

# ELECTRIC RAILWAY JOURNAL

**A**FTER a five-months' test during which they subjected a Republic Knight-Motored Bus to a mileage and passenger loading equivalent to nine months of normal operation, **THE UNITED RAILWAYS AND ELECTRIC CO.** of Baltimore, Md.,

placed their order for 26 Republic Knight-Motored Buses of the type here shown.

This well-known Street Railway Company has operated a large number of Motor-Buses for over five years and its judgment is naturally an expression of sound experience.

Railway Companies are cordially invited to consult our Public Utilities Division without incurring obligation.

**REPUBLIC TRUCK SALES CORPORATION**  
ALMA, MICH.



Republic Knight-Motored Bus with passengers at the Monument in Baltimore.

# REPUBLIC KNIGHT-MOTORED BUS





## Research Laboratory

### Better Materials and Better Methods Are Needed in the Shop

A WALK through the repair shop of an average railway gives an impression of inefficiency in spite of the small number of hard-working men present and the excellent shop system in force. There are apparently too many worn axles and wheels, too many broken or cracked pinions and gears, too many burned field coils or armatures. The railway operator has devoted long hours to his task in trying to keep going without any money, and the worker is liable to feel that he is working under some great handicap in regard to the materials furnished. One sometimes wonders if the manufacturer of railway materials has also been forced by economic conditions to curtail the research and study necessary to bring about desirable improvements in quality.

At quite frequent intervals in the columns of this paper articles on manufacturers' tests and inspection of railway material have been printed. In these an attempt has been made to demonstrate the great care that is exercised by them to insure the maintenance of a high standard of quality. The manufacturer is just as vitally interested in having his materials give good service as is the operator. He realizes that one of the essentials of sound business is to give satisfactory service, and this can only be accomplished if the highest grade of material enters into his product. To offset this fact, at the present time, without doubt, materials are subjected to more severe conditions than ordinarily. In fact the severity of electric railway operating conditions is continually increasing. The present conditions of heavy overload and deferred equipment and track maintenance add one more element of stress to the equipment parts.

There is one point that should not be lost sight of, however, namely, that the scrap heap is an excellent place to study weaknesses of material, and the equipment of electric railways at the present time is certainly in a condition to afford valuable data. The battle-scarred motors, axles, pinions, gears and truck frames will afford suggestions for improving the situation.

Every economy counts and if a better grade of steel, a better lubricant or method of lubrication, a better method for installing and maintaining gearing can be developed by the manufacturer in co-operation with the railway shops, then every encouragement should be given to research work of this character.

Editorial from March 11, 1922 issue of Electric Railway Journal

## Westinghouse Renewal Parts

have back of them this modern and well equipped facility, combined with engineering talent ranking with the country's foremost ability.

By using

## Genuine Westinghouse Renewal Parts and Supplies

you secure the benefit of this quality service, which assures reliability, extended life and consequent low cost for upkeep.



Westinghouse Electric & Manufacturing Company  
East Pittsburgh, Pa.



# Westinghouse



# Electric Railway Journal

HENRY W. BLAKE and HAROLD V. BOZELL, Editors

HENRY H. NORRIS, Managing Editor

## CONTENTS

Editorials .....585

Track and Wiring on a Large Bridge.....587  
The Connecticut Company has recently completed interesting track and overhead construction on the new "Washington" Bridge, spanning the Housatonic River near Stratford. A number of novel features are introduced.

Preparing for Electric Traction.....591

Examination for Foremen.....592  
The Beaver Valley Traction Company asks answers to sixty-seven questions relating to the system to test the knowledge of its employees.

Foreign Standards Available Through American Engineering Standards Committee.....592

New Facilities for Kansas Interurban Improve Earnings.593  
By C. M. MORRISON.

Private right-of-way into Wichita and new passenger and freight terminals and shops built, roadbed improved and new steel cars purchased.

Santa Fe Line Proposes to Extend Into San Pedro Harbor of Los Angeles.....595

Checking Idle Time of Locomotives and Service Cars....596

Electric Railway Publicity.....598

Valuation of Public Utilities for Taxation.....600  
By EDMUND J. BRABANT.

Experiences Exchanged by Members of C. E. R. A. Engineering Council .....603

Difficulties Confronting Electric Railways in California..604

American Association News.....605

Laws of the Electric Railways.....607

Financial and Corporate.....611

Traffic and Transportation.....615

Legal Notes .....618

Personal Mention .....619

Manufactures and the Markets.....621



**T**HIS week sixty service men, wearing in their coat lapels the button shown above, are meeting at the home of the ELECTRIC RAILWAY JOURNAL. They have come to their home office from the shores of the Pacific and the Gulf, from the plains and from the mountains, from New York and from the nameless mining camp. An aggregate of more than 50,000 miles they will have traveled before they return to their appointed tasks as McGraw-Hill field men.

These men, our pioneers and scouts, our eyes and ears, travel constantly to help us to be useful to you. Their mission it is to carry the message of McGraw-Hill service to industry to the men who can profit by our publishing activities. It is through them that many of our readers are first brought into the family of more than 180,000 subscribers to the McGraw-Hill publications, and the keynote of their meeting, therefore, is of direct interest to you.

An officer of our organization, addressing this gathering, voiced the point that concerns you. "You men," said he, "are representatives not only of our publications. You represent also our 180,000 subscribers. If you enroll a subscriber who cannot benefit by what you sell him, you serve neither him nor us. If you do not serve him you do not serve us. You are the very cornerstone of our business. I envy you your opportunity to learn by direct contact with our readers how we can be increasingly useful."

Service to industry, the foundation of our work, is also the slogan of these McGraw-Hill field men. Whether they call on you to discuss subscriptions, to learn from you some news of the industry, to sense your needs or just to see if there is anything that you would like us to do for you, remember that they are your representatives as well as ours and that back of each of them stand all the energies, contacts and resources of the McGraw-Hill organization—for your use.

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# Westinghouse Type MP Lightning Arresters

400-750 Volts Alternating or Direct Current  
For Car, Line and Station Use

One or two arresters mounted on each car give ample protection under ordinary conditions.



Westinghouse MP Arrester  
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400-750 Volts A-C, or D-C,  
Style 154,297

Auxiliary protection should be provided by mounting MP (Multipath) Arresters on the line, about five to the mile.



Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

# Westinghouse





# MAXIMUM SAFETY!

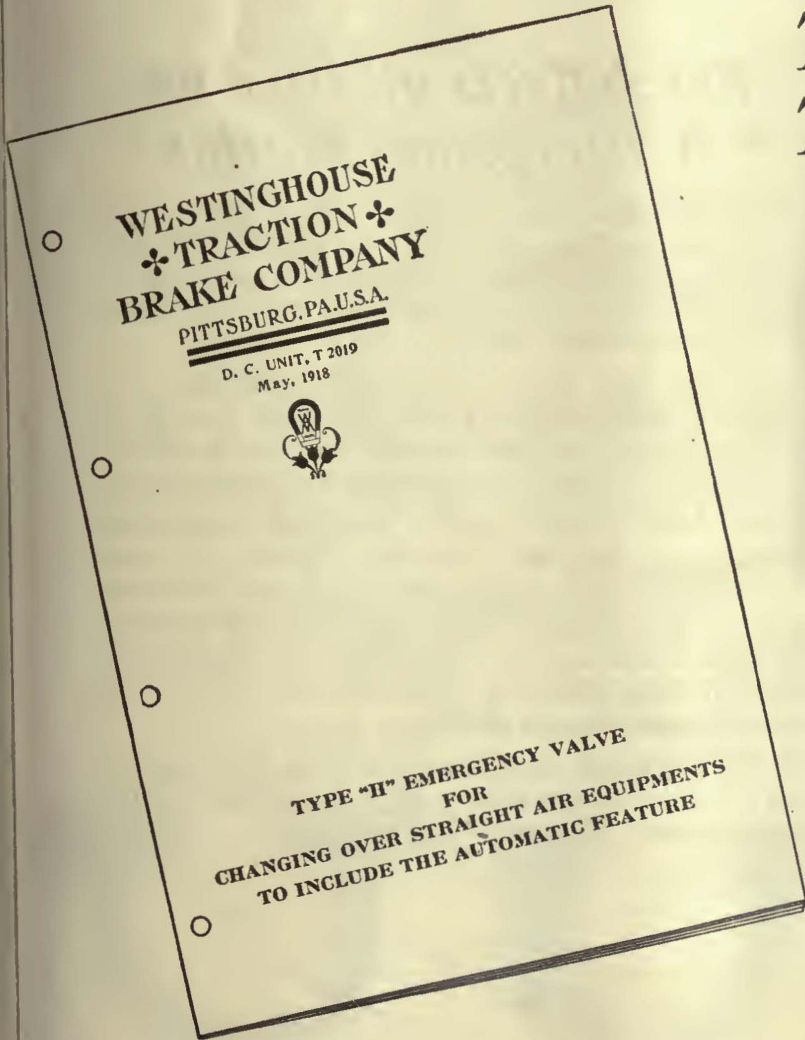


## *This Leaflet Tells You How*

How to secure maximum safety in car operation by changing over your existing Straight Air Brake equipments to include the more advanced Automatic Emergency Feature is the subject of Descriptive Catalog T-2019, which is yours for the asking.

This change-over is accomplished easily and quickly, with slight expense, merely by adding the Westinghouse "H" Emergency Valve. The flexibility of the straight air equipment is not impaired and there is no change whatever in the brake valve or its manipulation.

*The "H" Emergency Valve offers an economical solution of an important braking problem. Descriptive Catalog T-2019 tells you why.*



*Our representatives are always available for analyses of operating conditions and to render such assistance as may be required in determining the best form of power brake for any class of service.*

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



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# WESTINGHOUSE TRACTION BRAKES



# Insurance plus Marsh & McLennan Service



## *The Effects of Fire on "A Fireproof Station"*

There was no combustible finish in any portion of the building—the walls were brick, the roof was reinforced concrete, carried on steel trusses, the floor was concrete and there was no exterior exposure to the building.

It was used as a rebuilding and drying house for transformers. There were 43 barrels of transil oil (in steel drums) in the building, which was used in recharging the transformers.

