.

Not imposing but impressive is the exterior view of the initial number, with a Mitten moral on labor and profits boxed in its center. Its contents consume fourteen pages which fulfill the purpose of the booklet—an appeal to the employee. Here is an announcement of the company's campaign to win depositors for the Mitten Bank, in which every employee is a stockholder; also a bank statement that would satisfy a Ripley analysis, and portraits, too, of the employer and employee directors—a financial democracy shouting from the pages their faith in this system. And here's a page story of the company's new headquarters and an account of the saving fund transfer, and gossip—Motorman Weiss carries around with him lilies, fearing contamination with Philadelphia passengers. No! they are Ruskin's lilies—Sesame and Lilies.

Unfortunately the *Co-operator* will appear at no definite period, but happily when it does come it will have "something really worth saying." Fellow employees, avid in anticipation of this paper, are invited after a perusal to be critical in their comments, to be sent to 1520 Spruce Street.

## Life of Fellow Worker Saved by Lineman of Connecticut Company

John J. Borzillo, a lineman of the Connecticut Company, New Haven, by quick thought and daring action saved the life of a fellow-workman of the Winchester Repeating Arms Company who was untying cables at the top of a 40-ft. pole. The rescue took only ten minutes. Just in time to release the arm of the trapped man, who had caught it under one of the 500,000-circ.mil cables carrying 440 volts, a.c. on the bridge on which he was working, Borzillo jumped from the cage of the trolley line truck where he was removing a wire in order that the bridge might be raised and ran to the man, 200 ft. away. He stopped only a second to strap on his spurs and then climbed the pole, and with his foot placed against one of the crossarms lifted the feeder and pulled out the man's arm.

Winchester men who were working on the bridge job threw a rope to him from the roof of the building opposite. He caught it and tied it about his body and through the "D" rings of his body belt lowered himself and the rescued man to the ground. Two men working on the ground rushed the injured man to the emergency hospital, where he arrived in time to be treated. No serious harm resulted.

## Governors' Messages Concluded

The digest of the Governors' messages to the Legislatures which was started in these columns in the issue of Feb. 26 and continued in the issue of March 5 is concluded herewith. The states covered are Pennsylvania, Kansas, Oregon, North Carolina, Iowa and Idaho.

### PENNSYLVANIA

According to the message of Gov. John S. Fisher of Pennsylvania, it is the province of government to establish the rules under which the operation of public service companies shall be carried on efficiently, wisely and fairly. He said that in the natural sequence of events utilities developed in advance of governmental regulation. Out of the uncontrolled freedom of the early stages of the business there naturally arose abuses. It was to correct these and prevent their recurrence that instruments for supervision were fashioned by both the nation and the state. Sometimes they were created under strong reactions of popular resentment and were carried to unwise extremes, but in the main their influence has been salutary. Proper regulation, he believes, has proved as beneficial to business as to the public. The Public Service Commission of Pennsylvania was the agency established by the Legislature to deal with public utility problems and should be organized, sustained and equipped to carry out its functions of assuring to the people adequate service at reasonable rates. He believes the construction of the state highway system should be kept moving; while much had been accomplished, much remains to be done. He said that more stringent measures would have to be enacted for the safety of the highways and protection of the people. Uniform traffic regulations were desirable, but in establishing them sight should not be lost of the fact that conditions suitable for one community are not made burdensome for another.

### KANSAS

Gov. Ben S. Paulen, in his message to the Legislature, said that the state was confronted by the absolute necessity of better means of transportation. In connection with motor vehicle laws, he called the attention of the Legislature to the uniform motor vehicle code drafted and adopted by the national conference of commissioners on uniform state laws and approved by the American Bar Association. A uniform regulation of motor cars would come sooner or later, he believed, and since the state of Kansas was among the first in the number of cars per capita, it should adopt such regulations as would be for the public interest. On the important question of motor carriers, he believed that legislation should be enacted prescribing the manner in which bus lines operating through a number of taxing districts should be assessed for taxation purposes.

### OREGON

The details in connection with the administration of the laws relating to the licensing and regulation of the operation of motor vehicles on the highways of Oregon have now reached such pro-

portions as to necessitate the separation of such duties from the present duties of the Secretary of State. The creation of a separate department of vehicles is desirable. This opinion was expressed by Gov. I. L. Patterson in his address to the Thirty-fourth Legislative Assembly. By vesting the administration department of the motor vehicle laws of the state in an official to be appointed by the Governor control is retained of the important offices that may be appointed, so that in the event that it be desirable at times that they be assigned to other duties necessary in maintaining the peace of the state they may be readily and speedily assigned. He recommended the appeal of that provision of the existing motor vehicle law imposing an additional license fee of 50 per cent on "motor vehicles not common carriers, . . . and used for commercial purposes. . . ."

### NORTH CAROLINA

In the interests of safety, Angus W. McLean, Governor, told the General Assembly that the time had arrived when it was necessary to enact a law requiring the registration of persons driving motor vehicles. He would recommend a law which would provide that licenses be issued only after a careful examination as to the character, habits, experience and general fitness of the applicant.

### IOWA

The abolition of the valuation department in the office of the Railroad Commission of Iowa was recommended in the inaugural address of John Hamill, Governor. He recommended that it be eliminated, inasmuch as the appraisal of the railroad properties under that department had no actual relation to the fixing of freight rates within the state, and neither was the valuation used in computing rates to be taxed to the railroad companies.

### IDAHO

H. C. Baldrige, Governor, in the nineteenth session speech, stressed the advisability of increasing the speed limit of motor vehicles to 25 m.p.h. outside of municipal limits. He recommended and urged the adoption of a uniform motor vehicle registration and certificate of title act, a uniform motor vehicle operators' and chauffeurs' license act, and a uniform act regulating the operation of motor vehicles on highways, this to be in accordance with the report of Herbert Hoover to the second National Conference on Street and Highway Safety.

## Traffic Survey of Metropolitan Boston

The City Council of Boston, Mass., has appropriated \$25,000 for a comprehensive traffic survey of the metropolitan area under the direction of the Albert Russel Erskine Bureau for Street Traffic Research. The survey is expected to bring order out of the chaos of complex traffic regulations concerning parking, one-way streets, right or left turns, and by its detailed study of traffic movement provide the necessary data for the installation of an efficient system of traffic control. At present

Boston's entire signal system consists of one multiple light signal pole operated by an officer from the sidewalk and two multiple light traffic towers operated by an officer from the inside of the towers.

Scientific study will be made of such subjects as causes of congestion, causes of accidents, rules of the road, pedestrian traffic and its protection, organization and operation of traffic police, installation and operation of traffic signals, design and installation of traffic signs and markings, the handling of traffic law violations and parking and garage problems.

The Boston survey is being conducted in co-operation with an advisory board on traffic, appointed by the Mayor, and composed of representatives of city departments, members of the Chamber of Commerce and representatives of all the leading bodies that may be affected by traffic changes to be proposed. It is the fourth metropolitan traffic study made by the Erskine bureau under the direction of Dr. Miller McClintock.

## Detroit Men Stimulated to Greater Effort

Gratifying results have followed the intensification during the past few months of the continuous campaign of the Detroit Municipal Railway, Detroit, Mich., in the interests of safety. The total number of accidents reported during January, 1927, was 30 per cent lower than that of January, 1926, and during the first ten days of February only 310 accidents were reported, as against 385 during the corresponding period of the previous month. Should this record be continued during the remainder of February a new low level will have been reached. During this same period one division, operating approximately 20,000 car-miles a day, established the remarkable record of running one entire day without a single accident.

Keen competition has been set up among the eight operating divisions by the presentation of a banner each month to the division showing the greatest reduction in the number of accidents over the preceding month. Then at the end of the year the division that has won the most banners is presented with a beautiful championship pennant. The men of each division are taking a great deal of pride in adorning the walls of their lobbies and recreation rooms with these banners and pennants, hence their zealous effort to avoid accidents.

In addition to this form of competition the trainmen on each division are grouped into teams consisting of twelve men. Each team elects its own captain and in a sportsmanlike manner endeavors to make the best showing on the division in the reduction of accidents.

The number of accidents chargeable to the various teams are charted each day on the bulletin boards at the respective carhouses, thus keeping the teams informed as to the progress during the month. At the end of each month boxes of cigars are distributed to the members that make up the team having the fewest number of accidents on each division.

## Summer Course at Harvard for Utility Executives

The Harvard University Summer School, in session from July 5 to Aug. 13, 1927, will include a course on public utility management and economics for public utility executives. Enrolment will be limited to 50 men and application should be made as early as possible to the Harvard Business School, Cambridge, Mass. Information concerning the living arrangements will be sent on request. The tuition is \$100. Messrs. Philip Cabot and Deane W. Malott, in charge of the public utilities work in the Harvard Business School, will conduct the course, which is the equivalent of the full winter course offered in that school. Classes will meet daily from 10 to 12 a.m. and from 2 to 3 p.m. At least twenty hours a week preparation outside the classroom will be necessary. The course will require the full time of those enrolled.

## Passenger Service Over Houston North Shore Planned

Plans are being made to start passenger service over the Houston North Shore Railway line from Houston to Goose Creek, Tex. This electric railway line, 32.5 miles long, penetrates a territory hitherto without rail facilities. H. K. Johnson, president of the company, reports rails are now laid from Baytown to the Houston city limits. The line represents an outlay of \$1,150,000. Application for sale of the property to the Missouri-Pacific Railway is pending, and decision by the Interstate Commerce Commission is expected by April 1. In the meantime passenger service is to be started prior to this date. Four modern interurban cars have been purchased to be put into service, and a schedule of fares based on 85 cents from Houston to Goose Creek, or commuters' tickets for 50 cents, has been announced. A modern electric locomotive capable of drawing 40 loaded cars has also been purchased for service on this line.

## Omaha Franchise Election Deferred

The question of granting a new franchise to the Omaha & Council Bluffs Street Railway will not be submitted at the May election in Omaha, Neb. The city attorney filed a number of objections to the draft prepared by the citizens' committee, mostly technical. As it was found impossible to secure an agreement in time to submit the franchise, it has been withdrawn by the citizens' committee, with the permission of the Council.

John Lee Webster, attorney for the company, has long held to the opinion that the company has a perpetual franchise, and he has announced his willingness to try the matter out in court. When the franchise asked by the company and defeated was submitted the company offered to waive the point if an extension were granted. The city voters refused this extension under the terms proposed. The Omaha *Bee* suggests that a judicial determination be secured. If the company has perpetual

rights, the Council should know it, and if it has not, "then it cannot weigh them against other concessions in seeking a franchise."

The Guaranty Trust Company, New York, representing the bondholders, recently filed suit in the federal court setting up the claim of a perpetual franchise. Mr. Webster said he would press for an early hearing.

## No Segregation for the Present in Albany Case

The Public Service Commission has denied the motion of the city of Albany for an immediate ruling on the question of segregating the Albany zone from the Troy zone when the commission begins the consideration of the application of the United Traction Company for a fare increase. The commission recommended, however, that the communities affected by this application set forth their reasons for or against segregation in the briefs which they will present.

In denying the motion of the city of Albany, the commission stated that the question presented is one which should properly be determined in deciding finally upon the merits of the application made by the railway, and that to decide the question at this time would constitute a prejudgment on the part of the commission of one of the most important questions that will arise in determination of the case.

Chairman Prendergast of the commission announced on March 7 that briefs by the United Traction Company and the various municipalities are to be filed on or before April 1 in the matter of the railway's petition.

## Terminal Talk Revived in Watertown

Comparatively little headway has been made to date with the proposal recently presented to the City Council by the Milwaukee Electric Railway & Light Company providing for the expenditure of approximately \$100,000 in Watertown for the erection of a modern terminal and train building and the removal of its railway tracks on three streets and part of another. The obstacle which seems to be blocking progress in this improvement program centers around the city's request to have the company share in the cost of the new West Main Street bridge which the city and interurban use to replace the present structure.

In testifying before the Council, Vice-President Jackson of the company said the company did not intend to substitute buses. He suggested that if local conditions required bus service the city should supply it by means of a local operator.

A petition was brought to the attention of the Council signed by 370 people urging that the tracks remain, while 107 persons urge that the tracks be taken up.

Questioned concerning the new terminal, Mr. Jackson declared train buildings would be erected adjacent to the station to permit three interurban cars to load and unload passengers under the roof. All company buses would also use the terminal facilities.

## The Story of Baltimore in 1926

Looking back over 1926, the United Railways & Electric Company, Baltimore, Md., has picked some of the things from the routine which it has embodied in a public statement that has been issued. The company says that although the items listed do not present an adequate picture of the task that was faced they suggest the size of the job. The following items are listed:

More than 15 miles of track was entirely reconstructed in 1926, at a cost of about \$858,863.

One hundred street cars a month went through the company's paint shop for complete repainting, inside and out.

Twelve new articulated cars were built and put into service, making 34 in all. 10,111,945 more "seat-miles" were furnished. A "seat-mile" is a measure of service—one seat going 1 mile. Or put it this way: street car passengers had seats for 10,111,945 more miles last year than in 1925, which means they had 1,637,173,845 seat-miles, or almost as many seat-miles as Henry Ford has dollars.

225,255,633 revenue passengers were carried, or 1,020,106 more than in 1925.

Of the company's gross revenues of \$16,715,709, \$10,782,619 went right back into the expense of running the cars.

\$1,954,671 more went back into the public treasury in taxes. This was 2½ times as much as the stockholders got, which was \$818,000.

802,063 more transfer passengers were carried than in 1925.

Of the taxes paid out of carfares, \$1,121,000 was park tax for the support of the city's parks.

2,008 public reports and criticisms of service were handled and adjusted as nearly as possible to the satisfaction of the critics.