A short circuit of the electrical apparatus, piercing with the discharge, one of the steel drums fused the oil, spreading the fire to the entire 43 barrels. The intense heat generated, drew the temper of the steel crane and roof supports, causing them to bend, thereby pulling down the walls and roof. *The entire building and contents were a total loss.*

Marsh and McLennan in addition to protecting you against such losses are able to minimize your hazards and reduce your insurance costs. *May we tell you how?*

# MARSH & McLENNAN

175 W. Jackson Blvd. Chicago, Ill.

Minneapolis  
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# If cars couldn't operate past an unbonded or poorly bonded joint, you'd be money ahead

Would it seem expensive to have a car stalled and idle until the bounding crew could get to the job? That would be cheaper in the end than the way it works out now:

Every poorly bonded joint adds its percentage to power costs.

Every poorly bonded joint puts a drag on the motors—adds minutes to the car's running time.

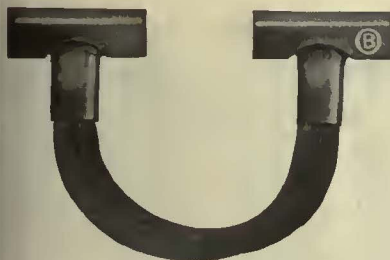
Every poorly bonded joint cuts down voltage so that the motors must pull more current than they should—which means burnt-out armatures sooner or later.

Every poorly bonded joint diminishes the reading light and increases the talking grouch of the rider.

To keep costs down and service up you need good bonds.

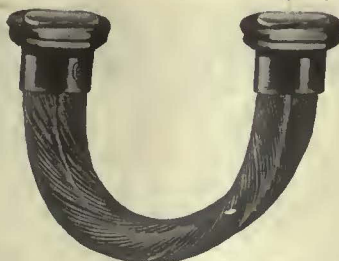
O-B Bonds are good bonds.

You are paying more for poor bonding than good bonding costs.  
O-B Bonds are good bonds.



Type AW-3 Bond for Ball of Rail  
Also made for Base of Rail.

O-B Arc Weld Bonds have four fundamental features which simplify installation and make a better weld possible.



Type ST-2 Bond

O-B Gas Weld Bonds were pioneers. They are still first.



Type F-3 Bond.

Concealed Type of Bond, installed under splice bar.



Type E-2 Bond

A long bond for around the splice bar. Especially valuable on joints where rail movement is considerable.

O-B Stud Terminal Bonds are made in all lengths and capacities with either compressed or pin-driven terminals.

# The Ohio Brass Co.

Mansfield, Ohio, U.S.A.



New York Philadelphia Pittsburgh Charleston, W. Va. Chicago Los Angeles San Francisco Paris, France  
Products: Trolley Material, Rail Bonds, Electric Railway Car Equipment, High Tension Porcelain Insulators, Third Rail Insulators



# Dallas Railway Co.



## *Buys 2 More* **DIFFERENTIAL CARS**

1919—1 *Differential Car*

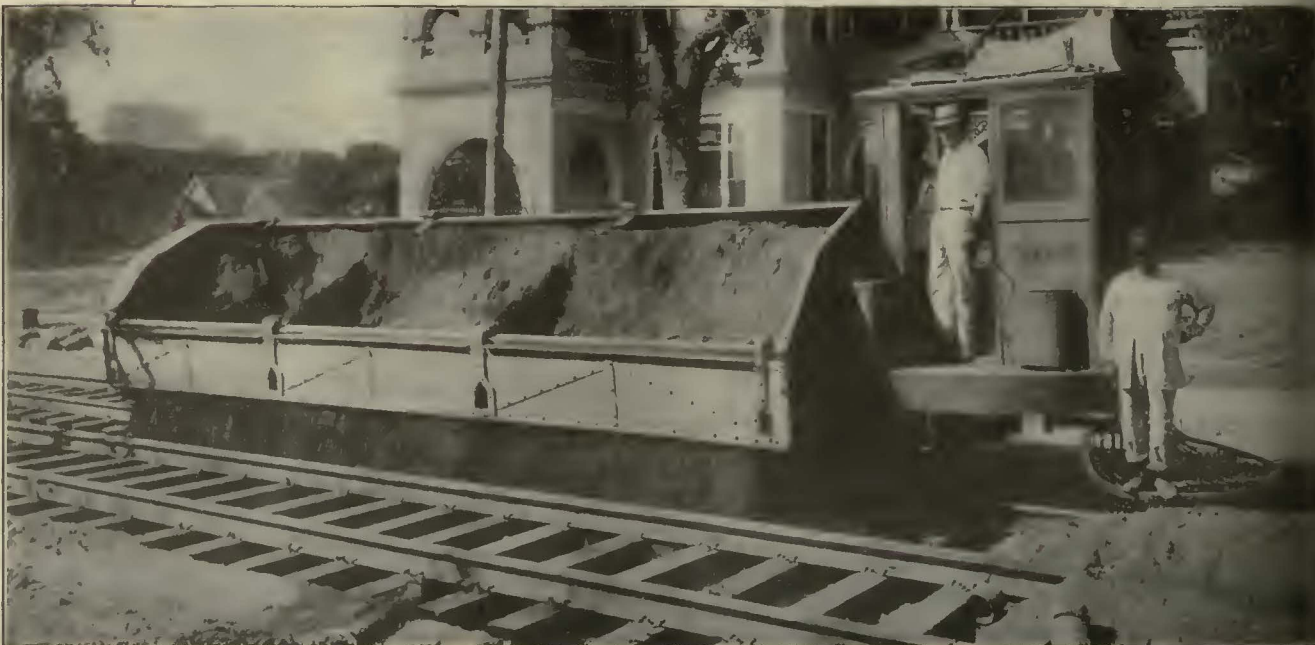
1922—2 *Differential Cars*

The Dallas Railway Company was aware of the saving to be effected by Differential Car operation when they bought their first car in 1919.

The anticipated savings were more than achieved. An now to carry out their construction and maintenance program they buy two more cars. Doesn't the significance of this and all those other Differential repeat orders strike you as impressive? The user is the best judge of economies. Dallas Railway Company's experience in actual money saved can be duplicated in your own case. Any Differential car user will tell you.

**DIFFERENTIAL STEEL CAR CO.**

Findlay, Ohio







Thirty per cent fewer rail fastenings with Steel Twin Tie Track. It has been assembled, aligned and surfaced for 12 cents a foot.

## Check Steel Tie construction with these essentials of good paved track—

*Bearing*—The efficient design of Steel Twin Ties provides 156 square inches of effective bearing per track foot at the lowest cost per unit of bearing—and, where it is most needed, 468 sq. in. of bearing under each joint.

affected by water, temperature variations or rot.

*Economy*—Steel Tie Track minimizes excavation, concrete and track labor. It costs no more than wood ties in rock ballast and its longer life decreases the cost per track-foot per year.

### *Permanent Materials*

—In Steel Twin Tie construction, the tie structure embedded in concrete is not

For estimating get the 1922 prices at your delivery point.

THE INTERNATIONAL STEEL TIE CO., CLEVELAND

# Steel Twin Tie Track



# MILLER



## Trolley Shoes

—meet every requirement  
for increased efficiency

## No Bushings to Contend With

Straight through a heavy copper shunt from the sliding contact to the trolley harp—that's how the current comes through the Miller Trolley Shoe. No wastage of valuable voltage overcoming the resistance of a revolving bearing.

As the Miller Trolley Shoe has no revolving parts, there is no bushing to wear out and no nightly job of lubricating the trolley wheel.

Look up what you spend annually on trolley wheel bushings alone, and the labor of replacing them. Figure that as an additional part of the return you will get on your investment in Miller Trolley Shoes.

## Have You Ever Examined a Miller Shoe?

or have you just glanced at the pictures and passed on. Don't you think the advantages we have been claiming for it, the economies other roads have actually found on it, are worthy of a little more earnest consideration?

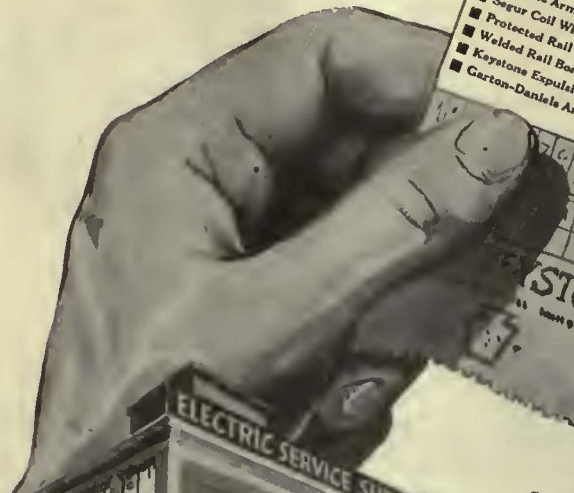
*Send for Sample Shoe*

**The Miller Trolley Shoe Company**  
Boston 21, Mass.



# Transfer to the **KEYSTONE** LINE OF RAILWAY SPECIALTIES

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Railway Specialties**
- Keystone Destination Signs
  - Keystone Steel Gear Cases
  - Faraday Car Signals
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  - Shelby Trolley Catchers
  - Keystone Rotary Poles
  - International Fare Registers
  - Fare Register Fittings
  - Samson Cordegs
  - Keystone Air Valves
  - Keystone Cord Connectors
  - Automatic Trailer Connectors
  - Standard Door Signals
  - Standard Trolley Harps
  - Keystone Trolley Wheels
  - Locks High Voltage Material
  - Peerless Armature Insulators
  - Sagor Coil Winding Tools
  - Protected Rail Bonds
  - Welded Rail Bonds
  - Keystone Expulsion Arresters
  - Garton-Daniels Arresters



Send for the  
Respective Data Sheets.



## **ELECTRIC SERVICE SUPPLIES Co.**

*Manufacturer of Railway Material and Electrical Supplies*

**PHILADELPHIA**

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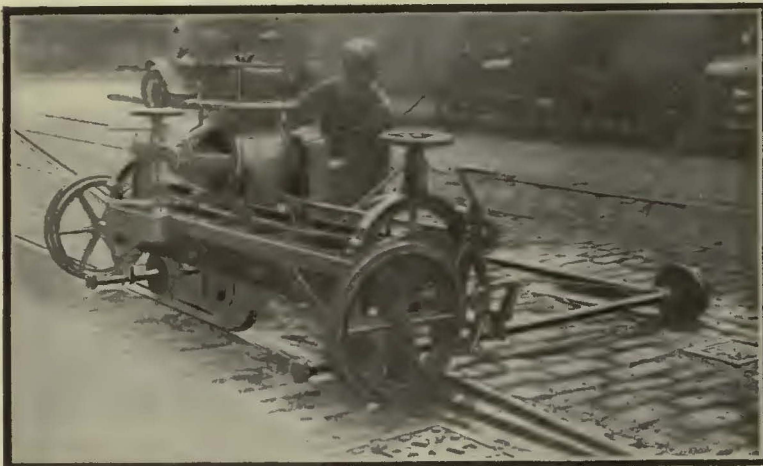


## AJAX Electric Arc Welder

A 155 lb. high capacity resistance welder, especially designed and built for efficient maintenance of railway track.

# Get Busy Now!

*Don't delay that track rehabilitation  
any longer!*



## ATLAS Rail Grinder

An efficient rotary grinder, high speed, light and suitable for working under heavy traffic conditions.



## RECIPROCATING Track Grinder

Unsurpassed for removing all trace of corrugations from straight and curved track.

**RAILWAY TRACK WORK CO., 3132-38 E. Thompson St., PHILADELPHIA, PA.**

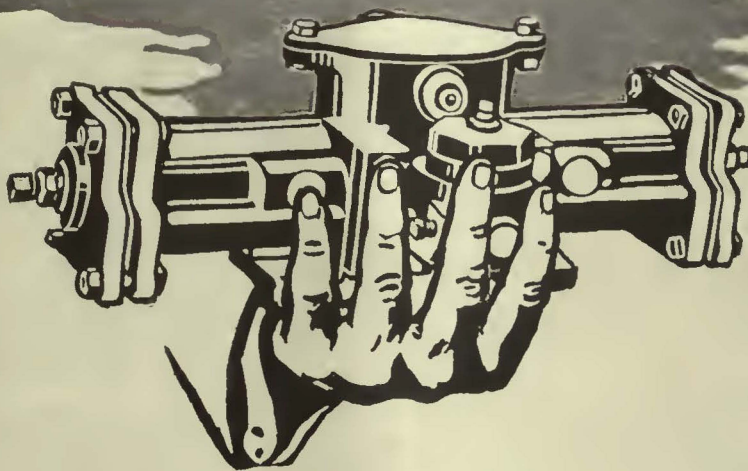
Chas. N. Wood Co., Boston.

Electrical Engineering & Mfg. Co., Pittsburgh.

Atlas Railway Supply Co., Chicago.

P. W. Wood, New Orleans.





## “National Pneumatic”

—says *Hydro-Electric, too!*

For the twenty-five high-grade, single-truck cars which the Hydro-Electric Commission of Ontario has ordered for early operation in different cities of Ontario, it has specified the door and step control of this company.

Thus is confirmed the decision of Montreal, Toronto and other Canadian cities where National Pneumatic equipment is standard either on double-truck cars or as a part of the famous safety car.

Accounts for that Canadian plant, too!

*Producers of*

Pneumatic and Manual Door and Step Control	
Motorman's Signal Lights	Door and Step Operating Mechanisms
Safety Interlocking Door Control	Multiple Unit Door Control

*Manufactured in Canada by  
Dominion Wheel & Foundries, Ltd.  
Toronto, Ont.*

**National Pneumatic Company, Inc.**

50 Church St., New York

Edison Bldg., Chicago

Works: Rahway, N. J.



# QUALITY TIES

**INTERNATIONAL  
TREATMENT**

*Ship Today Service*

*Treated ties in storage in one small portion of our yard at Texarkana, Texas, on February 1, 1922.*

Having Seasoned Ties in stock ready for right-of-way distribution, we can serve the Railroad Field advantageously and economically.



"Creosoting is conceded to be the most effective of all treating processes" (Camp)

*International Treated Ties Reduce Maintenance Expense—  
Insure Operating Efficiency*

**CREOSOTED**  
TIES PILING POLES TIMBERS

**International Creosoting & Construction Co.**

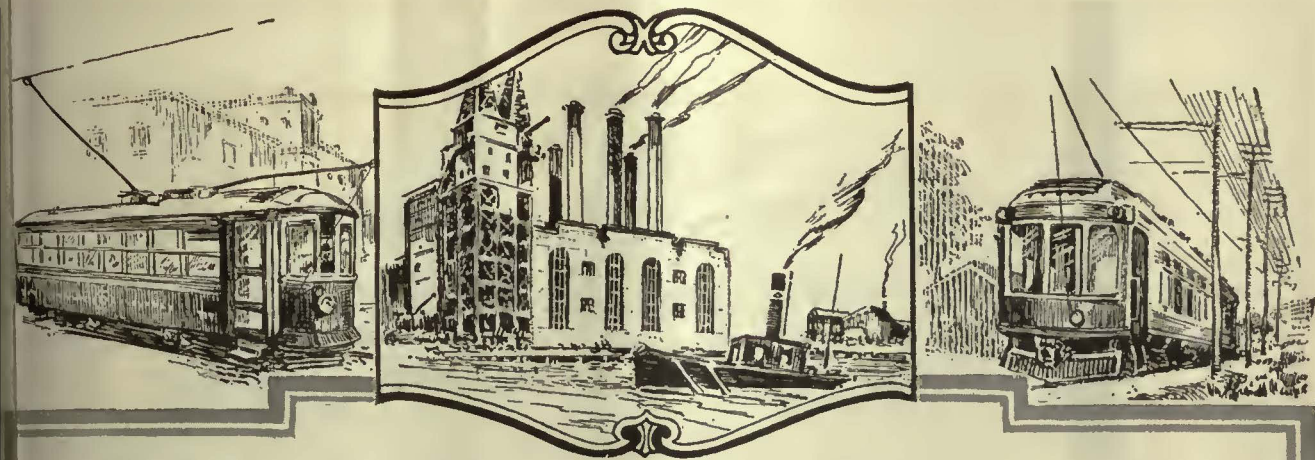
General Office—Galveston, Texas

Texarkana, Texas.

Plants  
Beaumont, Texas.

Galveston, Texas.





The sprouting of the green growing things; the swish of the house-wife's broom; the thump of the beaten carpet—all proclaim it! Man follows nature—you can see it all along the line. Fresh paint here and there. The car barns get a little extra cleaning, uniforms of the men look a little sprucer; the brass work in the power-house and substation gets an extra rub. Somebody wipes off the face of the old clock. Even the superintendent's desk comes under the spell!

And it is good to make these little changes.  
Some of them are very important.  
For instance, now, the careful Oilhouse Man  
no longer issues *winter* oils.  
He changes to

**Texaco Summer Electric Car Oil.**  
**Texaco Summer Air Compressor Oil**  
**Texaco Summer Gear Lubricants.**

He does this to be ready for warm weather conditions.

For these oils are carefully refined to give the most effective lubrication, as they take into account the seasonal difference in temperature. As is well known, all oils tend to thin out a little under exposure to rising temperature. Hence our Texaco summer lubricants are made with a somewhat higher viscosity than the winter oils. Thus, under summer work-

ing conditions, they all have the proper ACTUAL viscosity for the work in hand. And by changing seasonally you will come pretty close to getting identical lubricating conditions throughout the year.

Now, if by any chance, your oil supplies need replenishing, let this be your memo.

And remember, also, there is a Texaco Lubricant for every purpose, unexcelled for the lubrication of Rolling Stock, Power Plant or Shop.



# THE TEXAS COMPANY

DEPT. R-J · 17 BATTERY PLACE · NEW YORK CITY  
HOUSTON · CHICAGO · NEW YORK  
OFFICES IN PRINCIPAL CITIES





## *Do you know who makes the best Bearings for your purpose?*

**M**ANY Bearing manufacturers can make Bearings to meet your specifications. How do you choose from these?

In such a case do you let price be your deciding factor?

It should be—in combination with certain other equally important factors—all of which can be arrived at through the use of the K-V Standards of Comparison.

When you purchase Armature and Axle Bearings by using the K-V Standards of Comparison, you can be sure that you have bought the best Bearings for your road and that the manufacturer will deliver the thousandth Bearing as carefully made and machined as the first and that the tolerances will always be the same.

The manufacturer who gets your order as a result of your having used the K-V Standards will be one who has enough faith in his Bearings to submit them to this most rigid comparison.

**COLUMBIA  
BEARINGS**  
*are sold under the*  
**K-V**  
**STANDARDS**  
*of*  
**COMPARISON**

## **COLUMBIA MACHINE WORKS**

&

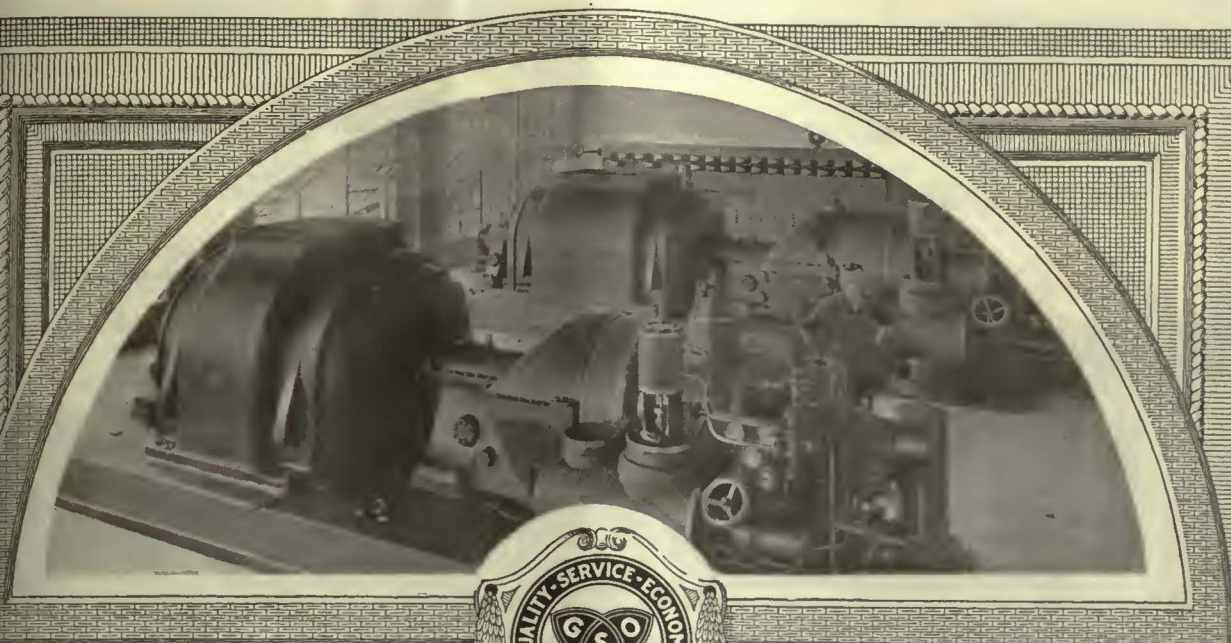
**MALLEABLE IRON COMPANY**

**3303 ATLANTIC AVENUE, BROOKLYN, N. Y.**

REPAIR AND SHOP MACHINERY, ARMATURE AND AXLE  
BEARINGS, ARMATURE AND FIELD COILS, TROLLEY  
WHEELS AND POLES, RAILWAY MOTOR PARTS,  
CONTROLLER PARTS, RESISTANCE GRIDS, AIR  
BRAKE PARTS, CAR TRIMMINGS, LINE  
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## Galena Turbine Oils

Made from specially selected stocks that are marketed only by this company. Purest of straight mineral oils, filtered, non-emulsifying and free from acid.