## News Notes

**Agreement Made with St. Louis Union.**—Mayor Victor J. Miller of St. Louis, Mo., has announced an agreement with the St. Louis street car men's union whereby terms of the service-at-cost franchise now pending before the St. Louis Board of Aldermen will recognize the right of the car workers to unionize and will also restrict the use of one-man cars by the railway. The understanding with Mayor Miller, it is believed, will cause William R. Schneider, attorney for the union and member of the State Legislature, to withdraw the bill he had introduced at Jefferson City for the repeal of the service-at-cost law. It will also result in the railway workers actively supporting the franchise measure when it is presented.

**Westchester to Ask State Aid.**—The Westchester County Board of Supervisors has voted to ask State Senators and Assemblymen from Westchester to support the proposed legislation which will refer the passenger and commuter traffic problem in New York City and suburban areas to the Port of New York Authority. A report will be made to the Legislature of New York State and of New Jersey. The recommendations will not carry any weight until approved by voters of these sections.

**Another Railway After Coffin Award.**—The Virginia Electric & Power Company, Richmond, Va., will be a competitor in the national contest for the 1927 Charles A. Coffin award. In seeking this honor the company will emphasize particularly more riders and more revenue; a friendly public fostered by a co-operative spirit; lower



costs and increased reliability of service; increased safety for riders; increased co-operation between the management and employees, and financial accomplishments by way of improved investment worth of securities.

**Fares Lowered.**—The Union Traction Company, Nashville, Tenn., has reduced the fare from Nashville to Gallatin, Tenn., from 92 cents to 75 cents for a single trip. A round-trip rate of \$1.25 has been established.

**Would Establish Ten-Cent Rate.**—The New York State Railways, in a supplemental petition filed with the Public Service Commission, asks permission to establish a new rate of fare of 10 cents between Oneida and Kenwood, instead of the present 8-cent fare, without any reduced rate through the medium of tickets, but with the privilege of a round-trip fare of 15 cents. The petition originally filed asked that the railway be permitted in the city of Oneida to sell three tickets for 25 cents with a cash fare of 10 cents, in place of the present 7-cent fare. A hearing will follow.

**Reports for Traffic Study.**—Norman D. Wilson, of Wilson, Bunnell & Borgstrom, consulting engineers, Toronto, Ont., is again in Brazil, South America, for the Brazilian Traction, Light & Power Company, Ltd., which controls the traction services in Rio de Janeiro and São Paulo. In 1925 Mr. Wilson reported to the company on the transit and traffic situations in these two cities. It is in connection with his recommendations for a revised franchise and the construction by the city of a short section of surface subway to relieve the traffic difficulties in the Triangle in São Paulo that that city has retained James Dalrymple, former general manager of the Glasgow Tramways.

**Tokens for Change.**—The use of metal disks or tokens, for change only, has been revived on the Rochester lines of the New York State Railways. The tokens will end the difficulties in making change for passengers and conductors alike. If the passenger has the correct fare, 8 cents, no token will be required. The disks are for use only when the passenger has not the correct fare and he is given a token in lieu of change. The new order does not affect the sale of tickets.

**Plan Three-Mile Extension of Service.**—Extension of through railway service of the Chicago Surface Lines, Chicago, Ill., for a distance of about 3 miles along Ewing Avenue and Indianapolis Boulevard in South Chicago was ordered on Feb. 16 by the Illinois Commerce Commission. Under present arrangements Chicago Surface Lines cars operate from the downtown Loop district over Cottage Grove and South Chicago Avenues as far as 93d Street only. This extension will give residents of South Chicago a more frequent and more direct service without transfer to downtown Chicago. Except for a new wye at the proposed terminus, no new track will be constructed in connection with the extension of service. Surface Lines cars will be operated over the present tracks of the Hammond, Whiting & East Chicago line, an affiliated company.

## Recent Bus Developments

### Interstate Service a Subterfuge in This Case

A recent order by the Public Service Commission of Pennsylvania denied the contention of the Highway Motor Coach Company that it does not need a certificate of public convenience from the commission to operate between Harrisburg and other cities and Camden, N. J., because it is doing an interstate business. The commission directed that the company cease operation until it has obtained a certificate.

The Highway Motor Coach Company is a Delaware corporation. Last year it began to carry passengers between Harrisburg and Philadelphia by way of Lebanon, Reading, Pottstown, Norristown, Roxborough, Philadelphia, Camden, thence back to Philadelphia. A month later the company began a similar service between York and Philadelphia. The commission said:

The extension of the route a short distance in Camden, N. J., is a mere subterfuge or scheme to evade the law. The substance of a transaction is regarded by the law as essential and not the form of the transaction. Attempts made to evade the operation of one law by subterfuge have always been swept aside by courts and commissions. This principle is so well established as to need no citation. The transportation furnished by the respondent under the facts in this case is not interstate within the purview of the decisions of the United States Supreme Court.

### Interurban Becomes Iowa's Biggest Bus Operator

The Fort Dodge, Des Moines & Southern Transportation Company, Boone, Iowa, has purchased the Hawkeye Stages, Inc., with headquarters at Des Moines, making the Boone company, which is an auxiliary of the Fort Dodge, Des Moines & Southern Railroad, the largest single bus company of its kind in the State. The Boone company will have 444 miles of additional bus lines and will be operating 30 buses in Iowa more than 125,000 miles each month. C. H. Crooks is president, M. Johnston secretary-treasurer and G. E. Motz manager for the consolidated company. Among the lines will be a continuous one from Okaloosa to Spencer.

### Experiments with New Fageol Twin Coach in Chicago

Trial operation of a new type of motor coach over Diversey Boulevard, Chicago, between Crawford and Laramie Avenues on Feb. 28 was interpreted by residents of that part of the city as an indication that the Chicago Surface Lines is to start motor coach service soon in conjunction with its railway operations. Permission to operate the Diversey Boulevard bus route was granted to the company last November by the Illinois Commerce Commission. The Surface Lines still have 90 days in which to start service.

The new bus, which made the test

run over the proposed route last week, was designed and built by the Fageol Twin Coach Company and is being taken on a transcontinental demonstration tour by Frank Fageol, president of the company. It was described and illustrated in the *ELECTRIC RAILWAY JOURNAL* for Feb. 26, page 381.

Operation of the Diversey Boulevard route and other motor coach lines as extensions to the present railway system is being opposed by the Chicago Motor Coach Company, which has an appeal pending from the order of the commission authorizing the installation of the buses. It is understood, however, that residents along Diversey Boulevard have repeatedly requested the Chicago Surface Lines to provide this service.

### Ohio Court Frowns Upon Competitive Service

Bus lines in Ohio have lost a hard fight with the Pennsylvania Railroad in an effort to gain through service linking Columbus, Cincinnati and Cleveland. But according to the decision of the State Supreme Court bus transportation is a means of transportation auxiliary to the existing railway routes when such service is competitive and is not really needed. Nine cases were appealed from the Public Utilities Commission, and the higher court declared that neither the commission nor the bus companies running these shorter lines acted discreetly in transferring certificates of operation assigned to them to the Buckeye Company, which has vested power of the consolidated lines. The railroad charged the service company with "an intent deliberately to compete with their system to its prejudice." The transfers have thus been nullified and the cases referred back to the commission with the following interpretation of the law:

An application to amend the tariff and schedule of one or each of two certified motor transportation routes, authorized to be separated as separate routes, so as to convert the service of such routes from local service between their respective terminals to a through service between the outside terminal of the two routes, is in effect an application for a new route, and must be made under Section 614-91, General Code, and publication must be made and notices served as provided in that section. And before an order can issue granting such service, the Public Utilities Commission must find that the public convenience and necessity require it.

Bills asking for more liberal treatment of operators who seek bus operating rights are still under consideration by the Ohio General Assembly.

### Suit Involving Purple Swan Dismissed

The suit of the Seiberling Rubber Company, Akron, Ohio, against the Purple Swan Safety Coach Lines, Inc., for rental due on tires used by the bus company was dismissed by Circuit Judge Moses M. Hartmann of St. Louis, Mo., on Feb. 28 upon the filing

of a stipulation by counsel that the dispute had been adjusted. Some of the Purple Swan lines were operated in competition with the Blue Goose line run by the East St. Louis & Suburban Railway. The stipulation indicates that the bus company paid \$9,500 in cash and executed demand notes for \$7,142 in favor of the Seiberling company in the settlement of the claim.

When the Seiberling company brought its action on Dec. 27, last, Judge Hartmann appointed a temporary receiver for the bus lines, but the receivership was terminated within three days when the Purple Swan Company filed a bond with the court to protect the plaintiff should the court determine that the coach lines owed the amounts claimed.

## Coach Losses Concern Cincinnati

### An Outline of President Draper's Proposal to the City Administration in Regard to Bus Losses—Railway Has No Monopoly of This Class of Service

**I**N A FORMAL report to E. D. Gilman, director of the Department of Public Utilities of the city of Cincinnati, Walter A. Draper, president of the Cincinnati Street Railway, has outlined a procedure for the reduction of losses on the operation of the motor coaches of his company. This operation has shown deficits averaging \$14,000 each month over the nine months of its life. As losses have been absorbed in the profits of the street cars, a seemingly unfair situation exists.

The Cincinnati Street Railway does not have a monopoly in providing municipal transportation in Cincinnati. Independent bus lines have secured short routes through thickly populated sections of the city already served by railway lines. On the other hand, the railway, which was delayed in entering the motor coach field by extended franchise negotiations; operates the runs to remote suburbs and the crosstown lines. In several instances the railway established routes where independent lines had failed.

Of the three classes of motor coach service rendered by the railway, namely, lines radiating from the center of the city, crosstown lines and feeder lines, the first comes nearest to paying its way, while there is less real need for it than the two other classes of service.

Mr. Draper answers the question, Why the motor coach operation of his company loses money when independent companies apparently make a profit, as follows:

It can easily be seen that if independent lines do make a profit it is because, being free to choose at the beginning, the operators of these lines selected routes where the business would pay best. These routes were mainly along existing lines of travel and were and are reasonably short routes. Having the street cars at hand to take care of the rush-hour riding morning and evening, the independents have to provide very little if any additional service, and it is this rush-hour service, requiring investment and the maintenance of equipment which is used for so short a time, that is the most costly to give. The independent lines, moreover, do not issue transfers.

The motor coach lines of the railway were put on where service was needed or where it was thought motor coaches could supply a different class of service. Those of our lines that follow the same routes as street cars are, with one exception, long lines that run express service designed to accommodate the long rider, which again is the more costly service. The other lines either connect parts of the city and other intersecting car and coach lines or supply remote sections with a form of feeder service.

The next logical question, Why not discontinue the service, is answered by Mr. Draper:

The answer to this question is found largely in the answer to the other question, that the major parts of the service given by this company was put on because it was hoped it might serve a useful purpose and the same thing that makes some of it lose money; that is, remoteness of territory served, is in itself the reason why the service is needed. Giving a service that is not duplicative or competitive, these lines, therefore, should not be discontinued merely because they lose money. It is the measure of the loss that should govern. This principle has been recognized as sound by state law, which provides that service shall be extended or continued by a public utility even though it be given at a loss, providing this loss is not great enough to affect the results of the entire operation of the utility to the extent that there will not be a reasonable return on the investment and that there will not be an impairment of the service as a whole. The test of profitability alone should not be applied to determine whether the service on the two cross-town lines of the company or the Mount Alry (feeder) line should be discontinued. The test of individual profitability, if applied to some of the existing rail lines, would require their discontinuance, manifestly an absurdity. The Mount Alry line gives service to a part of Cincinnati that has no other public transportation facilities. It was begun at the request of the city after the independent operator had found it unprofitable and discontinued operations, but the loss from this line is not so great but that the system as a whole can afford to carry it.

It certainly must be clear that there is something fundamentally wrong if independent operators can select the profitable routes and this company must operate the unprofitable routes, with the consequence that the rest of the system must stand the losses. The only conclusion is that unified operation is the logical and economical basis for a city-wide public transportation system.

Mr. Draper's remedies do not include discontinuance of any lines at this time. The changes he suggests are:

1. Bring the fare limit on two of the routes which run from the city to distant suburbs closer to the city, charging 10 cents to the nearest point and 5 cents additional to any point beyond. Also reduce fare on outer end of these routes to attract riding for short distances in the outer zone.

2. Change the route of one line, running it through a more thickly populated section.
3. Discontinue express service except during rush hours on one other poor paying route so that a full load may be assured. This gives the opportunity of picking up passengers all the way into the city.

4. If these first three steps do not lessen losses sufficiently after a reasonable trial, alter the transfer privilege; either charge 5 cents for transfers except to cross-town lines or eliminate them entirely.

5. Reduce the amount charged to depreciation after the end of the first year.

Mr. Draper concludes that after trying these measures there would still be left the expedient of increasing all motor coach fares. His idea is that if after the experiment were made that has been outlined such a step were found necessary, the traveling public could certainly find no fault with such a move and it would be in line with the tendency observed in other cities toward a higher class or de luxe serv-

ice on the motor coach, with a corresponding higher rate of fare. Further Mr. Draper said:

Finally, in case it is found necessary, consideration should be given to the discontinuance of the poorest paying line or lines. While I would regret the necessity of discontinuing any line, it might have to be done in fairness to the rest of the system, and the motor coaches now operating on such discontinued line or lines could better be used for additional service elsewhere, especially on the two cross-town lines during the morning and evening rush hours.

I am aware that the trial of these various steps will consume time, but I am not yet willing to say that motor coach service in Cincinnati has cost the transportation system as a whole so much as to cause us to become panicky or to be driven to hasty action. It is true that the motor coach is not as popular, at least in Cincinnati, as it once was, and the necessity of protecting the existing rail car system for the great mass of people is apparent, but there is a place in a unified transportation system for all forms of transportation that can demonstrate their lasting qualities. Being charged with the responsibility and obligation of providing such a unified system, we cannot neglect to adopt any reasonable form of transportation that the public desires and is willing to pay for.