Galena Turbine Oils — light, medium, heavy — and Galena White Turbine Oil must, from the crude to the finished state, conform with Galena Quality specifications. Suitability for the work required is the first consideration.

These oils are giving exceptional service on both unit and gravity systems in turbine lubrication and the lighter grades have demonstrated the value of oil quality, where used in high speed light turbines, reciprocating engines and fast running machinery of all kinds.

*In the world of lubrication Galena Quality is always interpreted as "The Best."*



**Galena-Signal Oil Company**

New York

Franklin, Pa.

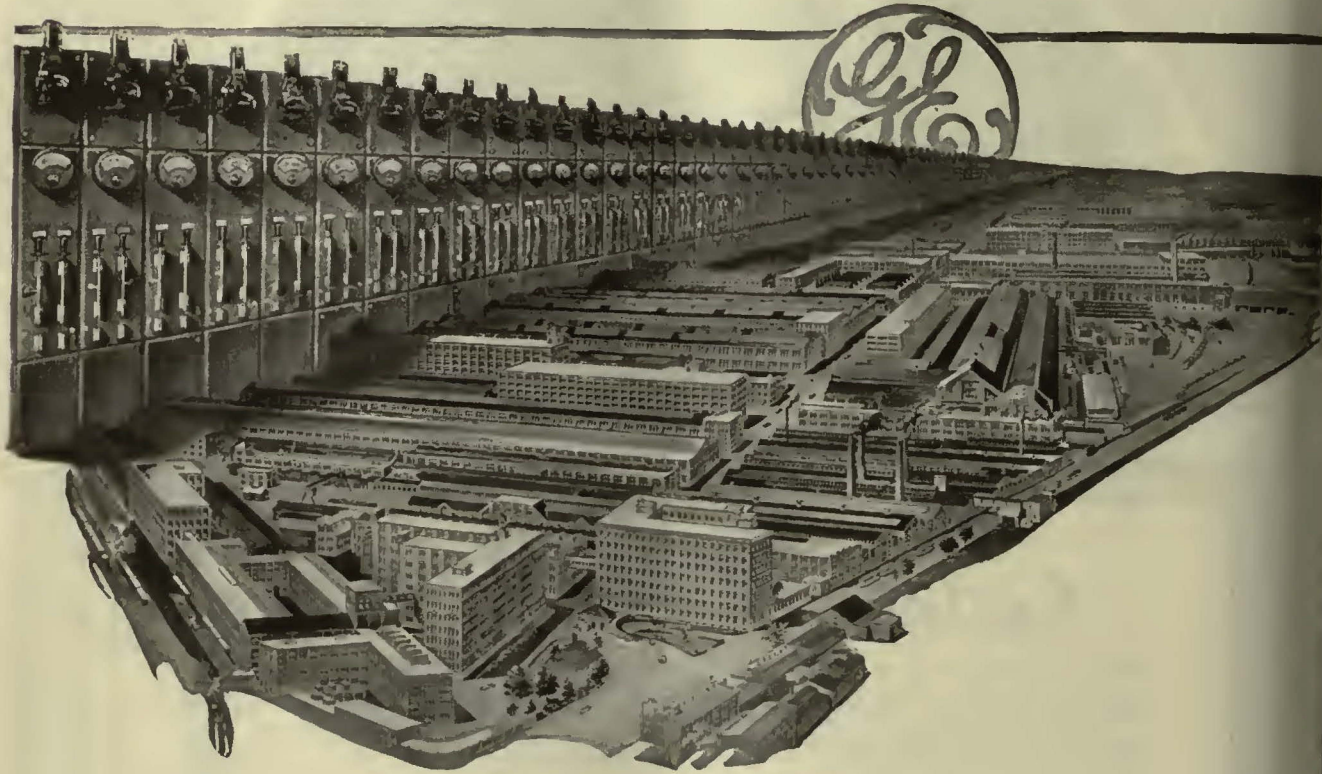
Chicago

and offices in principal cities





*The confidence of purchasers is the most enduring foundation for sales records*



## 50 Miles of Proof


**T**HE G-E Switchboards shipped from the Schenectady factory would, if placed side by side, make a wall of slate and marble more than 50 miles long.

Their quality is the result of years of research, and the accumulated experience of experts. Every detail of design, manufacture, and assembly is under their strict supervision.

Whether you need to control a 500 Watt generator or a 1,500,000 KW power plant, a G-E Switchboard can be furnished to meet your requirement.



*Consult the G-E Switchboard Specialist in your vicinity.*

**General  Electric Company**  
 General Office Schenectady, N.Y. Sales Offices in all large cities



# Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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BOWERS, Pacific Coast Editor  
PAUL WOOTON, Washington Representative

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G. J. MacMURRAY, News Editor  
R. E. PLIMPTON, Editorial Representative

Volume 59

New York, Saturday, April 8, 1922

Number 14

## Million Dollar Idea

ANTOINETTE FUNK presented an idea at the Mid-Year Dinner that is worth a million to the industry. In connection with her "Bond in Every Home" slogan, she suggested that a special appeal be made to the women in selling the stocks of the companies on the customer ownership plan. The women are usually the legal members of the family. They know how to accumulate a substantial bank account (possibly kept in the "first national bank") through the process of building it up by small additions. Most every wife has a little tucked away somewhere on which she is receiving only 3 per cent or no interest at all. How strong would be the appeal to her, then, to find she could just as well be receiving 6, 7 or 8 per cent on her savings with safety. Undoubtedly there have already been many women among the purchasers of utilities securities. These have responded to the general sales activities and advertising. But it is believed that by putting forth a sales campaign primarily directed to the women, the companies would find this a source of adding many names to the list of stockholders and securing many thousands of dollars for expansion of the business. Mrs. Funk presented the industry with a real financial idea.

## Better Selling Will Help the Railways

REFLECTIONS of increased buying and of renewed activity in physical property maintenance were mentioned last week as appearing in increasing numbers in the columns of this paper. The editors are not anticipating any large amount of new mileage, but this is not an essential to a good year for those serving the field. With finances now permitting, a very substantial betterment program is under way and it is certain to amount up to considerable business because of the deferred work that must be taken care of and because the present competitive era is forcing the replacement of old equipment with new, modern, more economical units and the addition of more facilities, in order to improve service. It is becoming realized with increasing force that with modern equipment and plenty of it so that the service provided can be first class, the electric railways have nothing to fear from competition.

But better selling means not only getting business for the firm. The salesmen owe it to the railways as well as to their firms to make certain that executives have all the information about new and better equipment. Railwaymen are not the kind who seek out the salesman and urge him to take their money. They have to be sold and sold hard, perhaps several times over. They take considerable pride in being hard to convince and, with many problems pressing, they are willing to get rid of a salesman quickly if he "dies" easy. What is needed is some real selling, a reconsecration to good, hard, persistent, intelligent work on the part of the salesmen. For, sad to

say, not all railway executives, either, are alert to the new service demands that are upon them, and some good, strong selling may rouse them to their responsibilities and save the day for them as well as the salesmen. Let's have less of salesmen playing with salesmen and more of salesmen working (and playing) with railway men.

## Every One Would Lose if the Lease Was Broken

THE present deadlock in the New York transit situation is one which peculiarly calls for a give-and-take attitude on the part of all parties concerned. It has arisen through the Manhattan lease which was executed in 1903 and, unless changed, is to continue until 2874. By its terms the Interborough agreed to pay taxes and all interest on the Manhattan Company's bonds as well as 7 per cent on its outstanding stock and \$35,000 annually for organization expenses.

As drafted, the lease was intended to be made as strong as possible, and declares "no reduction of the guaranteed annual dividend rental or in the term of years shall be made without the unanimous consent of the shareholders of record of the lessor"—the Manhattan Company. In other words, the lease is practically a lease to the Interborough by each individual stockholder of his proportion of the property of the company and not a lease by the company as a whole.

Obviously, it is going to be very difficult to get the consent of every stockholder. Hence, the simplest legal way of vacating the lease would seem to be for the Interborough to go into the hands of a receiver and let the receiver void the contract. But this would also be a very serious matter for all concerned; that is to say, not only for the Interborough security holders, particularly the stockholders, but also for the New York Transit Commission, the community at large and the security holders of the Manhattan Railway.

Receiverships are notoriously expensive, so that such action would not be welcomed by the Interborough security holders. The commission would find legal delays acting as a brake on the progress of its unification plan, which it hopes to get finished this summer, and it would have still another large company to bring into line. The public would not only find the present chaotic conditions longer continued, but it might lose the use of some of the extensions built by the Interborough Company for the Manhattan Company, except at an additional fare. Finally, it is hard to see how the Manhattan Company could profit by such a change. It might gain some property or the right to buy that property at a low price from the receiver of the Interborough, and under its original franchise it might be more free to charge a higher fare than at present. On the other hand, besides losing its guarantee, it would have to build up an operating organization, and its operating expenses would naturally be much more than at present. From a transportation and engineering



standpoint, the subway and elevated systems logically should be operated by the same company.

The situation, therefore, presents the rather unusual aspect of one in which each of the four principal parties to it have considerable to lose and nothing to gain by a receivership. In these circumstances it would seem as if they ought to get together. The duty of doing so is directly up to each so far as each can help.