**Bus Experiment in Residential District.**—Further expansion of the bus system of the Rochester, N. Y., lines of the New York State Railways was marked March 7 with the opening of service on an experimental line in Ridgeway Avenue, residential north side section. Railway Commissioner Charles R. Barnes announced the buses would operate only during the rush hours until the traffic showed that patronage would be sufficient to warrant full time service. The service was installed on the appeal of residents.

**Hearing on Proposed Specifications Applying to Buses.**—The street transportation department of the Board of Public Utility Commissioners of New Jersey has submitted to the board proposed specifications applying to buses of the "city type, single-deck" and "parlor car type," which it is recommended shall take the place of the specifications adopted by the board on Dec. 29, 1924. The board will hold a hearing on the matter in Newark, N. J., on March 23, 1927, upon the question whether the specifications so submitted shall be adopted and fixed as just and reasonable regulations to be observed and followed by the operators of buses of these types.

**Milwaukee Railway Opposes New Operators.**—Competition between the Milwaukee Electric Railway & Light Company and the American Coach lines for business on the North Milwaukee and the Wauwatosa routes and the intercity route to Green Bay advanced a step when the American line announced that fares would be reduced ranging from 16½ per cent on city and suburban lines and 20 per cent on intercity routes. Metal tokens will be introduced, so that passengers on the North Milwaukee and the Wauwatosa routes can purchase twelve 10-cent tokens, eight 15-cent tokens and six 20-cent tokens for \$1. This makes a reduction of 16½ per cent on these fares when tokens are used. On the route between Green Bay and Milwaukee the revised fare will hereafter be \$3.50 instead of \$4.25. Fares to intermediate points will be similarly reduced. The Milwaukee Electric Railway & Light Company complained on the ground that this area was adequately served by its own facilities.

# Financial and Corporate

## Receivership Action Likely for Auburn & Syracuse Railroad

Receivership proceedings are anticipated in the case of the Auburn & Syracuse Electric Railroad, Syracuse, N. Y., which operates in Syracuse and also a suburban line connecting Auburn and Syracuse. A statement by the company said:

Having defaulted interest due April 1 and Oct. 1, 1926, a bondholders' protective committee was formed. Within a short time the Equitable Trust Company, New York City, which is trustee under the mortgage, will probably seek foreclosure. The natural conclusion of that will be the asking for the appointment of a receiver. Figures show the continual loss to be almost entirely due to use of privately owned automobiles.

The outstanding mortgage bonds of the company amount to \$1,752,000 with annual interest charges of \$87,600. The losses increased from \$16,031.71 in 1924 to \$87,684.34 in 1926.

## Increase in Passengers Carried in Winnipeg

The Winnipeg Electric Company, Winnipeg, Man., carried 57,985,144 revenue passengers in 1926. This represented a 5 per cent increase over 1925. The year 1920 established a record for the company and each succeeding year up to 1925 showed a decrease from the preceding year. The following table shows the trend:

1920	65,248,840
1921	61,515,325
1922	60,399,419
1923	58,253,356
1924	55,077,901
1925	55,096,058
1926	57,985,144

## Texas Tax Relief Bill Before Governor for Signature

Repeal of the gross receipts tax on interurbans and other electric railways in Texas was put up to the Governor on March 2 when the Senate finally passed the Kemble House bill. Senator Witt of McLennan, sponsoring the measure, declared that the Texas Electric Railway had not paid dividends on preferred stock in twelve months, despite the fact that it is the second largest taxpayer in McLennan County. He urged that repealing the gross receipts tax would leave the school, road and other taxes and place the electric railways on the same plane with other industries.

## Engineers Public Service Reports Good Year

Large increases in consolidated gross and net earnings are shown by the Engineers Public Service Company, New York, N. Y., in its annual report for 1926, issued recently to stockholders. Gross earnings were \$26,627,687, an increase of \$3,518,750 over the previous year, and the balance available for reserves and the 778,938 outstand-

ing shares of Engineers common stock increased 25.9 per cent to \$3,183,879. The report gives several detail analyses, including capitalization totaling \$4.92 per \$1 of gross, maintenance expenditures amounting to 9 per cent of gross and reserves and surplus equaling 72 per cent of annual gross earnings. The company reports, in addition

to the acquisition of the Baton Rouge Electric Company, net increases in plant of its subsidiaries totaling \$15,077,000 and the reinvestment of \$3,391,455 of earnings in the properties.

The Engineers Public Service Company controls subsidiaries operated under executive management of Stone & Webster. The subsidiaries serve a population of 1,176,100. The increased earnings of the El Paso, Savannah and Key West properties reflect the healthy growth of industry in the territories served. The total number of stockholders is 8,800, an increase of 35 per cent in the last ten months.

## Cincinnati Has Good Year

Substantial Increase in Passengers Handled—Progress Made in Rehabilitation of Property—President Draper's Remarks Abstracted at Length

TAKING everything into consideration, the results of the first year's operation of the Cincinnati Street Railway, Cincinnati, Ohio, since that company resumed control on Nov. 1, 1925, are not disappointing. This was the substance of the opening remarks of Walter A. Draper, president, at the recent annual meeting of the stockholders. He said the year had been one of readjustment and rehabilitation after the several years of negotiations between the city and the companies, during which time it was impossible for the then operating company to do many of the things desirable and needful in

including operating costs, taxes and return on capital, and still produce a balance the city has the right, through its control of operations, to determine how this balance shall be applied, namely, to bring the property to an improved operating condition, to increase the service or to add to the fare control fund, so as to bring about a reduction in the rate of fare when that fund is increased from the initial amount of \$400,000 to \$600,000. Similarly, if necessary expenditures for maintenance, operation, taxes and return on capital exceed the revenues, the deficit must be made good out of the fare control

EARNINGS OF CINCINNATI STREET RAILWAY

	1926	Jan. 1-Oct. 31, 1925	Nov. 1-Dec. 31, 1925	Total Year 1925
Railway operating revenue.....	\$8,102,517	\$7,558,322	\$1,242,269	\$8,800,592
Railway operating expenses.....	5,846,221	4,469,590	647,858	5,317,448
Net operating revenue.....	\$2,256,295	\$3,088,732	\$394,411	\$3,483,143
Taxes assignable to railway operations.....	708,831	625,290	123,369	748,660
Gross income.....	\$1,547,463	\$2,463,441	\$271,042	\$2,734,483
Rentals.....	25,150	1,030,232	16,675	1,046,908
Balance.....	\$1,522,313	\$1,433,208	\$254,366	\$1,687,575
Interest and sinking fund on bonds and notes....	332,885	585,305	58,941	644,246
Surplus.....	\$1,189,428	\$847,903	\$195,425	\$1,043,329
Deficiencies from 1924 allowed to be earned and paid.....		521,905		521,905
Balance.....	\$1,189,428	\$325,997	\$195,425	\$521,423
Allowance for return on capital.....	1,175,364	347,043	188,652	535,695
Balance.....	\$14,064	*\$21,045	\$6,773	*\$14,272
Franchise tax.....		296,989		296,989
Deficiency or surplus.....	\$14,064	*\$318,034	\$6,773	*\$311,261

\*Denotes deficiencies.

the interest of the public and stockholders. The budget filed with the city of Cincinnati on Dec. 1, 1925, covering estimated results of operations for the year 1926, indicated a deficiency for the year of \$72,848, without including any estimate for the operation of the motor coaches, which were at that time not a part of the company's business. The actual results for the year 1926 show a surplus of \$14,064 above all requirements, including dividends on stock and interest on notes, despite losses from motor coaches, and despite the much larger operating charge for track reconstruction than was anticipated when the budget was filed.

The essential feature of the present operating plan is that if the revenues are sufficient to pay all requirements,

fund until it is reduced to \$200,000, when fares automatically increase. Into this fare control fund balances were paid from each month's operation for the period from Nov. 1, 1925, to Dec. 31, 1926, with the exception of July and August, when payments out of the fund were required to be made to meet deficits. The net amount added to the fund was \$6,774 for the last two months of 1925, and \$14,064 for the twelve months of 1926, or a total of \$20,837.

Mr. Draper said that in comparing the results of operation for the year 1926 with the preceding year it was necessary to have in mind that a 10-cent fare was in effect on cars for the first ten months of 1925, as against the 8½-cent ticket rate and 10-cent cash rate in effect for the last two months

of 1925 and the twelve months of 1926; that motor coach operation began in April, 1926, chiefly on a 10-cent fare, and that the different corporate and financial set-up in effect up to Nov. 1, 1925, required larger rentals, interest, sinking fund and return on capital. Instead of the large rental figure of 1925, which this company received from the lessee at the rate of 6 per cent on its stock, there was the return on capital in 1926 at the rate of 5 per cent, and the smaller rental that was paid for the first three months of 1926 to the former Cincinnati & Hamilton Traction Company. The large balance for the twelve months of 1925 was required and was available for the payment of past deficiencies created in previous years when the receipts from fares

that it was apparent that the public desired motor coach service not instead of but supplementary and in some cases in addition to rail lines. Independent motor coach operations which cut into the previous operating company's revenues so sharply during the year 1925 did not offer at this time the menace that they formerly did.

He answered the question of why motor coach service of the company was operated at a loss, while at least some of the independent lines claimed to show a profit by saying that the independents at the start, being unregulated, picked choice routes, generally short ones, in thickly settled sections and in most part on the same streets with existing rail lines where they were assured of loads. The routes operated

hope for the line lay in the possibility of its taking enough traffic on its rails to reduce the service required on the surface rails and to relieve traffic on congested streets to warrant its construction and operation. The future hope for the line lay in the fact that it would doubtless improve the value of the territory through which it ran, a large part of which had now been little developed.

He referred to the valuation of the property and the long-drawn out negotiations, which finally resulted in an agreement with the city fixing the capital value on Nov. 1, 1925, at \$27,000,000, plus \$1,000,000 for the Mill Creek Valley lines.

He said that the recognition of the mutuality of interests of the company and city, or of the car rider and the taxpayer, under the present plan of city control of the transportation system was clearly appreciated by the city administration and was evidenced by the co-operative efforts of city and company to facilitate this important work; the new year had been entered upon with confidence and a sincere effort was being made by the officials of the company to carry to the public of Cincinnati the message that the company was endeavoring to live up to its responsibility for providing public city transportation service of satisfactory character. According to him, it could be safely said without prejudice there were evidences of progress in Cincinnati that not only would be advantageous to all enterprises, but would also require the furnishing of increasing facilities by the company.

## Suburban Line Does Well

Net Income of Chicago & West Towns Railway Has Practically Doubled Since 1920

The Chicago & West Towns Railway, Oak Park, Ill., has, during the last seven years, established its ability to show good earnings and has widened considerably the margin by which interest charges on its bonded indebtedness have been earned. Both gross earnings and the net income available for interest on funded debt have increased without exception in each year since 1920, the net having practically doubled in that time, rising from \$177,331 in 1920 to \$349,269 in the year just ended.

A comparison of the gross earnings, the net income and the bond interest charges for each year of the last seven follows:

Yr. Ended	Gross Earnings	Net Income Available	Bond Int.
Dec. 31			
1926	\$1,441,083	\$349,269	\$105,000
1925	1,348,902	317,563	105,000
1924	1,273,702	287,546	91,961
1923	1,208,218	274,032	80,500
1922	1,132,427	242,683	69,250
1921	1,108,618	222,491	68,000
1920	1,000,096	177,331	62,333

Net income as available for bond interest is before provision for amortization of bonds or for depreciation.

Present interest charges on the funded debt have been covered on the average 2.55 times in the seven-year period from 1920 to 1926. In 1925

### RECORD OF PASSENGERS CARRIED IN CINCINNATI

	1926	1925	1924	1923	1922	1921
Revenue Passengers:						
Cars	89,493,159	90,629,875	100,839,343	108,625,599	107,528,666	106,527,759
Coaches	4,104,586					
Total revenue passengers	93,597,745	90,629,875	100,839,343	108,625,599	107,528,666	106,527,759
Transfer Passengers:						
Cars	29,480,811	30,832,130	32,706,502	34,066,858	34,765,044	34,904,917
Coaches	768,711					
Free Passengers:						
Cars	1,465,871	1,309,845	1,319,318	1,292,290	1,399,018	1,527,297
Total, all passengers	125,313,068	122,771,850	134,865,163	143,984,747	143,692,728	142,959,973

were not sufficient to meet requirements, including the former city franchise tax.

The tendency toward a decrease in passengers carried on cars, which became quite marked in the spring of 1925 and was checked in the fall of that year, has now been overcome and, while the total number of passengers carried in 1926 was fewer than the total in 1925, the latter months of the year show a considerable increase over the similar month of the year preceding. This tendency toward an increase in passengers riding the cars is in the face of an increase in the number of automobiles in Cincinnati and the development of better roads.

On the subject of bus operation, he said that the company now had in daily service 62 motor coaches on ten lines. Four of these lines operated from outlying sections to the heart of the city, running chiefly express where paralleling car lines; two were crosstown lines, connecting up many radiating rail and motor coach lines, and three were feeder lines. He said that it was scarcely to be expected that they could be continued at as great a loss as had been experienced. As the rate of fare on motor coaches was fixed and not dependent upon their cost of operation, and as the deficit from their operation must be assumed by the railway, they thus contributed to the cost of carrying passengers on street cars, and it was possible that a continued or an increasing loss, he claimed, from operating motor coaches might eventually result in an increase in the fare on cars. On the other hand, he claimed, there should not be a too hasty condemnation of buses because the lines did not all show a profit. Some that were losing were rendering a service that parts of the city needed. He referred to the two crosstown motor coach lines rendering a distinct service for which rail service might otherwise be required at a greater cost to that particular territory than the present coach lines. He said

by the company, he stated, include several to remote and thinly settled sections that no independent could be induced to serve. It was recognized, he said, that a unified and co-ordinated city transportation system was the most logical and satisfactory plan for serving the public. It was clear that if the profitable motor coach routes operated independently were a part of the whole transportation system they would tend to offset the loss from the needed but unprofitable lines.

The total amount expended for replacement and renewal of track and overhead construction in 1926, in addition to ordinary maintenance and repairs, was \$523,367. Of this amount \$451,994 was provided by the special depreciation reserve fund, \$36,373 was paid for out of receipts and charged directly to operating expenses during the year and \$35,000 was paid with funds borrowed for the purpose, which will be charged out and repaid at a later date. The purchase of new equipment had been deferred until the track over which it should operate could be put in better condition. Work had been done, however, on improving the condition of existing rolling stock and increasing the degree of comfort and convenience. Even a larger program for 1927 has been agreed upon after conferences with the chairman of the highways committee of Council and the city manager, amounting to nearly 140,000 ft., or approximately 26 miles of single track. Additions and betterments to the property of the company from Nov. 1, 1925, to Dec. 31, 1926, cost \$970,299. Similar expenditures in 1927 will not exceed \$2,000,000.

Mr. Draper referred to the rapid transit lines as a problem confronting the city as a whole; its ultimate disposition was the question. Surveys and studies already made clearly indicated that the line could not and should not be operated except as a part of a unified city-wide system. The immediate

these charges were covered 3.02 times and in 1926, 3.33 times. The actual amounts paid as bond interest prior to 1924 are not significant in calculating the average number of times charges were earned, as from 1922 to 1924 the full amount of bonds now outstanding had not been sold, and prior to 1922 an issue with a lower rate of interest was in the hands of the public.

Capitalization of the Chicago & West Towns Railway consists of \$1,500,000 of first mortgage 7 per cent bonds due on July 1, 1932; \$1,000,000 of 6 per cent cumulative first preferred stock; \$210,000 of 8 per cent cumulative second preferred, and \$1,000,000 of common stock. The financial strength of the company is further indicated by the fact that dividends have been regularly paid on both issues of the preferred stock since its issuance. Dividends have been paid on the common stock at the rate of 6 per cent per annum since Jan. 1, 1926.

The first 7s of 1932 are a direct first and only mortgage on the entire property of the company. Additional bonds may be issued to the extent of 75 per cent of the cost of new construction, if earnings for the twelve preceding months have been equal to twice the interest requirements on the total bonds issued and to be issued.

The Dec. 31, 1926, balance sheet showed a property account totaling \$4,528,340, compared with \$4,347,447 at the 1925 year end, the fixed assets at the close of 1926 being equal to slightly more than \$3,000 for each \$1,000 bond outstanding. Against the property account there is a depreciation reserve of \$672,160, additions to this reserve averaging about \$60,000 annually. Working capital position at the 1926 year end was not particularly favorable, current assets totaling \$106,309 with current liabilities, which included the reserve for taxes of \$67,681, amounting to \$124,772. Weakening of the working capital position during the year is accounted for by additions to the property account. The company is entitled to issue bonds to reimburse its treasury for the expenditures to property account. The amount that may be issued under the terms of the trust deed for these expenditures as of Dec. 31, 1926, is \$350,000.

The Chicago & West Towns Railway serves a suburban territory lying directly to the west and southwest of Chicago which has experienced a particularly rapid growth during the last five years. A total of 73 miles of electric railway lines are operated in the villages of Oak Park, River Forest, Maywood, Cicero, La Grange, Forest Park, Lyons, Berwyn, Proviso, Riverside, Clyde, Hawthorne and others. The greater part of the power requirements are purchased from the Sanitary District of Chicago, two generating stations being maintained, however, as standby stations. Franchises in the communities served are of varying lengths, and with one exception, i.e. the village of Forest Park, franchises extend beyond the maturity date of the bonds.

**Would Sell Railway.**—Mayor William E. Westbrook of Ogdensburg, N. Y., has announced that he will sell the rolling stock and property of the

Ogdensburg Street Railway at public auction because of delinquent payments on paving assessments. The company has made no formal announcement of its plans except for a statement declaring it has until 1935 to pay the assessments under the law. It is understood, however, that steps will be taken to prevent the sale.

**Dividend Payment Reduced by Twin City.**—Directors of the Twin Cities Rapid Transit, Minneapolis, Minn., have declared a quarterly dividend of \$1 per share on the common stock, payable April 1 to holders of record March 15. In 1926 the company paid four quarterly dividends, each of 1½ per cent.

**New Board Member Elected.**—At the annual meeting of the directors of the Columbus Railway, Power & Light Company, held in Columbus, Ohio, recently, John S. Brookes was elected to the board. He replaces John Kelly of Columbus.

**Denver Tramway Reduces Debt.**—The funded debt of the Denver Tramway, Denver, Col., is to be reduced through refinancing. The first mortgage 6 per cent gold bonds and the first mortgage improvement 6 per cent gold bonds, due on April 1, totaling \$2,598,000, will be acquired by the company from the holders, and are to be extended to Oct. 1, 1933. The bonds are to be deposited as collateral for a new issue of \$1,750,000 Denver Tramway 6 per cent first underlying mortgage collateral trust sinking fund gold notes, maturing on Oct. 1, 1933.

**Interurban May Discontinue.**—Officials of the Pennsylvania-Ohio Electric Company are considering plans to terminate interurban railway service between Niles and Mineral Ridge, near Youngstown, Ohio. The company has continued service for some time at a loss, but officials consider it an imposition to be asked to share the cost of a new bridge in Niles over which the lines must run. R. N. Graham, manager of railways, so declared at a conference with Councilmen at Niles. Residents at Mineral Ridge say this is the only way hundreds of workmen have of reaching their places of business.

**Denies Abandonment Approval.**—The Public Service Commission on March 8 denied the application of the Hudson Valley Railway, Glens Falls, N. Y., to abandon its lines between Lake George and Warrensburg and between Thomson and Greenwich. The commission in its summation of the case said the petitioner had not made a clear and satisfactory argument as to its financial inability to carry on successfully the operation of the Greenwich branch and that there existed a real public demand for the continuation of that branch. Also that there was a public need for the service in Warrensburg and that the Lake George-Warrensburg branch financial loss was not satisfactorily proved.

**Acquisition Offsets Loss from Abandonment.**—The Illinois Northern Utilities Company for the year ended Dec. 31, 1926, reports a net income of \$828,739 after interest, amortization, taxes, retirement reserves and all other charges, equal after dividends on the preferred and junior preferred stock to \$12 a share on \$4,535,000 of common

stock. This compares with a net income of \$655,731, or \$8.41 a share, on \$4,885,000 common stock in 1925. During the year recently ended the company reacquired \$700,000 of its common stock from the Middle West Utilities Company to offset the property loss resulting from the abandonment of the Sterling, Dixon & Eastern Railway. This enabled the company to take out of its fixed capital account the investment carried in the Sterling, Dixon & Eastern property, according to Martin J. Insull, president. The company had 4,458 stockholders at the end of 1926.

**Two New Directors Elected.**—George G. Shaw and P. H. Worman were elected directors of the City Railway, Dayton, Ohio, at the meeting of the stockholders on Feb. 10.

**Carhouse Property Sold.**—The carhouse property of the Alabama Traction Company at Decatur, Ala., has been acquired by the Cooper-Wells Company, operating the hoisery mill. The property lies adjacent to the hoisery mill and provides ample space for whatever expansion may be necessary in the future. The property was first acquired by the city of Decatur, which, ratifying the action of the Albany Council, took it over in settlement of claims against the railway.

**Increase in Capital Value Asked in Youngstown.**—Request that capital value of the Youngstown Municipal Railway, Youngstown, Ohio, be increased \$55,953 is pending in the City Council. The increase, according to Harry Engle, street railway commissioner, is for improvements installed at the Mahoning Avenue garage, where the company's city buses are housed and kept in running condition. Of this amount \$25,679 is for the installation of five 20,500-gal. gasoline tanks and one 20,500-gal. oil tank. The rest, \$30,273, was used to purchase and install modern machine shop equipment.

**Merger of Reorganized Roads Arranged.**—Announcement has been made of the merging of Ohio and Indiana corporations under the single title of the Fort Wayne, Van Wert & Lima Traction Company. Officers and members of the board of directors are: Henry C. Paul, president; Frank H. Cutshall, treasurer, and James W. Barrett, secretary, all of Fort Wayne, Ind.; J. C. Neff, Philadelphia, and D. P. Abercrombie, Boston. The merged company is the successor after reorganization of properties previously existing.

**Eight Parts of Line to Be Abandoned.**—The Public Service Commission approved declarations of abandonment by the Empire State Railroad Corporation of eight parts of its line in Oswego, N. Y. The city is planning to give consents for the operation of bus lines to provide transportation service in the city. Evidence showed a gradual decline in patronage of the Oswego line within the past five years, the losses in gross revenues after payment of operating expenses being, in 1926, \$24,423, in 1925, \$18,786, and in 1924, \$10,628. It was further shown that after paying operating expenses, taxes and interest, the railroad had a deficit of \$59,968 in 1926. Revenue passengers on the Oswego City lines declined from 1,223,368 in 1923 to 947,620 in 1926.

## Book Reviews

### Main Street and Wall Street

By William Z. Ripley, Boston, Mass.: Little, Brown & Company. 353 pages. Price \$2.50.

Books are seldom what the blurbs on their jackets purport them to be. In this case, however, Professor Ripley has in some of his caustic comments quite lived up to the claim made for it that his book is a startling exposé of present-day financial methods. Of one entrancing picture drawn of the banker's function in industry he said:

"This busy 'organization capital' bee, 'with honeyed thigh,' in Milton's words, buzzes from one flowery situation to another, extracting the precious nectar of control and just incidentally powdering the public with the preferred pollen."

As for Professor Ripley, he appears to be no dispenser of pollen at all, either preferred or common. One of the things at which this gallant Knight who has essayed the task of self-appointed censor does tilt, is the issuance of no-par stock, which he says cuts the ground from under any attempt to correlate closely the amount of the investment and a stated par value for the securities. He does admit, however, that, like most things on earth, human beings particularly, no-par stock is not altogether bad. According to the penetrating professor, the issuance of securities in this form does embody a useful principle, just as to him Coca-Cola sounded refreshing until he delved into the company's financial structure. He is not apparently against all holding corporations. He says even the holding company may benefit from a proper amount of articulation, but that such company need not be a vaudeville contortionist for all that.

And so the comment runs through the more than 350 pages, made up among other things of reprints of his articles "Stop, Look and Listen!" and "More Light!—and Power Too," both of which were the subject of comment in the *ELECTRIC RAILWAY JOURNAL* at the time of their appearance in the *Atlantic Monthly*. The chapter "More Light!—and Power Too" is directed at the light and power industry, but some of his strictures apply equally well to cases in the railway field. It should not be assumed that all he says is condemnatory. That is not the fact. The professor sees many things that, in his opinion, need correcting and many tendencies appear to him to be fraught with danger, but he also sees any number of practices that are worthy of emulation.

Some of the matters upon which he touches are the complicated holding company structures, the lack of uniformity in legislation covering incorporation, the disposition of some holding companies to venture into far-off fields, the possible abuse of banker control, the frailties of some customer-ownership plans, the iniquity of recent sales of some properties at prices that

might be regarded as inordinate, the inadequacy of some depreciation reserves, and kindred subjects.

Many of the points the professor raises have been raised before, and nowhere more than in the industry itself are some of the problems receiving more careful attention. The matter of simplification of corporate structure is now before the industry as a burning issue. During the war many expedients were called into play in order to preserve the *status quo*, or to preserve it as nearly as possible. Now that this emergency has passed, voluntary re-adjustment and simplification of corporate structure are taking place on an extended scale. Even the professor is cognizant of this tendency, for he himself cites several instances of it.

As for customer ownership, all the evils are inherent in it which the professor names. Utilities are cognizant of them. The report of the public service securities committee of the Investment Bankers' Association presented at the annual convention, Oct. 11 to 15, 1926, shows the extent to which some of the other subjects mentioned by the professor are receiving the serious attention of the investment bankers. All this is not said with the idea of mitigating the criticisms contained in this chapter. No industry should be so squeamish about its doings as not to accept with good grace suggestions from a source so well informed.

In concluding his preface the professor pays his respects to a host of persons to whom he is indebted, and then says that the only possible reparation will be that, despite its manifest shortcomings, the volume shall stimulate discussion and inquiry. And then, apparently as an afterthought, this professor, who himself is a master of cajolery, mordant humor, invective, just plain foolery and much common sense, adds: "That it may bring forth fruit in due season is my most earnest wish." He has certainly lived to see that wish fulfilled, and to find himself the recipient of a considerable quantity of fruit, some of it overripe, if it wasn't actually putrid.

### Electric Power Stations

By L. W. W. Morrow, managing editor *Electrical World*. New York: McGraw-Hill Book Company. 326 pages. Price \$4.

This work is a sound discussion of the fundamental principles of production, transmission and distribution of electrical energy on a large scale in an economical manner. The book covers such topics as plant sites and their layout, coal oil and gas—their use in electric power stations, steam, auxiliary energy supply, boiler room, turbines, electrical equipment and switching. Throughout the book emphasis is placed on principles underlying the selection of proper equipment for specific conditions and on the methods of utilizing this equipment to best advantage.