### A Catalyser Is Badly Needed

IN HIS address to the New England Street Railway Club last week E. Mark Sullivan, corporation counsel of Boston, said that the public is generous and is, eventually, right in its opinion or judgment. He also made some complimentary remarks about the management of the Boston Elevated, thus admitting that public utility managements have a speck of generosity, human understanding and ability to work with the public. But what E. Mark did not point out is that frequently one side or both need speeding up in that action which tends ultimately to complete and sympathetic understanding so that "service" may go forward. Too often the conditions are such as to demand a catalytic agent. For example, New York and Chicago.

A catalyser—for those who may have mislaid their chemistries—is a third chemical or agent which, when present with two other chemicals, hastens the chemical action which would eventually take place between the two, though not being a party to the actual affair itself.

In the issue of March 11, in the Publicity Department, there was an example of a catalyser at work. "Verily I Say Unto Thee," by the Little Rock minister, shows one way to expedite the formation of that "eventual" generous and correct public opinion. There are others. The public and the utility managements are, in every community, developing an understanding. But if the public good is to be served, expedition of that understanding is necessary.

To take a text from the Corporation Counsel of Boston and a sermon from a Little Rock minister and apply the result to Chicago and New York may seem far fetched. But the idea appeals as a good one. Surely a good, strong catalyser is necessary in the latter city if not in both.

### Deferring Maintenance Expenditure Is Not Saving Money

DURING the past few years transportation companies have kept down operating expenses by all means within their power. They simply had to do it. One result was to enforce economies and efficiency in a manner that would have been impossible in more prosperous times. This is a real gain, for the habits of thrift formed under adverse circumstances will persist even after times become easier. But along with the more economical operation has gone a paring down of maintenance expenditure which is not economical; on the contrary, it is extravagant, for it is impairing the value of the properties.

Some of the well-known steam roads are conspicuous for the way in which valuable physical property is being allowed to run down through the régime of "economy" which is now the rule. These roads are conspicuous because they are so large, but many smaller steam

roads and many electric roads are following the same procedure. It is easier to reduce operating expenses in this way than any other, hence the popularity of the method. The results, however, will prove most unfortunate in the long run because deterioration in one part of a property reacts on all other parts. And it is difficult to convince the public of the improving quality of service when the same public sees the instruments of that service becoming less effective from month to month.

Retrenchment in maintenance expenditure may have been necessary, drastic retrenchment in some cases. In extreme cases some properties may have to depreciate further. But the fact that the property is running down should be faced frankly. The procedure is not saving money, in spite of a possible presumption that extra wear can be had surreptitiously, so to speak from track, overhead, power plant or rolling stock without any resulting ill effects. Maintenance, if considered over a period of years, is much like the respiration or blood circulation in the human body—cessation spells dissolution.

### More Reasons Why Railways Should Be Relieved of Paving Costs

MUCH has been said about the injustice of making an electric railway pay for the maintenance of the paving which is around its tracks but which it does not use simply because the horse railway, of which it is the successor, used to wear out the paving. Not as much has been said about the different character of paving required and its greater cost now as compared with the kind which the horse railways used to lay between their tracks forty years ago. Nevertheless, this imposition about as serious an injustice on the railway as does the fact that a pavement at all has to be maintained. The point is brought out very clearly in a paper presented recently before a real estate association in San Francisco by W. V. Hill, manager California Electric Railway Association, and published elsewhere in this issue.

From another standpoint also the old requirement of the electric railway to bear the cost of a considerable portion of the paving has become obsolete in some sections of the country.

There are many communities in which the method of paying for pavement improvements has changed. Whereas in early days all street paving was paid for by the city, now the abutting property owners pay for the paving. Under the former method, still in force in many cities, the benefit from the railway's paying part of the paving extended to every taxpayer because it reduced the tax levy of the city. But under the latter method, where the paving is paid for entirely by the property owners, and there is no participation by the city, it is no longer a provision for the benefit of the entire community. Instead of being a provision in the interest of all taxpayers it has changed into a discrimination in favor of that limited number of taxpayers who own property along the line of the railway against the great mass who live off the line and are required to pay the entire paving cost in front of their property.

In addition, then, to the usual reasons for relief from paving tax, those railways in communities where paving is paid for by abutting property owners have a forceful argument for mitigation of their burden which they should be sure to capitalize upon.



## Track and Wiring on Large Bridge

The Connecticut Company Has Recently Completed Interesting Track and Overhead Construction on the New "Washington" Bridge, Spanning the Housatonic River Near Stratford—A Number of Novel Features Are Introduced



THE OVERHEAD WIRE AND TRACK CONSTRUCTION ON THIS NEW BRIDGE ACROSS THE HOUSATONIC RIVER HAS JUST BEEN COMPLETED BY THE CONNECTICUT COMPANY

**D**URING the seventeenth and eighteenth centuries travelers on the Boston Post Road between Bridgeport and New Haven had to use a ferry across the Housatonic River, which at the point where the Post Road crosses the river is about half a mile wide. By the beginning of the nineteenth century, however, the authorities decided a bridge was necessary, and one was built in 1802. Unlike most bridges of that time, it was an uncovered structure, very low, and during perigee or other unusual high tides it was frequently under water. In 1806 there was a big ice flow on the river and the bridge went out into Long Island Sound with the ice.

At that time a popular way by which the authorities provided funds for needed public improvements was to conduct a lottery. The plan was followed to raise the funds in this case, and with the money thus obtained a new bridge was built about 1808. After sixty years of service, this bridge collapsed in July, 1868. In 1892 a new bridge, the third in the series, was again necessary, and it was erected at a cost of \$88,500. This bridge served until the new Washington bridge was ready in November, 1921.

In 1897 the Milford Street Railway received permission to cross the bridge, although it was not wide. The original bridge was made narrow, it is said, through political influence because the steam railroad interests feared trolley competition. There was even no footpath on the bridge until twenty years after it was built.

It was thought in 1892 that the bridge then built was heavy enough to stand the strain of highway travel for years to come, but the traffic on this main highway route between New York and New England has been so increasingly heavy during these twenty years that even as early as 1913 there was much agitation in favor of a new bridge.

Work on the new bridge was started in March, 1920. As will be noticed in the engraving at the beginning of this article, it is much higher above the water line than the old one. While this height accommodated the rise in the bank on the east side of the river, it necessitated

an enormous amount of fill on the west approach. A few general facts in regard to the bridge will be given before the account of the track and trolley construction on it.

The draw is of the bascule type. The counter weights each weigh 583 tons and are so adjusted with reference to the weight of the lifts that two men can open either side of the bridge. Two 37-hp. induction motors are used, one for each lift, but only 20-hp. is necessary to do the work. In the two lifts a total of 813 tons of steel was used; 32 tons of this amount comprises the weight of the two trunnions. All the machinery used in the operation of the lifts would balance a 200,000-lb. weight. For the operation of the bridge, the main cable, pier lamps, roadway lamps, etc., more than 5 miles of wire had to be used.

From the point of junction of the old and new trolley routes on the Stratford side to the Milford side the old distance was 2,706 ft. The new route is 56 ft. shorter, or 2,650 ft. On the old layout the distance from the change in track location on the Stratford side to the center of the bridge is 1,150 ft.; the corresponding distance on the new layout is 1,300 ft. On the old trolley line there were 820 ft. of double track on the Stratford approach up to the bridge, then 666 ft. of single track across the bridge and 1,220 ft. of double track on the Milford approach. The new layout is double track throughout, and it eliminates the only break in double track between Bridgeport and Milford.

On the new bridge the track on the west approach consists of 771 ft., while that on the east approach is 1,014 ft. in length. The length of track on the concrete part of the bridge is 865 ft., 183 ft. of which is on the lifts.

The bridge was built under the direction of engineers of the State of Connecticut, so that in their work of constructing track across this bridge the Connecticut Company engineers had to adapt their work so as not to interfere with the bridge construction.

As the feeders approach the bridge, the first change in construction takes place with the connection of the



overhead construction to the underground feeders on the approach itself. Dossert "T" connectors were used to attach overhead feeders to the feeders that ran down the laterals. From the laterals the feeders were run directly through a manhole without splicing and carried along under one sidewalk up as far as the lift itself.

There were six cables thus strung up to the main pier of the bridge, after having been snaked through underneath the sidewalk. This was necessary because the sidewalk was laid before the work was begun. This made the task a very tedious one because there was a space of only 11 in. between the sidewalk and the concrete stringers. Cleats of wood saturated with carbolinum were placed on each stringer to support cables.

Four of these six cables are made up of 750,000 circ.mil flexible stranded rubber-covered copper wire, one No. 6 rubber-covered copper cable for signal purposes and one No. 0000 copper wire, which was used to carry current merely to neutralize the stray currents which were influencing the Amer-

6 ft. in the mud outside of the dolphin. The distance from the switch box to a similar box on the other side of the bridge is 435 ft.

In the same trench with the feeders are four 750,000 circ.mil cables for the return circuit, connecting the four rails on the two sides of the bridge. These four cables are connected together at each end by a copper bus bar to protect against the failure of any one cable. Through a knife switch on the trunnion of each lift, a common connection is made from the four cables connecting the rails on the standing part of the bridge to a bond connecting the four rails on the bascule lift.