### Primer of Simplified Practices

By United States Department of Commerce.

Growing out of a concerted movement on the part of producers, distributors and consumers in co-operation with the Department of Commerce a primer of simplified practices in production has just been issued. The primary object of the book is to eliminate needless variety in sizes, dimensions and types of commonplace articles to the end that production cost may be decreased while the utility and efficiency of production are enhanced.

Higher returns to the worker, savings to the consumer, greater productivity, enlarged general purchasing power and more intelligent use of our natural resources, resulting in benefits to the entire nation, are cited as some of the advantages to be gained through simplified practice.

This simple and effective method of attacking waste differs from standardization in that it tends only to the elimination of odd sizes of products in small demand. It does not interfere with fashions or styles.

The co-operative trend of the times shows that there are many features in a large proportion of commonplace articles in which attempted individuality is superficial and useless, and stands in the way of their broader use. "For instance," the primer says, "twenty years ago there were 180 different sizes and styles of electric lamp bases. The common base which is used today has been a factor in increasing the use of electricity for lighting purposes, yet there are other features of the electric lamp which retain their individuality."

The history of the simplification movement is a record of constant abandonment of the fallacy that widely diverse or "odd sizes" tend to secure competitive advantages. The passing of this misconception had led to a point where today industries as a whole are very generally competing with other industries through simplification to broaden markets and induce the widest possible consumption of their products.

Under the procedure of the Division of Simplified Practice, each simplified practice recommendation must be accepted by producers, distributors and consumers representing 80 per cent of the annual volume of the industry, it being believed that only such a proportion of acceptance will insure general application and adoption. The division has no police power to enforce simplified practice recommendations nor does it desire any. The government offers its services merely as an effective agency in bringing together business groups on a neutral ground. The final recommendations as to the elimination of sizes, styles and types of articles is the job of the industry itself and the adherence to such recommendations is left entirely to the business group interested. A representative standing committee is appointed at the general conference to serve as a liaison between the Department of Commerce and the industry, and upon which devolves the duties of promoting and supporting findings of the conferees, as well as conducting annual resurveys to ascertain the degree of adherence and convene to effect revisions, or reaffirmations.

## Personal Items

### Changes on Interstate

**Advancement of Officials, Announced Recently, Has Gone Into Effect—  
Mr. Van Arsdel Succeeds Mr. Reid**

Important changes in the personnel of the Interstate Public Service Company, Indianapolis, Ind., were announced recently by Harry Reid at a dinner given at the Columbia Club in his behalf by his associates in the Indianapolis office of the company.

As stated previously in the *ELECTRIC RAILWAY JOURNAL*, Mr. Reid has been named president of the National Electric Power Company, New York City. He has been giving most of his time to his new position for some time and stated that at the annual meeting of

While the sentiment expressed at the dinner indicated much regret at Mr. Reid's departure from Indianapolis, it also was evident that his associates feel great pleasure in his elevation to the management of a property of such large scope as the National Electric Power Company, one of the large units of the Insull organization operating gas, electric, water and railway properties in twelve states. Mr. Reid has succeeded Albert Emanuel of New York as president of the National Electric Power Company, Samuel Insull succeeds Victor Emanuel as chairman of the company.

Mr. Reid went to the Interstate in January, 1917. He was elected president and general manager within a short time thereafter and under his direction the Interstate has grown, not only as one of the largest utilities in Indiana, but in the good graces and good will of the people in the many communities it serves.

Mr. Van Arsdel is well known and highly esteemed by the men and women with whom he has been associated in the company. He is a native of Kentucky and went to Indianapolis in March, 1917. He was operating manager of the Interstate for a year, following which he became its vice-president. He was vice-president of the Kentucky Utilities Company at the time of his appointment as a member of the Interstate organization. Mr. Van Arsdel was with Mr. Reid at Louisville for five years in the operation of the Kentucky Utilities Company properties.

At the dinner at which the changes in personnel were announced Mr. Van Arsdel, on behalf of the employees and executives in the Indianapolis office, presented to Mr. Reid a beautiful center piece of Kirk silver and two beautiful silver candlesticks of the same design. Mr. Reid's associates also presented to him a marble desk set inlaid with gold.

As for the other employees Mr. Rockefeller has been transferred from the Connersville district to the Bedford district as local manager. For the past three years he has been manager of the Connersville district and prior to this he was located at Aurora for a period of nine years in the same capacity.

Fifteen years service with one organization is Mr. Oglebay's record. During the past eight years he has been located at Bedford, Ind., in the capacity of local district manager. Effective on Feb. 1, he joined the Indianapolis organization as assistant in the operation of electric, gas and water utilities.

Mr. Large will succeed Mr. Rockefeller as district manager at Connersville, Ind. Prior to this transfer, he was district superintendent at Oakland City, Ind., and he has been associated with the Interstate for a period of three years.

### W. R. Power Heads Kentucky Association

W. R. Power, general manager of the Ohio Valley Electric Railway, Huntington, W. Va., was elected president of the Kentucky Association of Public Utilities, at its meeting in Louisville on Feb. 18-19.

Early in his career Mr. Power went with the General Electric Company, Schenectady, in the testing department. In the fall of 1903 he joined the American Railways on the Chicago & Joliet Electric Railway property at Joliet, Ill. A year later he was transferred to one of its Pennsylvania properties and in 1912 was transferred to Huntington, W. Va., on another property of the same company. Five years later Mr. Power was made general manager of the Consolidated Light, Heat & Power Company and affiliated companies in that district, consisting of the railway and lighting companies at Ashland, Ky., and Ironton, Ohio. The holding company was taken over three



E. Van Arsdel



W. R. Power

the stockholders of the Interstate on March 7 the following changes in the personnel of the Interstate would be made:

E. Van Arsdel, who has been vice-president of the Interstate for eight years, will become president.

I. L. Oppenheimer, who has been with the Interstate for six years, as assistant to Vice-President Van Arsdel, will become vice-president in charge of the operation of the electric, gas and water properties.

L. M. Brown, who has been general manager of the railway of the Interstate between Indianapolis and Louisville for several years, will become vice-president in charge of all railway operations for the company.

W. Marshall Dale, who came to the Interstate about two years ago from the Kentucky Utilities Company, will become vice-president and treasurer in charge of the finances.

A. D. Jones will become vice-president and auditor in charge of the accounting and stores.

G. J. Oglebay, who has been manager of the Bedford district for several years, will become assistant to Vice-President Oppenheimer, in charge of the gas, electric light and water properties.

years ago by the American Gas & Electric Company and is now known as the Appalachian Electric Power Company, Huntington district.

It was with P. H. Chase, chief electrical engineer for the American Railways, that Mr. Power demonstrated in 1921 the possibility of inspecting high-tension lines by airplane. The demonstration was made in a new Curtiss "Oriole" with Bob Shank, a local aviator at Huntington, as pilot. A distance of 25 miles and return was covered in the flight. The line inspected was being constructed by the Virginia Power Company from Cabin Creek, in Kanawha County, to Huntington. It was said in the April 9, 1921, issue of *ELECTRIC RAILWAY JOURNAL* that both Mr. Chase and Mr. Power had found the plan workable.

Mr. Power was reared in Kansas. His education included special courses at the University of Illinois.

### Glasgow Tramway Appointments

Following on the appointment of Lachlan McKinnon to be general manager of Glasgow Corporation Tramways, Glasgow, Scotland, in succession to James Dalrymple, retired, the tramways committee has approved the fol-

lowing recommendations submitted by the general manager: James N. Wilson, secretary and treasurer of the department, to be deputy general manager; Robert F. Smith, accountant, to be traffic superintendent; and G. W. Alexander, principal assistant to Mr. Smith, to be accountant for the railway department.

All of the officers so named have for many years been in the service of the corporation. Mr. Wilson will continue to hold the office of secretary and treasurer.

### North Shore Line Appoints New Officers

Reorganization of the transportation department and changes in divisional limits of the Chicago, North Shore & Milwaukee Railroad to facilitate train operation were made known recently with the announcement of ten new appointments by General Manager John F. Ego. All of the new appointees are under the supervision of J. W. Simons, general superintendent of transportation.

Chester K. Thomas, director of service improvement, has been named division superintendent of the Main Line Division, in charge of all train operation between Harvard Street, Chicago, and Austin Avenue, Milwaukee, including the Mundelein-Lake Bluff service.

William Burke has been appointed superintendent of the Milwaukee Division, with supervision of all traffic operating between Austin Avenue and Sixth and Clybourn Streets, Milwaukee.

Charles Cawley and John J. Dee have been named superintendent and assistant superintendent, respectively, of the Chicago Division, between 61st Street and Harvard Street, in the city of Chicago.

George C. Kenry is appointed superintendent in charge of all train and motor coach operation in the city of Waukegan and on the Shore Line Division between North Chicago Junction and Waukegan.

George Bernard has been appointed conductor instructor.

D. A. Miner has been named motorman instructor with supervision over all divisions. In addition thereto he assumes the duties of trainmaster.

George Merriman, S. M. Carrell and William Ives are appointed trainmasters with supervision over train operation of the Chicago, North Shore & Milwaukee Railroad between Chicago and Milwaukee, and Lake Bluff and Mundelein.

Jasper C. Johnson, formerly superintendent of operations of the main line division of the Shore Line Motor Coach Company, has been appointed assistant general manager. Mr. Johnson's headquarters will be at Michigan City, Ind.

F. M. Plake of the valuation engineering force of the Missouri Public Service Commission has been named chief valuation engineer to succeed James L. Harrop, resigned. Mr. Plake has been with the commission for four years. Prior to that time he served with the Interstate Commerce Commission.

## Obituary

### Dudley Farrand

Dudley Farrand, identified with the electric light and power industry for many years and vice-president of the Public Service Corporation of New Jersey, died on March 3 at Fair Haven, N. J., in his 59th year. He started his career as a clerk with the Newark Electric Light & Power Company and after two years of service he was made assistant secretary. He was next made assistant manager and subsequently he was placed in charge of design and construction. After an association with the People's Light & Power Company, during which he was assistant general manager and general manager, he became general manager of the United Electric Company of New Jersey, and four years later he obtained a similar position with the electric department of the Public Service Corporation of New Jersey.

On the formation of the Public Service Electric Company in 1910 to take over all the electric properties of the Public Service Corporation Mr. Farrand was appointed its general manager. Five years later he was made its vice-president and general manager, assuming in addition the duties of assistant to the president in 1917. Mr. Farrand was president of the National Electric Light Association in 1907 and the following year was appointed by President Roosevelt as technical adviser representing the electrical interests to the National Conservation Commission.

### George J. Baldwin

George J. Baldwin died at the Johns Hopkins Hospital, Baltimore, Md., from pneumonia, on March 5. No truer eulogy can be written for this great organizer of public utilities throughout the South than to say he spent the major part of his 70 years in serving the interests of philanthropy and in helping to create power in industrial life. Mr. Baldwin, a partner in Stone & Webster since 1898, under which company these organizations were formed, had also been vice-president and general manager since 1916 of the American International Corporation, founded during that same year to extend and cement the foreign financial and commercial relations of the United States.

Upon graduating from the Massachusetts Institute of Technology in 1887, his activities increased and progressed first from chemist at the Woodstock Iron Company, Anniston, Ala., to superintendent of the Bradley Gold Mine Company of Nacoochee, Ga. He resigned from the mine company after a year of service to join the Baldwin Company, cotton factors and dealers in fertilizers. In 1886 he founded the Baldwin Fertilizer Company, of which he was president until 1894. As a member of the firm of Stone & Webster, with which he aligned himself four years later, he organized the following companies, being at one time or another president of all of them: Savannah Electric Company, Jacksonville Traction Company, Key

West Electric Company and Pensacola Electric Company. Mr. Baldwin at one time also was first vice-president of the Pacific Mail Steamship Company and acted as chairman of the New York Shipbuilding Corporation.

### James W. Samuel

James W. Samuel, former assistant treasurer of the United Railways, St. Louis, Mo., died in his home in that city on Feb. 17, following a long period of ill health. He had been relieved of his duties as assistant secretary and treasurer of the company by Receiver Rollo Wells in 1920. At that time Mr. Samuel, 40 years old, had been in the employ of the railway for about 25 years. He started as a clerk and occupied in turn many important positions with the company. For many years he was chief clerk in the office of the treasurer and in 1916 was elected to the office of assistant treasurer and secretary.

In filling that position he supervised the counting and banking of all money taken in on the cars, issued and registered the capital stock of the company, collected bills and looked after the rental of buildings. He also kept records of all insurance policies of the company. At the age of 16 he served as general utility boy in the employ of the old Lindell Railway. This was in August, 1895. When the Lindell was consolidated with the other systems of St. Louis Mr. Adkins, former treasurer of the old Lindell lines, became secretary and treasurer of the United Railways. Mr. Samuel continued then in Mr. Adkins' office. Mr. Samuel was 48 years old.

John Stopp, for several years general shop foreman at the carhouse of the Tri-City Railway, Rock Island, Ill., died recently. He started service with the Tri-City property 35 years ago as a motorman. Mr. Stopp was 58 years old.

Joe C. Thompson, secretary and assistant treasurer of the Texas Power & Light Company, Dallas, Tex., died at Dallas on Feb. 28. Mr. Thompson was also tax commissioner for the Texas Power & Light Company, Dallas Power & Light Company, Dallas Railway & Terminal Company and the Texas Electric Railway, Inc. He had been connected with these companies since 1913 and had lived in Dallas for 25 years. Mr. Thompson was 52 years of age.