SETTING OF POLES WAS DIFFICULT

Considerable difficulty was encountered in the setting of the poles on the approaches since all the ground on the approaches was fill and not firm. To make the poles

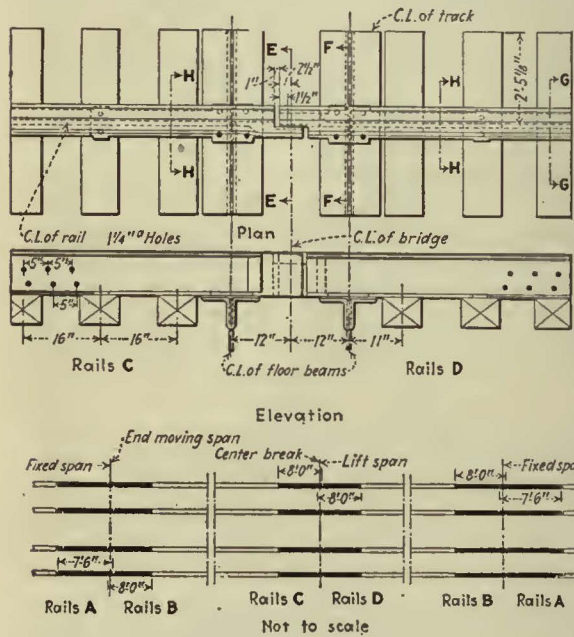
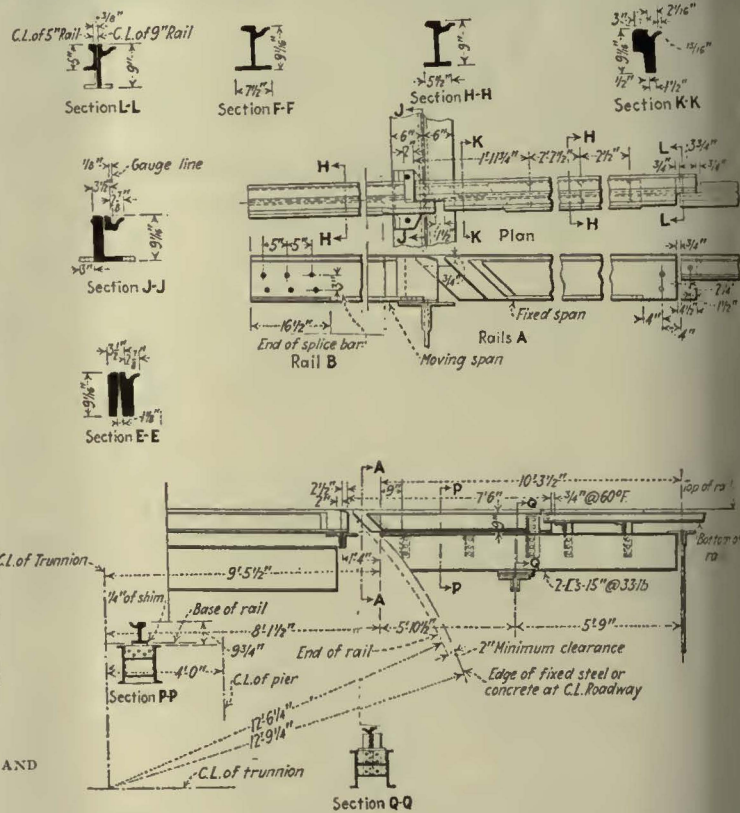


DIAGRAM SHOWING DETAILS OF TRACK CONSTRUCTION AND MANGANESE RUN-OFF RAILS ON LIFT AND FIXED SPAN OF BRIDGE



ican Telephone & Telegraph Company's lines. When they reached the lift the feeders had to be changed from rubber-covered into armor-clad submarine cables, so that they could be carried under water to reach the other side of the channel.

To do this, the feeders were connected to the submarine cables through a switch box employing 1,000-amp. switches for the main cables and a 500-amp. switch for the signal cable. Two spare 1,000-amp. switches were connected with two spare submarine cables in case some misfortune should cut one of the cables already in use. Before reaching this switch box the signal and four feeders were connected through Westinghouse m. p. lightning arresters. These arresters were connected through a common ground wire to a 1 1/2-in. iron pipe, 18 ft. in length. This pipe was driven into the ground inside of the dolphin, and the No. 0000 copper wire from the arresters was welded to a cap on the top of the pipe.

Leaving the switch box, the submarine cables were cleated to the abutment at dead low tide to resist any possible strain from ice, and then were laid in a trench

so that they would not give and allow the wire to slacken, very large holes were dug in the side of the fill, in some cases to a diameter of 16 ft., and boarded to prevent slide. The poles were then set 16 ft. in the ground with cement around their base 6 ft. in depth and 3 ft. in diameter. Fifteen poles were set in this way. Fifty-five chestnut poles were set altogether, and they were afterward graded to the specifications of the bridge engineers. To secure these poles further, they were back-anchored to rails 6 ft. long, which were sunk in the fill and concreted in. Guy wires were then attached. Pole derricks had to be used in setting the wooden poles.

On the bridge itself 3-ton solid reinforced concrete poles with square bottoms were used. These poles were made complete upon the ground and were raised and set in holes about 4 ft. deep. While these poles were being made, a short section of galvanized iron pipe was set in the pole at the proper height for the overhead span wire. A bronze 3-in. x 18-in. eyebolt was later passed through this pipe in the pole to hold the span





APPROACH TO BRIDGE WITH TRACK AND OVERHEAD IN COMPLETED CONDITION



THE ENTRANCE TO LIFT CLOSED AND TRACKS OPEN FOR OPERATION

we. These poles were modeled after the type used on the Eighth Street Bridge by the Lehigh Valley Transit Company in Allentown, Pa.

Seven-strand  $\frac{1}{8}$ -in. copper weld span wire, which is practically free from corrosion from salt water, is used for the overhead and on the bridge is attached to these bronze eyebolts.

#### CONSTRUCTION ON THE LIFT

On the bascule lift the overhead construction used is similar to that employed in similar installations by the Chicago Surface Lines. This system may be called the live trolley wire, which, in this case, is copper and No. 00 in size. Half of the overhead on each lift is rigid, the other half of the wire being kept taut when the bridge opens by a counterweight on a flexible guy wire which takes up the slack as the lift is raised. The wire is drawn back through an idler, which keeps the wire in position, the tension being supplied by a 1,050-lb. weight. The counterweight for each wire is contained within steel towers about 100 ft. from the lift. By a system of sheaves, the ratio of the movement of the wire to the drop of the weight is 3:1.

This overhead construction on the bridge was installed by the state and differs in some respects from the standards in such places of the Connecticut Com-

pany which call for a slack, dead wire. The Connecticut standard allows the wire to hang limp when the bridge is open to navigation, and a knife switch is located on the trunnion which makes and breaks the circuit when the lift is lowered or raised respectively.

#### TRACK CONSTRUCTION ON APPROACHES

The track construction on the approaches consists of 5-in. 80-lb. T-rail, laid on oak and chestnut ties 6 in. x 8 in. x 8 ft. in size. The ties are laid on 2-ft. centers, and the rails are spiked to the ties with  $\frac{1}{8}$ -in x  $5\frac{1}{2}$ -in. cut spikes. Sixty-foot rails are used, the ends being joined together with continuous joint plates, 24 in. long. Each joint is bolted with two  $\frac{3}{4}$ -in. x  $4\frac{1}{2}$ -in. bolts. The joints are bonded with two 40-in. No. 0000 concealed bonds. The joint plates were electrically welded at the top to the rails by the Lincoln motor-generator process, 2 in. being left on each extreme end. Two oblong holes, 3 in. x 1 in. in size and about 9 in. on each side of the joint, were cut in the base flange of the joint plates, and the plates were welded to the base of the rail at these points.

The ties and track on approaches was laid on crushed stone and gravel ballast. The pavement is a 3-in. surface asphalt on a 6-in. concrete foundation. The concrete base was constructed so as to give a 5-in. depth



FINISHED TRACK CONSTRUCTION, SHOWING ASPHALT STRIP ALONG THE RAILS



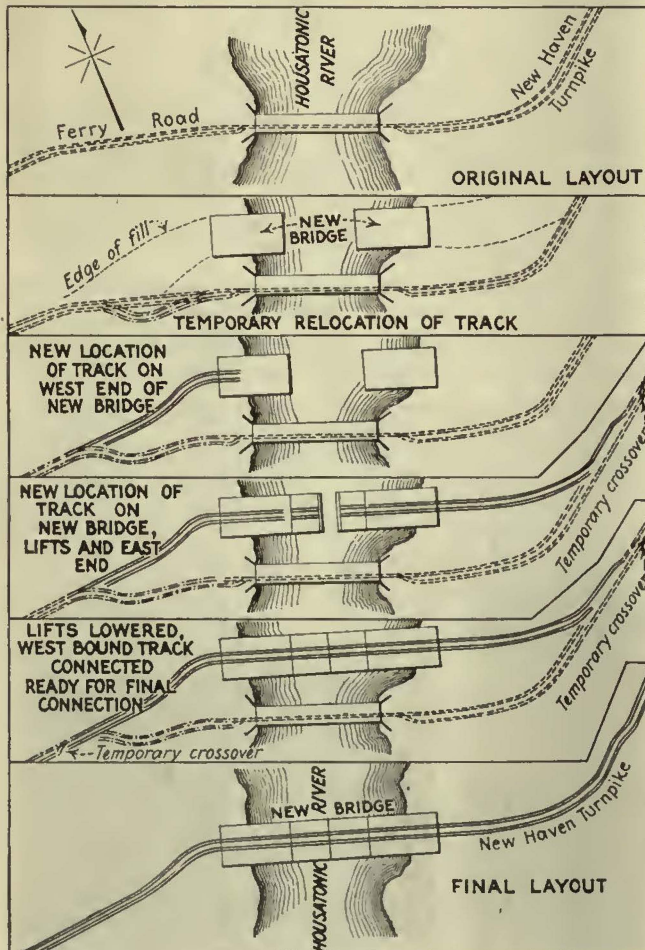
under the base of the rail, this construction providing a concrete tie for a foundation in the event of the decay of the wood tie. Due to the fact that experience has shown the tendency of the asphalt to curl up and break away where it joins the rail, particular care was taken by the company's inspector to see that the asphalt was thoroughly rammed under the head of the rail, entirely filling up this space. It is expected that this will prevent dirt from working in between the joint of the asphalt and the rail and getting in under the asphalt, causing it to spawl off along the rail.

An additional preventive was taken to reduce trouble along the rail by sealing the joint between the asphalt and the rails with a squeegee coat of high test heated asphalt. This was followed with application of hot irons. Some of the views accompanying this article clearly show the results of this work. It will be noted that the seal coat takes in a strip about 8 in. wide along each rail, which is the area that the Connecticut Company is obliged to maintain under the paving law passed by the Connecticut Legislature early in 1921.

The track construction on the concrete portions of the bridge is the same as that on the earth approaches, except that the track is laid in a concrete trough with a ballast of crushed stone. The depth of ballast is about 4 in.