John R. McGinley, an organizer of the Philadelphia Company, of which he was vice-president and general manager for many years, died in New York City recently. Mr. McGinley, a prominent figure in the industrial world, was an early associate of George Westinghouse, with whom he formed the Westinghouse Electric & Manufacturing Company, and with whom he was associated for many years in the Westinghouse Air Brake Company. He was actively identified with many industrial and financial institutions of Pittsburgh and elsewhere, among them the Fidelity Title & Trust Company, the Duff Manufacturing Company, Chicago Pneumatic Tool Company, Union Switch & Signal Company and the R. D. Nuttall Company.



## 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

### Coffin Awards Made to General Electric Employees

Twenty-seven employees of the General Electric Company were awarded Charles A. Coffin Foundation certificates of merit for their outstanding services toward the increase of the company's efficiency or progress in the electrical art during 1926. The awards were made March 4. With each certificate went four shares of General Electric common stock. One-third of the twenty-seven awards were to workmen, two to foremen, eight to engineers, five to commercial men and three to administrative employees.

The Charles A. Coffin Foundation, which makes the awards, was created by the General Electric Company in 1922 in recognition of the services to the electrical industry of the late Charles A. Coffin, first president of the company, who died last summer. The awards of the foundation include, in addition to those to General Electric employees, yearly prizes in the electric railway and power fields and a number of annual fellowships in American universities.

### Work Begun on Twin City's New Noiseless Cars

Construction has begun in the St. Paul shops of the Twin City Rapid Transit Company, Minneapolis, Minn., of 25 noiseless cars provided for in the company's 1927 budget, which has been accepted by the Minneapolis City Council. These are to weigh 1,000 lb. more than the trial cars that have been in service two or more years, providing

for more structural strength, but 10,000 lb. less than the standard car in use. The cars will cost \$155,000, of which 60 per cent will be charged to the Minneapolis division and the rest to the St. Paul City Railway. Aluminum is utilized considerably in the structure of the cars. With the use of a new type of wheels and brakes and through other features the car noise is reduced to a minimum, from the viewpoint of modern engineering.

### Chicago, Aurora & Elgin Railroad to Build New Terminal

Plans for the construction of a new passenger terminal at Aurora, Ill., have been announced by the Chicago, Aurora & Elgin Railroad. Acquisition of a new right-of-way extending several blocks along the Fox River and of an entire business block at Broadway and New York Street has been completed by the company and construction of a \$60,000 terminal station will be begun at once. Extension of the city's principal business district one block south along Broadway is expected to result from the railroad's undertaking.

In all, more than 10 acres of land has been purchased by the company and the total cost, including terminal construction, is said to be approximately \$1,000,000. The new terminal and new right-of-way will make it possible for the Aurora-Elgin line to discharge passengers in the heart of Aurora without running its trains over the street car tracks of the Aurora, Elgin & Fox River Electric Company on Broadway as at present.

The Aurora terminal is part of a

comprehensive plan of improvement started by the railroad since its purchase by Samuel Insull and associates early in 1926. A new \$250,000 terminal is now under construction at Wells Street, Chicago, and extensive improvements are being made in the roadbed and rolling stock.

### Some Details of New Jersey Company's New Macks

Additional facts are available about the 77 Mack buses recently ordered from Mack Trucks, Inc., for use on the lines of the Public Service Transportation Company, Newark, N. J., and twenty by the Capitol District Transportation Company (United Traction Company), Albany, N. Y. Thirty-seven of the buses ordered by the Public Service Corporation are gas-electric drive, as are the twenty ordered by the Capitol District Company. Forty ordered by the Public Service are mechanical drive Macks. All buses are of the six-cylinder type as shown in the accompanying illustration. The Public Service Company also purchased at the same time 70 four-cylinder, gas-electric drive Macks, bringing the total order up to 147 buses.

The six-cylinder Macks are equipped with genuine leather-upholstered seats, and have a capacity of 29 passengers, sitting. The engine, radiator, gasoline tank, steering wheel, transmission and entire chassis are mounted on blocks of live rubber under compression. This system of rubber suspension is known as rubber shock insulation, as these rubber blocks damp out vibration so that an increase in bus life and passenger comfort is obtained.

In the gas-electric drive buses, an electric generator is connected with the gasoline engine, and then through a control box with an electric motor. Only one electric motor is used and this is connected directly to the standard Mack driveshaft. It is claimed that the single motor drive eliminates several hundred pounds weight,



Mack Six-Cylinder Gas-Electric Bus of the Type Ordered for Use in Newark, N. J., and Albany, N. Y.

extra maintenance and extra cost which must be calculated in gas-electric drive buses using two motors. Speed in the gas-electric drive bus is controlled by acceleration of the gasoline engine.

### Bertin Heads Galena Signal Oil

M. J. A. Bertin was recently elected president of the Galena Signal Oil Company, following his election as a director during the annual meeting of the company. Mr. Bertin succeeds L. G. Drake, who resigned as president and director. F. A. Burgess is another director elected at the annual meeting, succeeding C. W. Hochette. At a subsequent meeting of the directorate J. French Miller was named as treasurer, in place of William P. Westcott.

### Triplex Car Studied for Use in Montreal

It is understood that the order for the new cars and trailers for the Montreal Tramways, Montreal, Que., will not be placed until a decision on the desirability of the new type of triplex car has been ascertained.

For the present, according to the Montreal Tramways Commission, no more one-man cars are in prospect. The original 50 placed in operation were designed to give more adequate service on certain routes, and not with the idea that future equipment would be entirely of this model.

Inquiry has been made as to whether consideration has been given to double-deckers for Montreal. The matter has not been studied to the bottom, but the responsible operating officials at Montreal are said not to be much impressed with such a model for employment in a climate where, in winter, ventilation is of paramount importance.

As indicated in the *ELECTRIC RAILWAY JOURNAL* for Feb. 26, page 403, the order at Montreal is for 50 cars.

### The Westinghouse Advertising Policy

Much misunderstanding has developed over the recent newspaper stories concerning the announcement on the part of the Westinghouse Electric & Manufacturing Company to use daily newspaper advertising. Certain newspapers used the news story that was sent out in such a way as to make it appear that no other media might be used.

The Westinghouse company is giving up all general magazine advertising, feeling that it can handle institutional advertising and certain product advertising through concentration in localities as conditions demand. The newspaper space will not be used for highly technical apparatus, but primarily for apparatus that is sold through dealers and jobbers. For instance, it might run a campaign on street lighting in a certain city where it was known that thought is being given to a new street lighting system. It was felt that such a situation is primarily of local interest, and that in this, as in many phases of the company's general advertising, newspapers furnish a more effective medium than do general magazines.

An article in the March 10 issue of *Printers' Ink* by J. C. McQuiston, director of publicity of the Westinghouse company, clarifies the situation. In it he makes this statement: "The technical and trade press advertising in our opinion is absolutely as essential to our welfare in the future as it has been in the past."

### Track and Line

Miami, Fla.—Application was made recently for the extension of railway service to Cocomanut Grove by W. T. Price in behalf of the residents of the territory involved. The plan contemplates a spur line from the Coral Gables Rapid Transit route. The estimated cost was placed at approximately \$166,000 for 3.4 miles of track.

Connecticut Company, through N. J. Scott, manager of the Hartford division, has announced plans for new track construction and changes on the Rockville, Hartford & Stafford Springs line. The track department will install a switch at the Burke Farm, Rockville, another at Tolland Avenue, and will replace the switch at Ogden's Corner. These improvements will permit cars to make the trip between Tolland Avenue, Rockville, and Hartford in about one hour and fifteen minutes.

### Shops and Buildings

Department of Street Railways, Detroit, Mich., has a program under way which contemplates the sale of some of its carhouse property and the erection of buildings elsewhere. Legal objections having been overcome, the street railway commissioners have empowered the department of street railways to readvertise for bids on its property on Woodward Avenue across from the Highland Park plant at the Ford Motor Company. The property, no longer needed for carhouses, has a frontage of 125 ft. on Woodward Avenue and is 517 ft. deep. At the time it was previously offered for sale, a bid of \$525,000 was received. The sale was halted when it was discovered that the charter requires a vote of the people to dispose of real estate involving more than 10 cents per capita of population. Since then the charter has been amended to read 30 cents. The City Council has

### Metal, Coal and Material Prices

Metals—New York		Mar. 8, 1927
Copper, electrolytic, cents per lb.	.....	13.15
Copper wire, cents per lb.	.....	15.25
Lead, cents per lb.	.....	7.65
Zinc, cents per lb.	.....	7.10
Tin, Straits, cents per lb.	.....	70.00
Bituminous Coal, f.o.b. Mines		
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	.....	\$4.35
Somerset mine run, Boston, net tons	.....	1.975
Pittsburgh mine run, Pittsburgh, net tons	.....	1.85
Franklin, Ill., screenings, Chicago, net tons	.....	2.625
Central, Ill., screenings, Chicago, net tons	.....	1.875
Kansas screenings, Kansas City, net tons	.....	2.50
Materials		
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	.....	\$5.50
Weatherproof wire base, N. Y., cents per lb.	.....	16.75
Cement, Chicago net prices, without hags.	.....	2.65
Linseed oil (5-bbl. lots), N. Y., cents per lb.	.....	10.70
White lead in oil (100-lb. keg), N. Y., cents per lb.	.....	14.50
Turpentine (bbl. lots), N. Y., per gal.	.....	\$0.77

voted to approve the expenditure by the department of street railways of \$280,000 for 20 acres of land on Coolidge Highway near Grand River Avenue, as a carhouse site.

### Trade Notes

John Alden Plimpton was appointed Western manager of the Pennsylvania Crusher Company, Philadelphia, Pa., effective Feb. 1. Mr. Plimpton's office will be in Chicago. He succeeds B. S. Darling, who has undertaken association work. Mr. Plimpton is a graduate of the Massachusetts Institute of Technology, and prior to his promotion was sales engineer at the company's Pittsburgh office.

Wiswell Improved Railroad Crossing Company, Chicago, Ill., reports the election of the following gentlemen as officers and directors of the company. The personnel was elected at the annual meeting held on Jan. 26. Officers: C. T. Wiswell, president; T. G. Murray, vice-president and chairman of board; C. P. Jaeger, secretary and treasurer; L. C. Larson, sales manager. Directors: T. G. Murray, president Association of Commerce and Merchants, Madison, Wis.; Charles O'Neill, vice-president Bank of Wisconsin, Madison, Wis.; H. V. Tennant, consulting engineer, Portage, Wis.; G. T. Wiswell, civil engineer, Chicago, Ill.; J. A. Lorimer, merchant, Chicago, Ill.; C. P. Jaeger, business man, Madison, Wis., and W. E. Hanson, construction engineer, Chicago, Ill.

### New Advertising Literature

Chausse Oil Burner Company, Elkhart, Ind., is issuing catalog No. 11 descriptive of the Chausse portable asphalt plant and other equipment for repairing asphalt pavements. The catalog is well illustrated and in addition to covering details of the portable plant has information and cuts descriptive of the Chausse railway switch heater.

Ohio Brass Company, Mansfield, Ohio, has issued an attractive map of the United States which is after the general design of "Ye Olde" mariner's chart. Within the borders of each state is shown a cut or design of some product of the company that is of outstanding significance to the specific territory.

Amtorg Trading Corporation has just issued an elaborate commercial compendium of the United States, containing 1,076 pages with 2,800 illustrations. The "Catalog of American Industry and Trade," as it is styled, is printed in Russian and is especially designed to place American business before every business and trade executive in the Soviet union. Six hundred and forty-three pages of American advertising contain the insertions of 382 manufacturers of 30 states of the Union and of Canada. The catalog is handsomely bound and, in addition to presenting the claim and operations of the American industries, has interesting articles, contributed by noted engineers and business men. An economic survey of the United States is included.



## In Scranton, Pa., also—

Twelve new interurban, one-man, two-man type cars, to serve Scranton's mining district, recently delivered to the Scranton Railways are equipped with

# “Peacock” Staffless Brakes!

Reg. U. S. Pat. Off.

All of the new rolling stock of this Company, both city and interurban, are thus equipped!

They have many advantages which adapt them to modern cars—low installation and maintenance cost—three times the braking capacity of ordinary hand brakes—almost unlimited chain winding capacity—occupy little platform space—simplicity of operation, etc.

There are other reasons why “Peacock” Staffless Brakes are specified on nearly all modern cars. May we tell you about them?



The  
Peacock  
Staffless

**National Brake Company, Inc.**  
890 Ellicott Square Buffalo, N. Y.

*Canadian Representative:*  
Lyman Tube & Supply Co., Ltd., Montreal, Canada





*Model 10, 29-passenger City Pay Enter Body  
mounted on 230' wheel base chassis  
(Detail specifications in bulletin 104-A, sent upon request)*



**T**HESE advertisements will feature, from month to month, bus bodies of standard types and sizes which are the product of the exceptional experience and facilities of this company.  
**THE BAKER-RAULANG COMPANY**  
*Bus Body Division* Cleveland, Ohio





## **Pile on your miles!**

**Long distance hauling is just what these tires are made for. Hard daily grinds mean nothing in their long life. They cushion your trucks under a staggering total tonnage—and give you a ton-mile cost that adds generously to your profits**

**THE B. F. GOODRICH RUBBER COMPANY  
AKRON, OHIO—In Canada: CANADIAN  
GOODRICH COMPANY, KITCHENER,  
ONTARIO**

# **Goodrich**

**FOR TRUCK TIRES**

# The More Mileage— The More Profit



Cross Section of Willard  
Bus Battery Cover

The covers and jars of the Willard Bus Battery are of the highest quality rubber—and each jar is sealed with a semi-soft compound which is not affected by strains and vibrations. Thus they protect you against service interruptions.

WILLARD STORAGE BATTERY COMPANY  
CLEVELAND, OHIO

No matter what stops the wheels, the effect on the balance sheet is the same -- for minutes mean money. If a cover or jar is broken, or if rough roads loosen the sealing compound, there's money lost for you. That's why such special attention is given to the jars, covers and sealing compound of the Willard Bus Battery.

*F.A. Willard*

# Willard Batteries



# It can't rot



*because it's made of rock—*

EVERY building can have a roof that will not rot—that will scorn the need of gravel or slag to protect it. Johns-Manville Asbestos Roofing rids itself of extra surfacing because the roofing felts are made of asbestos rock fibre, impregnated with asphalt. These stone felts will not rot, dry out nor burn. They are everlasting. Hence Asbestos Roofing frees your roof of the burden of unnecessary weight, and saves you the trouble and cost of frequent repairs and replacements.

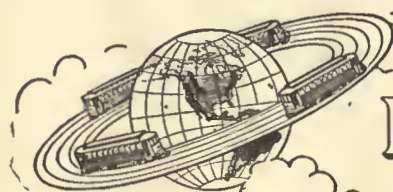
JOHNS-MANVILLE CORPORATION, Madison Ave. at 41st St., New York  
 Branches in all large cities. For Canada: CANADIAN JOHNS-MANVILLE CO., LTD., TORONTO

# JOHNS-MANVILLE

## ASBESTOS ROOFINGS

An increasingly large portion of the actual income derived from car card advertising service must be devoted to building and maintaining the prestige of car card advertising in the face of the active competition of all other media.

Creating and protecting our mutual interest is a costly item.



**Barron G. Collier**

INCORPORATED

CANDLER BLDG. NEW YORK



# INSECT PROOF

**W**OODPECKERS and white ants are not a menace to *International Pressure Creosoted Yellow Pine Poles*. The creosote oil, a toxic to white ants, is forced far into the cells of the timber due to ability of yellow pine to take deep penetration. Experience also proves that woodpeckers do not attack Creosoted Pine Poles.

Even in localities where white ants totally honey-combed pole lines and where woodpeckers so completely riddled the poles as to necessitate the replacement of entire lines with Creosoted Pine—the Creosoted Pine Poles proved practically immune.

*International Creosoted Pine Poles in the line of the Eastern Texas Electric Co., Beaumont, Texas.*

**International Creosoting & Construction Co.**  
Galveston—Texarkana—Beaumont

# *International* Creosoted Yellow Pine Poles

*Where performance counts*

use  
Le Carbone Carbon Brushes.

*They talk for themselves*

**W. J. Jeandron**

Factory Terminal Bldg.,  
Fifteenth Street, Hoboken, N. J.  
Pittsburgh Office: 634 Wabash Bldg.  
Chicago Office: 1657 Monadnock Block  
San Francisco Office: 525 Market Street  
Canadian Distributors: Lyman Tube & Supply Co., Ltd.  
Montreal and Toronto

# PANTASOTE

Trade Mark

Seat and Curtain Materials  
*There is no substitute for Pantasote*

# AGASOTE

Trade Mark

Roofing—Headlining—Wainscoting  
*The only homogeneous panel board*

*standard  
for electric railway cars  
and motor buses*

**The PANTASOTE COMPANY Inc.**

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250 Park Avenue  
NEW YORK



People's Gas Bldg., Chicago, Ill.

## M-J Armature Babbitt



No less than twenty-five different grades of Babbitt have been successfully perfected in the More-Jones line, designed for various services and at varying prices. "Armature" for electric railways is the recognized standard. *Let us quote you.*

More-Jones Brass & Metal Co.  
St. Louis, Mo.

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QUALITY PRODUCTS**

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410 North Michigan Ave.  
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## Griffin Wheels

with  
Chilled Rims  
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Chilled Back of Flanges  
For Street and Interurban  
Railways

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FOR SAFETY  
FROM FIRE  
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IMPROVED  
**Pyrene**  
TRADE MARK  
FIRE  
EXTINGUISHER

Safety demands that every car or bus be equipped with a *Pyrene* Fire Extinguisher. The riding public expect and are entitled to the protection from fire which this extinguisher assures.

Aside from the protection from fire afforded by such installation, to both rolling stock, operator and passengers, the schedule of the Central Traction and Lighting Bureau specifies a charge of 5¢ on motor buses, 3¢ on interurban and 1¢ on urban cars, for the absence of fire extinguishers.



The slight outlay involved by having rolling stock equipped with an Improved *Pyrene* (one-quart) Fire Extinguisher should be regarded as an investment—a device that helps make safety from fire certain should be popular.

Safety adds to the revenue of the operating company by inspiring confidence in the riding public toward modern transportation.

Many of the leading Public Service Corporations recognize this and have equipped their cars and buses with *Pyrene* Fire Extinguishers—they know a burning car or bus need not be abandoned if a *Pyrene* Fire Extinguisher is at hand.

For the protection of electrical equipment, power houses, car barns, shops and storerooms *Pyrene* (1½ quart) Fire Extinguishers are dependable in every emergency.

PYRENE MANUFACTURING CO.  
NEWARK, N. J.

*"Fortify for Fire Fighting"*

# Nuttall

and  
Timken!



*Nuttall US 20A Trolley Base  
Equipped with Timken Tapered Roller Bearings*

Two old-time names in which the public has a lot of confidence. Both companies make products in which the public has had a lot of confidence for a long time. Just try, to imagine how many people are riding on Timken Bearings and under Nuttall Trolleys right today.

And now the Nuttall US 20A trolley is equipped with Timken Swivel Bearings—and that settles the bearing question—the friction question.

It is also equipped with a system that settles the lubrication question—fill the reservoir about twice a year, and forget it.

It is equipped with 1000 Ampere Capacity Shunts and that settles the arcing question.

Now Nuttall settles another question—the price question.

*Send for specifications and proposition.*

**R.D. NUTTALL COMPANY**  
PITTSBURGH  PENNSYLVANIA

All Westinghouse Electric & Mfg. Co.  
District Offices are Sales Representatives  
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Railway and Mine Hoisting Products.  
In Canada: Lyman Tube & Supply Co.,  
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# Nuttall

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Engineer—2301 Connecticut Ave., N.W., Washington, D. C.

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# THE BABCOCK & WILCOX COMPANY

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Builders since 1868 of  
Water Tube Boilers  
of continuing reliability

Makers of Steam Superheaters  
since 1898 and of Chain Grate  
Stokers since 1893



WORKS  
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Barberton, Ohio

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PHILADELPHIA, Packard Building  
PITTSBURGH, Farmers Deposit Bank Building  
CLEVELAND, Guardian Building  
CHICAGO, Marquette Building  
CINCINNATI, Traction Building  
ATLANTA, Candler Building  
PHOENIX, ARIZ., Heard Building  
DALLAS, TEX., 2001 Magnolia Building  
HONOLULU, H. T., Castle & Cooke Building  
PORTLAND, ORE., 805 Gasco Building

BRANCH OFFICES

DETROIT, Ford Building  
NEW ORLEANS, 344 Camp Street  
HOUSTON, TEXAS, 1011-13 Electric Building  
DENVER, 444 Seventeenth Street  
SALT LAKE CITY, 405-6 Kearns Building  
SAN FRANCISCO, Sheldon Building  
LOS ANGELES, 404-6 Central Building  
SEATTLE, L. C. Smith Building  
HAVANA, CUBA, Calla de Agular 104  
SAN JUAN, Porto Rico, Royal Bank Building

## Commercial Co-ordination of Transportation

**A. B. Cole**

Commercial Consultant  
500 Shelbourne Ave., Wilkesburg, Pa. (Pittsburgh)

## Our advertisement in the issue of March 5 showed how HASKELITE and PLYMETL

help produce modern street cars that invite the rider and are economical to operate. Haskelite and Plymetl have been specified on a recent order for 24 cars being built by National Steel Car Corp. *Another ad will appear next week.*

HASKELITE MANUFACTURING CORPORATION  
133 W. Washington St., Chicago, Ill.

## KELKER, DELEUW & CO.

CONSULTING ENGINEERS

REPORTS ON

Operating Problems      Valuations      Traffic Surveys

111 W. Washington Street, Chicago, Ill.

## THE P. EDWARD WISH SERVICE

50 Church St.      Street Railway Inspection      131 State St.  
NEW YORK      DETECTIVES      BOSTON

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

## INDUSTRIAL GASES

OXYGEN  
ACETYLENE



HYDROGEN  
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Quick shipment and low prices also on cylinders, valves, torches, regulators and supplies.

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WRITE FOR OUR NEW DESCRIPTIVE CATALOG

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Black      and      Yellow  
Varnished Silk, Varnished Cambric, Varnished Paper

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Sales Representatives in the Principal Cities

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STEEL PRODUCTS**



**Steel Axles Steel Springs  
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**National Railway Appliance Co.**

Grand Central Terminal, 452 Lexington Ave., Cor. 45th St., New York

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Hegeman-Castle Corporation, Railway Exchange Building, Chicago, Ill.

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National Hand Holds	Anderson Slack Adjusters
Genesco Paint Oils	Economy Electric Devices Co., Power Saving and Inspection Meters
Dunham Hopper Door Device	"Tapeseal" Lampe
Garland Ventilators	Bus Lighting Equipment
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**The DIFFERENTIAL CAR**



*Standard on  
60 Railways for*

Track Maintenance  
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Ash Disposal  
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Hauling Cross Ties  
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*Use These Labor Savers*

Differential Crane Car  
Clark Concrete Breaker  
Differential 3-way Auto Truck Body  
Differential Car Wheel Truck and Tractor

**THE DIFFERENTIAL STEEL CAR CO., Findlay, O.**

*Helping  
Manufacturers to  
Serve You More  
Efficiently*

Through McGraw-Hill questionnaires we have been able to give manufacturers facts which have helped them standardize on sizes most acceptable in a particular industry.

We have also through McGraw-Hill questionnaires been able to convince manufacturers that they have been delinquent in rendering service.

So when you receive a McGraw-Hill questionnaire you can fill it out, confident that it will return to you in the form of better service to your business.

THE PUBLISHERS

# SEARCHLIGHT SECTION

USED EQUIPMENT & NEW—BUSINESS OPPORTUNITIES

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Positions Wanted, 4 cents a word, minimum 15 cents an insertion, payable in advance.  
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**INFORMATION:**

Box Numbers in care of any of our offices count 10 words additional in undisplayed ads.  
Discount of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

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**POSITIONS VACANT**

ASSISTANT to engineer, M. of W. graduate. Write experience—salary expected. Box 781, East Liverpool, Ohio.

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GOOD, versatile man of personality and character. Successful record as transportation executive. Particularly adapted to personnel work. Correspondence solicited. PW-981, Electric Railway Journal, 7 So. Dearborn St., Chicago, Ill.

OPERATING official available. Broad experience, fine record of achievements, city and interurban properties, East and Central West. Recognized ability, successful in handling labor, public relations, selling transportation, increasing revenue, accident prevention, solving traffic problems. Progressive, efficient and a worker for results. Fine references. Correspondence and appointments for personal interview invited. PW-977, Electric Railway Journal, Guardian Bldg., Cleveland, Ohio.

SUPERINTENDENT of railways with 20 years' experience, desires for personal reasons to make change. Nation wide reputation as railway operator. Can take full charge. Has ability to handle men and show results, correspondence invited and treated in confidence. PW-979, Electric Railway Journal, 7 So. Dearborn St., Chicago, Ill.

UTILITIES executive available. Engineering graduate, broad operating and executive experience, railway, also light and power. Young and progressive with tried and proven ability. Railway activities known to the industry. At present employed; seek opportunity with larger interests. The opportunity for past successful methods to produce relatively greater results. PW-972, Electric Railway Journal, Tenth Ave. at 36th St. New York.

**SALESMAN AVAILABLE**

LET me put on your preferred stock customer ownership sale. Can successfully conduct campaign of any size and handle both sales and accounting details. Wide experience. Highest of references. SA-980, Electric Railway Journal, 7 So. Dearborn St., Chicago, Ill.

**FOR SALE**

**Rotary Converters**

2—G. E. Co., 300 kw. type T.C. 6-300-1200 form P. 1200 r.p.m., 60 cycle, 6 pole, 600 volt, direct current rotary converters.

**Transformers**

4—G. E. Co., 150 kw. type H, form SPQT 2300-v./370 v. O.I.S.C. transformers with reactance coils, field rheostat, aluminum cell lightning arresters, equalizer switches, starting switches. In first class condition. Low price. Delivery April 1, 1927.

JOHN C. GILPIN, Esq.  
1500 Liberty Trust Bldg., Phila., Pa.

**FOR SALE**

**15 BIRNEY SAFETY CARS**

Brill Built  
West. 508 or G. E. 284 Motors  
Cars Complete—Low Price—Fine Condition  
ELECTRIC EQUIPMENT CO.  
Commonwealth Bldg., Philadelphia, Pa.

**AIR COMPRESSORS**

12 General Electric CP-27.  
6 General Electric CP-28.  
16 Westinghouse DH-16.  
IRVING S. VAN LOAN CORPORATION  
1750 Broadway, New York City  
Specialists in street cars or any part of a street car.  
Illustrated bulletin supplied on request.

**WANTED**

**Electric Locomotives**

2—50 or 60 ton, 1200 or 1500 volt D.C. standard gauge. In quoting, specify complete details, including control.  
THE RED RIVER LUMBER COMPANY  
Westwood, Calif.

**To Employers Who Advertise for Men:**

The letters you receive in answer to your advertisements are submitted by each of the applicants with the hope of securing the position offered.

When there are many applicants it frequently happens that the only letters acknowledged are those of promising candidates. Others do not receive the slightest indication that their letters have even been received, much less given any consideration. These men often become discouraged, will not respond to future advertisements, and sometimes even question if they are bona fide.