#### TRACK CONSTRUCTION ON LIFT SPAN

On the lift span, 9-in., 120-lb. Boston grooved rail, laid on 6-in. x 8-in. x 8-ft. creosoted yellow pine ties, was used. The rails are in 50-ft. lengths and twelve-hole bolted channel bars are used at the joints. The ties



SKETCHES SHOWING DIFFERENT STAGES IN THE WORK OF CHANGING THE TRACK FROM THE OLD BRIDGE TO THE NEW BRIDGE

are dapped  $\frac{1}{2}$  in. over the 18-in. I-beams running longitudinally under each rail. The ties are fastened to the I-beam stringers with  $\frac{3}{4}$ -in. x 5-in. lag screws. Each rail is fastened to each tie with two  $\frac{1}{8}$ -in. x 5 $\frac{1}{2}$ -in. wedge pointed square spikes. To prevent creeping, the rails are



MITERED JOINT IN MANGANESE RUN-OFFS BETWEEN LIFT AND STATIONARY PORTION OF BRIDGE

fastened at each end with  $\frac{5}{8}$ -in. x 5 $\frac{1}{2}$ -in. lag screws, which pass through drilled holes in the base of the rail.

The rails adjoining the three breaks in the lift spans, one on either end and one in the center, consist of 8-ft. lengths of manganese steel. With double track and three breaks there are twenty-four of these pieces. The manganese steel sections are the same depth as the rail on the lift but they are of special form. A continuous tread bearing is furnished to the car wheels at these joints between rail steel and manganese steel by the use of square mitered joints, as can be seen in the attached sketch. This is the first use of mitered joints on trolley tracks in this section of the country. Manganese rails are used at these points to prevent pounding and wear.

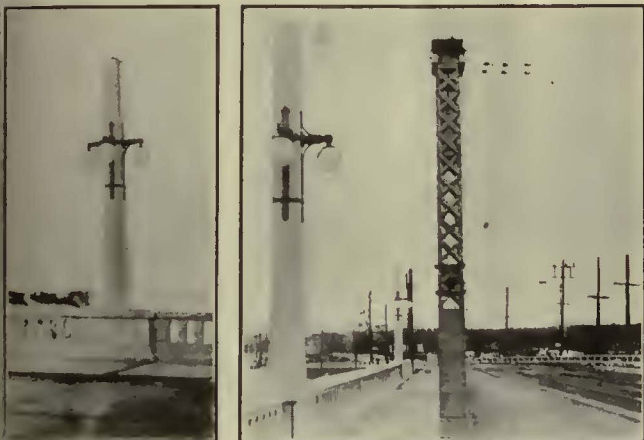
The sections of manganese rail on the stationary parts of the bridge rail are mitred not only at the breaks, but also at their outer ends where they join with the 5-in., 80-lb. T-rail which is used on the bridge approaches. At this point considerable space is left to provide for expansion of the rails on the approaches. The compromise joint between the 9-in. manganese casting and the 5-in. rail is made by means of a stepped steel support in the stringers directly over the counterweight pit. Cross sections of all the special construction which was used in these manganese rails are shown in an accompanying drawing.

On the lift span the floor construction consists of 3-in. x 8-in. creosoted planks laid longitudinally with the rails and spiked to the ties with two 7-in. spikes. The sub-planking of 4-in. tongue and grooved creosoted yellow pine is laid at right angles to the rails. Each plank is fastened to each nailing strip with two 6-in. spikes. On this sub-planking are laid creosoted rectangular shape wood paving blocks, every seventh block being fastened to the sub-planking by means of a dowel pin.

Ample provision was made for taking care of surface water on the track area of the bridge. Catch basins were installed at the ends of the fixed spans of the bridge and two sets on each of the approaches to the bridge. On each approach of the bridge a pit of adequate size was provided to allow for direct removal of snow. Prior to the work of bridge construction, the



engineer representing the State Highway Department and the division engineer of the Connecticut Company planned each step in the method of construction of the new tracks and the removal of the old tracks to allow for the continuous operation of trolley traffic with the



AT LEFT, ORNAMENTAL CONCRETE POLE, AND AT RIGHT, LATTICE POLE WHICH SUPPORTS SPAN WIRE ON CONCRETE PORTION OF BRIDGE

maximum amount of track facilities without detriment or interference with construction of the bridge proper or the laying of the paving. The first step was to relocate a section of about 800 ft. of double track south about 100 ft. from the highway on to private land. The necessity for this relocation was to allow the State to complete a fill on the west approach to the bridge. It was necessary to obtain a lease of this land from three different parties and arrangements were made for its lease for the duration of the bridge work. The next step was to cut in a switch in the westbound track on the west approach to the bridge and build the new westbound track up to the lift span. As it was impossible to build across the lift span at this time, the second track on the west approach was then constructed. During the construction of these two tracks the ties and rails were laid on two lift spans. It was necessary to lay this track with the lift spans raised at an angle of 70 deg.

The next step was to cut in a switch on the east approach to the bridge, taking off from the westbound track. To do this, owing to a change in the grade of several feet, it was necessary to remove a section of the westbound track between the old bridge and the point where the switch was to be put in. This removal of the old track required the installation of a left hand portable crossover easterly of the point of switch to take care of car operation. It required also a transfer of the United States signal from the old end of the double track at the old bridge to the new temporary crossover. After this work the new westbound track was laid up to the lift span.

Following this, the new eastbound track was constructed. This track was laid from the lift span up to a point about 300 ft. from the point of junction with the old layout, and it was built easterly as far as possible without interfering with the old eastbound track, which at that time was carrying all of the car traffic. The pavement construction on both approaches followed closely behind the trackwork. The work on the lift span being completed, the westbound track was connected up at each end.

Temporary crossovers, a right hand on the east approach to the bridge and a left hand on the west

approach, were then installed to allow for car traffic being turned across the westbound track on the new bridge. This change in operation necessitated the transfer of the United States signal on the west approach to the bridge. Following this, operation was begun across one track on the new bridge and track forces were immediately put to work in tearing out the old tracks on each approach to allow for the completion of the connections of the new eastbound track. The tracks were then paved, after which the remainder of the old tracks was removed. All this new track construction and relocation of old track was accomplished without any interference to traffic.

The first track across the new bridge was opened jointly for car operation with vehicular traffic on Nov. 1, 1921. The bridge was entirely open for traffic on Nov. 11, 1921. The engineer for the Public Utilities Commission inspected the construction on Nov. 1, 1921.

### Preparing for Electric Traction

AT EDINBURGH, Scotland, the street car system, which has long been operated by cable, has at last succumbed to progress of the times and is being electrified. The accompanying photographs are forwarded from Edinburgh as evidence of that fact. One of the photographs was taken in the armature winding shop of the Strubhill Depot, where formerly only cable car repairs were carried out. There is no doubt



GRAPHIC PROOF THAT EDINBURGH TRAMWAYS ARE NOW BEING ELECTRIFIED

about what sort of equipment is being worked on here.

The other photograph shows an extension being built on the Leith carhouse to accommodate the new Edinburgh cars when the system has been electrified. The cost of the carhouse extension is £24,000.



WHERE THE CARHOUSE IS BEING EXTENDED TO CARE FOR THE NEW ELECTRIC EQUIPMENT



## Examination for Foremen

Beaver Valley Traction Company Asks Answers to Sixty-seven Questions Relating to the System to Test Knowledge of Its Employees

**G**REAT interest was attracted last summer to the questionnaire of Mr. Edison, drafted to determine knowledge on general subjects possessed by applicants to employment with him. Last fall W. H. Boyce, general manager of the Beaver Valley Traction Company, decided it would be well to test the knowledge of the foremen, dispatchers and office employees on that property, not on general subjects but on matters applying directly to the operation of the line. In consequence, he prepared the sixty-seven questions given in the list below and submitted them for answer to the group mentioned. The results obtained were such as to stimulate an interest in the daily affairs of the company among this group. They suggest the desirability of other companies conducting similar examinations.

What is the total population served by the Beaver Valley Traction Company and the Pittsburgh & Beaver Street Railway Company?

How many miles of track do we have in the Beaver Valley Traction Company and the Pittsburgh & Beaver Street Railway Company?

Where is the division line between the two companies?

What is the total number of passenger car-miles operated per day on both systems?

What was the total gross revenue for both companies last year?

In your opinion how much less will our revenue be this year than last in both companies?

When does the last car leave Ambridge for Beaver?

At what time should a person leave East End Avenue, Beaver, to connect with car at Fifth Street, Beaver Falls, Harmony line?

What is the fare from Beaver Falls to Industry?

What is the fare from Rochester to Butler?

What is the fare from Ambridge to Morado?

Give average number of car stops which our cars make per car-mile operated.

In labor turnover, what is considered a fair percentage?

What is the average number of car failures per thousand car-miles?

Who built our center-entrance steel cars?

Who built our safety cars?

Is it compulsory that cars be equipped with jacks? If so, why?

In what boroughs do the companies' franchise ordinances regulate the interval between cars? What is the minimum interval required?

What is the value of all our materials carried in stock?

What is our yearly cost of stationery, printing and postage?

What is our total monthly payroll now?

If we desire to put into effect a new tariff, how many days' notice does the Public Service Commission of Pennsylvania require for (a) increase; (b) decrease?

By whom may a complaint be filed against a tariff?

If a complaint is filed, does the new rate go into effect before a hearing is held by the Public Service Commission of Pennsylvania?

How many square miles of street paving do these companies maintain?

What is the average distance a passenger rides?

What is the horsepower of the motors on safety cars?

What is the kilowatt consumption per car-mile for: safety cars, double-track steel cars, double-track wooden cars?

With current cost at 2 cents per kilowatt-hour, what will it cost this company to burn a cluster of five 23-watt lamps twenty-four hours per day? How much per year?

How many watts in an electrical horsepower?

If a vehicle is damaged in collision with a car, who should care for the damaged property? Why?

Why should dispatchers or inspectors spend as much time as possible riding on the cars?

What height does the law require a trolley wire to be above the rail at steam crossings?

Before any work is started on a new construction job, what should be done to be sure that there will be no misunderstanding with the accounting department?

Who controls the advertising space in the regular advertising racks in our cars? What is the address of this firm?

What is the title of the official organ of the American Electric Railway Association?

Who is the secretary of this association?

Who controls the patented devices on safety cars?

Name a manufacturer of: (a) trolley wire; (b) car jacks; (c) car gears; (d) steel ties; (e) automatic block signals; (f) fare boxes; (g) car heaters; (h) carbon brushes; (i) rail bonds; (j) steel rails; (k) brake shoes.

What company publishes the ELECTRIC RAILWAY JOURNAL? Give the full name and address of the manufacturer of our No. 514 motors.