We can guarantee that *Every Advertisement Printed in the Searchlight Section Is Duly Authorized.* Now won't you help keep our readers interested in this advertising by acknowledging every application received, even if you only return the letters of unsuccessful applicants to them marked, say, "Position filled, thank you." If you don't care to reveal your identity, mail them in plain envelopes.

We suggest this in a spirit of helpful co-operation between employers and the men replying to Positions Vacant advertisements.

Searchlight Department  
McGRAW-HILL CO., Inc.

*"Put Yourself in the Place of the Other Fellow"*

6000

## Don't Say, "It isn't worth anything"

THAT surplus Used Equipment you have lying around the shop or yard can be turned into cash! The fact that it is of no further value to you doesn't mean it isn't of value to somebody else. There's always a market for used equipment. Reach the greatest number of prospective buyers for the surplus equipment you have, at a minimum cost, thru an advertisement in the—

### SEARCHLIGHT SECTION

# WHAT AND WHERE TO BUY

Equipment, Apparatus and Supplies Used by the Electric Railway Industry with Names of Manufacturers and Distributors Advertising in this Issue

**Advertising, Street Car**  
Collier, Inc., Barron G.

**Air Brakes**  
Westinghouse Air Brake Co.

**Anchors, Goy**  
Elec. Service Supplies Co.  
Ohio Brass Co.  
Westinghouse E. & M. Co.

**Armature Shop Tools**  
Columbia Machine Works  
Elec. Service Supplies Co.

**Automatic Regulators, Voltage, Current & Synchronizing**  
American Brown Boveri Corp.

**Automatic Return Switch Stands**  
Ramapo Ajax Corp.

**Automatic Safety Switch Stands**  
Ramapo Ajax Corp.

**Axles**  
Bemis Car Truck Co.  
Bethlehem Steel Co.  
Brill Co., The J. G.  
Cincinnati Car Co.  
St. Louis Car Co.  
Standard Steel Works  
Westinghouse E. & M. Co.

**Axles, Steel**  
Carnegie Steel Co.

**Babbitt Metal**  
More-Jones Brass & Metal Co.

**Babbitting Devices**  
Columbia Machine Works & M. I. Co.

**Badges and Buttons**  
Elec. Service Supplies Co.  
International Register Co.

**Batteries, Storage**  
Willard Storage Battery Co.

**Bearings and Bearing Metals**  
Bemis Car Truck Co.  
Brill Co., The J. G.  
Cincinnati Car Co.  
Columbia Machine Works & M. I. Co.  
General Electric Co.  
More-Jones Brass & Metal Co.  
St. Louis Car Co.  
Westinghouse E. & M. Co.

**Bearings, Center and Roller Side**  
Cincinnati Car Co.  
Columbia Machine Works  
Stucki Co., A.

**Bells and Buzzers**  
Consolidated Car Heating Co.

**Bells and Gongs**  
Brill Co., The J. G.  
Cincinnati Car Co.  
Columbia Machine Works & M. I. Co.  
Elec. Service Supplies Co.  
St. Louis Car Co.

**Benders, Rail**  
Railway Trackwork Co.

**Bodies, Bns**  
Baker-Raulang Co.  
Brill Co., The J. G.

**Bodies, Passenger Car**  
Baker-Raulang Co.

**Body Material, Haskelite and Plymet**  
Haskelite Mfg. Corp.

**Bollers**  
Babcock & Wilcox Co.

**Bond Testers**  
American Steel & Wire Co.  
Elec. Service Supplies Co.

**Bonding Apparatus**  
American Steel & Wire Co.  
Elec. Service Supplies Co.  
Ohio Brass Co.  
Railway Trackwork Co.  
Una Welding & Bonding Co.

**Bonds, Rail**  
American Steel & Wire Co.  
Elec. Service Supplies Co.  
General Electric Co.  
Ohio Brass Co.  
Railway Trackwork Co.  
Una Welding & Bonding Co.

**Braces, Timber**  
Duff Mfg. Co.

**Braces, Trench**  
Duff Mfg. Co.

**Brackets and Cross Arms (See also Poles, Ties, Posts, etc.)**  
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Elec. Ry. Equipment Co.  
Elec. Service Supplies Co.  
Hubbard & Co.  
Ohio Brass Co.

**Brake Adjusters**  
Brill Co., The J. G.  
Cincinnati Car Co.  
National Ry. Appliances Co.  
Westinghouse Tr. Br. Co.

**Brake Lining, Asbestos**  
Johns-Manville Corp.

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American Brake Shoe & Foundry Co.  
Bemis Car Truck Co.  
Brill Co., The J. G.  
St. Louis Car Co.

**Brake Testers**  
National Ry. Appliances Co.

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Bemis Car Truck Co.  
Brill Co., The J. G.  
Cincinnati Car Co.  
Columbia Machine Works & M. I. Co.  
General Electric Co.  
National Brake Co.  
St. Louis Car Co.  
Westinghouse Tr. Br. Co.

**Brakes, Magnetic Rail**  
Cincinnati Car Co.

**Brushes, Carbon**  
General Electric Co.  
Jeandron, W. J.  
LeCarbone Co.  
Westinghouse E. & M. Co.

**Brushholders**  
Columbia Machine Works  
Building Materials, Fireproof  
Johns-Manville Corp.

**Bulkheads**  
Haskelite Mfg. Corp.

**Bus Lighting**  
National Ry. Appliances Co.

**Bus Wheels, Steel**  
Heywood-Wakefield Co.

**Buses**  
Brill Co., The J. G.  
International Motor Co.  
Mack Truck Co., Inc.  
St. Louis Car Co.

**Bushings, Case Hardened and Manganese**  
Bemis Car Truck Co.  
Brill Co., The J. G.  
Cincinnati Car Co.  
Columbia Machine Works  
St. Louis Car Co.

**Cables (See Wires and Cables)**  
Cambridge Tapes, Yellow and Black Varnish  
Irvington Varnish & Ins. Co.

**Carbon Brushes (See Brushes, Carbon)**  
Car Lighting Fixtures  
Elec. Service Supplies Co.  
Car Panel Safety Switches  
Consolidated Car Heating Co.  
Westinghouse E. & M. Co.

**Car Steps, Safety**  
Cincinnati Car Co.

**Car Wheels, Rolled Steel**  
Bethlehem Steel Co.

**Cars, Dump**  
Brill Co., The J. G.  
Differential Steel Car Co.  
St. Louis Car Co.

**Cars, Gas-Electric**  
Brill Co., The J. G.  
General Electric Co.  
Westinghouse E. & M. Co.

**Cars, Gas, Rail**  
Brill Co., The J. G.  
St. Louis Car Co.

**Cars, Passenger, Freight, Express, etc.**  
American Car Co.  
Brill Co., The J. G.  
Cincinnati Car Co.  
Kuhlman Car Co., G. C.  
St. Louis Car Co.  
Wason Mfg. Co.

**Cars, Second Hand**  
Electric Equipment Co.

**Cars, Self-Propelled**  
Brill Co., The J. G.  
General Electric Co.

**Castings, Brass Composition or Copper**  
Cincinnati Car Co.  
Columbia Machine Works & M. I. Co.  
More-Jones Brass & Metal Co.

**Castings, Gray Iron and Steel**  
American Steel Foundries  
Bemis Car Truck Co.  
Columbia Machine Works & M. I. Co.  
St. Louis Car Co.  
Standard Steel Works

**Castings, Malleable & Brass**  
Bemis Car Truck Co.  
Columbia Machine Works & M. I. Co.  
St. Louis Car Co.

**Catchers and Retrievers, Trolley**  
Elec. Service Supplies Co.  
Ohio Brass Co.  
Wood Co., Chas. N.

**Catenary Construction**  
Archbold-Brady Co.  
Celling Car  
Haskelite Mfg. Corp.  
Pantaso Co., Inc.

**Ceilings, Plywood, Panels**  
Haskelite Mfg. Corp.

**Cements, High Temperature**  
Johns-Manville Corp.

**Change Carriers**  
Cleveland Fare Box Co.  
Elec. Service Supplies Co.

**Change Trays**  
Cincinnati Car Co.

**Circuit-Breakers**  
General Electric Co.  
Westinghouse E. & M. Co.

**Circuit Breakers, Oil**  
American Brown Boveri Corp.

**Clamps and Connectors for Wires and Cables**  
Columbia Machine Works  
Elec. Ry. Equipment Co.  
Elec. Service Supplies Co.  
General Electric Co.  
Hubbard & Co.  
Ohio Brass Co.  
Westinghouse E. & M. Co.

**Cleaners and Scrapers Track (See also Snow-Plows, Sweepers and Brooms)**  
Brill Co., The J. G.  
Cincinnati Car Co.  
Ohio Brass Co.  
St. Louis Car Co.

**Clusters and Sockets**  
General Electric Co.

**Coll Banding and Winding Machines**  
Columbia Machine Works & M. I. Co.  
Elec. Service Supplies Co.  
Westinghouse E. & M. Co.

**Colls, Choke and Kicking**  
Elec. Service Supplies Co.  
General Electric Co.  
Westinghouse E. & M. Co.

**Colls, Containing Machines**  
Cleveland Fare Box Co.  
International Register Co.

**Coll Sorting Machines**  
Cleveland Fare Box Co.

**Coll Wrappers**  
Cleveland Fare Box Co.

**Commutator Slotters**  
Columbia Machine Works  
Elec. Service Supplies Co.  
General Electric Co.  
Westinghouse E. & M. Co.  
Wood Co., Chas. N.

**Commutator Truing Devices**  
General Electric Co.

**Commutators or Parts**  
Cameron Electrical Mfg. Co.  
Columbia Machine Works & M. I. Co.  
General Electric Co.  
Westinghouse E. & M. Co.

**Compounds, Insulating**  
Johns-Manville Corp.

**Compressors, Air**  
General Electric Co.  
Westinghouse Tr. Br. Co.

**Condensers**  
General Electric Co.  
Westinghouse E. & M. Co.

**Condenser Papers**  
Irvington Varnish & Ins. Co.

**Conduit Duct Underfloor**  
Johns-Manville Corp.

**Conduit, Fibre**  
Fibre Conduit Co.  
Johns-Manville Corp.

**Connectors, Solderless**  
Westinghouse E. & M. Co.

**Connectors, Trailer Car**  
Columbia Machine Works  
Consolidated Car Heating Co.  
Elec. Service Supplies Co.  
Ohio Brass Co.

**Controllers or Parts**  
Columbia Machine Works & M. I. Co.  
General Electric Co.  
Westinghouse E. & M. Co.

**Controller Regulators**  
Elec. Service Supplies Co.

**Controlling Systems**  
General Electric Co.  
Westinghouse E. & M. Co.

**Converters, Rotary**  
General Electric Co.  
Westinghouse E. & M. Co.

**Copper Wire**  
American Brass Co.  
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(Continued on page 38)





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(Continued on page 41)



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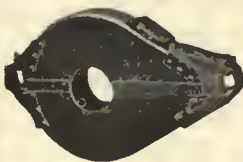
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*equipped with*

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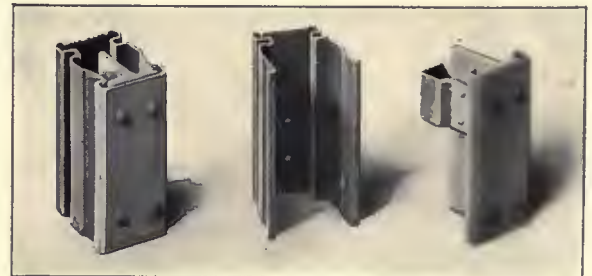
The unusually comfortable slope to its deep spring cushion and spring upholstered back, pitched just right, has resulted in the selection of this type seat on no small number of recent cars.



Brill No. 201-B Seat.

## 2. Brill "Renitent" Posts

Holding the window sash under pressure, this type of spring brass post casing protects passengers from uncomfortable drafts, rain and dust, as well as eliminating any tendency toward annoying sash rattle.



Sections showing construction of Brill "Renitent" Posts.

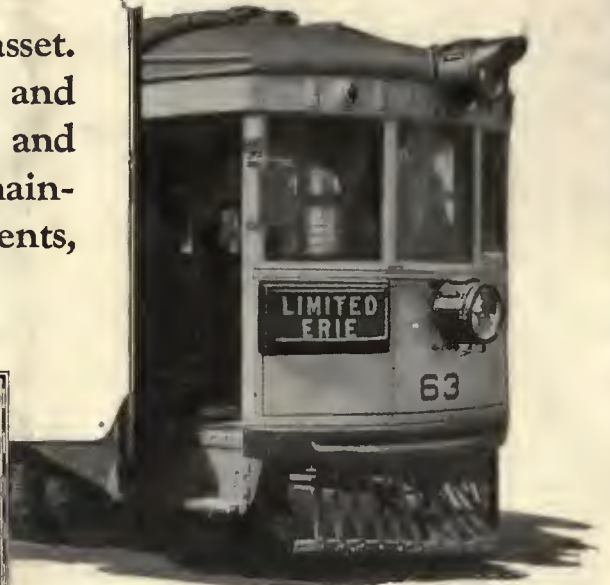
## 3. Brill No. 177-E Trucks equipped with Twin Links

Equally smooth and comfortable riding action of this type truck under light as well as heavy loads due to the Brill Graduated Spring System, Bolster Guide, Oil-retaining Center Bearing and Twin Links is responsible for its popularity. Besides, it is constructed with solid forged side-frames, which denote strength and low maintenance.



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	1924 (Old Cars)	1925 (New Cars)
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Equipment	2.3¢	1.9¢
Power	5.0¢	3.4¢
Transportation	14.0¢	10.7¢
General and miscellaneous	10.6¢	9.8¢
Total	37.5¢	28.9¢

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