How many companies manufacture air brakes for street cars? Give their full names.

On a good rail and with brakes in good order, with a seated load, in what distance can the ordinary car be stopped, running at a speed of 18 miles per hour?

What per cent of 720,000 is 540,000?

If the receipts of a company are \$650,000 per year, and its operating expense is 87 per cent of the receipts, what are its operating expenses?

Why should a date always be put on all data and inter-office communications?

In addition to all construction expense, to what boroughs did these companies pay a bonus? Show the amount paid each.

What is the total amount of bonds of the Beaver Valley Traction Company in the hands of the public?

What is a watt?

What is voltage?

What is an ampere?

What was the number of car riders carried last year by both companies?

How much of a dividend is paid each year on the stock of the Beaver Valley Traction Company?

Give the name and address of the manufacturer of Spear-mint gum.

What baking powder is advertised in our cars?

What bank advertises in our cars?

What is the distance from Junction Park to end of line, Morado?

What is the distance from Junction Park to Sassafras Alley?

What is the distance from Ferry Street to Leetsdale?

How many thousand car-miles life do we get out of 33-in. steel wheels?

What does "C.M." stand for when used in connection with wires and cables?

Name five street railway companies which are in the hands of receivers.

How many more seats do we furnish per day than there are passengers to ride?

If each conductor should fail to register one fare for each zone that each car passes through per day, what would the loss to these companies amount to in one year?

Give the exact location of: H. H. Robertson Company; Moltrup Steel Products Company.

What is the cost of welding a joint by the Lorain process?

What is the cost of excavating for and replacing the paving after welding?

How long should these joints increase the life of the rail?

## Foreign Standards Available Through A. E. S. C.

**T**HE American Engineering Standards Committee has selected and listed a large number of standards issued in 1921 by foreign national standardizing bodies. Copies of these can be had from the office, 29 West Thirty-ninth Street, New York City, at merely nominal prices.

Among these standards may be mentioned tramway tires and tramway axles (British), benzol for motor fuel (British), creosote for the preservation of timber (British), brick (Canadian), bolts and rivets (Canadian) and roofing tiles (German). More than 100 specifications are included in the list. In acting as sales agent for the standardizing bodies of other countries, the Standards Committee is carrying out a plan which is being followed throughout the standardizing countries.



## New Facilities for Kansas Interurban Improve Earnings

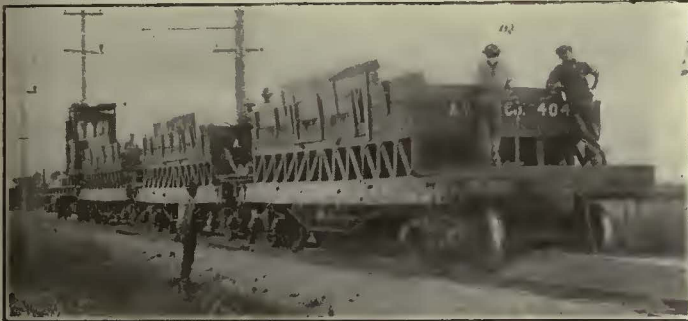
By C. M. MORRISON

Traffic Manager Arkansas Valley Interurban Railway,  
Wichita, Kan.



**Private Right of Way Into  
Wichita and New Passenger  
and Freight Terminals and  
Shops Built, Roadbed Im-  
proved and New Steel Cars  
Purchased**

At the top is an observation trailer used with two and three-car trains. Below at the right is shown the latest type of all-steel passenger car in use on the Kansas lines; at the left, a work train distributing ballast in improving roadbed.



**S**INCE the property of the Arkansas Valley Interurban Railway, connecting Wichita, Kan., with Hutchinson and Newton, Kan., was described in the issue of the *ELECTRIC RAILWAY JOURNAL* for June 2, 1917, Vol. 49, page 996, rather extensive improvements have been made. These have included the purchase of new all-steel passenger cars, the building of a new passenger station and general office building, freight terminal and shop in Wichita, the building of a private right of way into Wichita and general improvements over the road.

Formerly, entrance into Wichita was made over the tracks of the local street railway company, but it became evident in 1918 that the passenger, express and package business handled by the interurban company was growing to such an extent that it would be greatly to its advantage to operate over private right of way. Such a right of way through the north and west sections of the city was secured during the next two years, and in 1920 the new track was built, leading to the 12-acre terminal site located on the east bank of the Arkansas River at Douglas Avenue, which had been purchased by the company. This piece of ground is only four blocks away from the main business center of Wichita, providing a very favorable situation for the passenger and freight terminals of the interurban line.

A beautiful new two-story passenger station and general office building was erected during 1921, facing on Douglas Avenue. A new freight station located almost directly behind the passenger station and fronting on Vaco Avenue was also built. The building of the

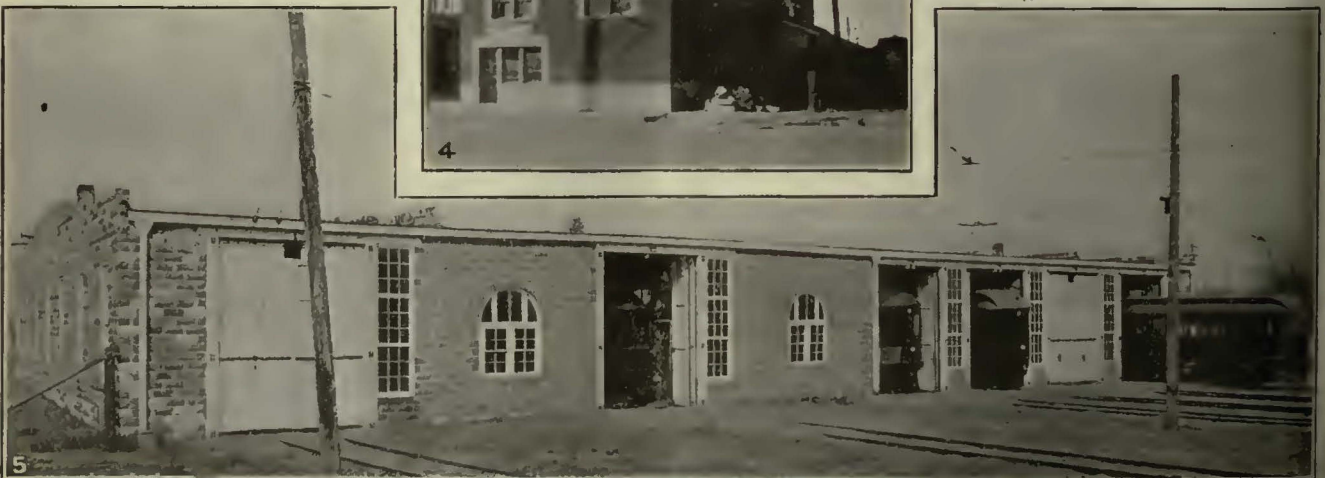
terminal track, the two-story freight station, the two-story passenger station and general office building, the retaining wall along the river, and a five-track shop located on the opposite side of the river, were completed at a cost of \$380,000. The use of the private right of way and new terminal facilities has made it possible to cut from five to ten minutes off the running time of various trains.

The new Wichita passenger station and office building measures 100 ft. x 100 ft. and is built of dark red tapestry brick with stone trimmings and green tile roof. It is considered one of the finest stations of its kind in the country. The ground floor comprises a large waiting room located at the rear of the building and connected with the Douglas Street entrance by a long, wide corridor. The height of this waiting room takes in the entire two-story height of the building. The ticket office is located at one side of the waiting room and the baggage and express room directly opposite. There is an up-to-date restaurant and lunch room adjoining the waiting room, and the remainder of the ground floor is given over to various shops. A ladies' rest room and men's smoking room are provided directly off the main waiting room, and the stairway to the general offices upstairs also leads off the waiting room.

The interior of the waiting room and corridor is finished in buff-colored tapestry brick with glass partitions and oak woodwork separating it from the restaurant and shops. All of the second floor of the building is used for the general offices of the company and these rooms are reached from a hallway or balcony



Some of the Improved Facilities Which Have Resulted in Increased Business for the Arkansas Valley Interurban Railway



No. 1—New passenger station and general office building at Wichita, Kan.  
No. 2—Waiting room in the new interurban terminal, Wichita, Kan.

No. 3—Interior construction and equipment of new Wichita shops.  
No. 4—New interurban freight station at Wichita.  
No. 5—Six-track shop recently built for Kansas Interurban.





NEW HOTEL ADJACENT TO INTERURBAN TERMINAL NEARING COMPLETION



RETAINING WALL ALONG ARKANSAS RIVER WHICH PROTECTS NEW STATION—NEW HOTEL IN BACKGROUND

which overlooks the passenger waiting room below. All of the offices in the building are finished in natural oak except that of the president, which is finished in mahogany.

The new freight station at Wichita is constructed of red brick with the freight room on the first floor and three offices and a large room, where meetings and social sessions are held by the trainmen, on the second floor.

The new car shops are of up-to-date design and provided with six tracks and all well equipped for handling the equipment repair work.

Industrial tracks are now being put in to reach several of the larger industries at Hutchinson, Kan., and

\$600,000 hotel to be known as the Broadview, on property adjacent to the interurban passenger terminal. While this hotel is not the property of the interurban, a large amount of the stock is owned by stockholders of the railway, and it is planned to have a large arched corridor directly connecting the lobby of the hotel with the passenger terminal.

That these various improvements have been instrumental in improving the operating efficiency of the company and bringing new business to it is shown by the accompanying operating statement of the company for two-year periods since 1914.

### Santa Fe Line Proposes to Extend Into San Pedro Harbor of Los Angeles

THE Board of Harbor Commission of the city of Los Angeles has granted the Atchison, Topeka & Santa Fé Railway permission to enter into the Los Angeles harbor at San Pedro for the purpose of constructing and maintaining a railroad line into the harbor in competition with the Southern Pacific Line, Los Angeles & Salt Lake Railroad (Union Pacific System) and the Pacific Electric Lines. In order to reach the harbor the Santa Fé is obliged to construct a branch extension of some 15 miles from a point on its Los Angeles-Redondo Beach branch line, diverging from this branch line at some point between Inglewood and Redondo, thence to the harbor at a point at the northwest corner of the west basin of Los Angeles harbor.

The project will involve the expenditure of approximately \$2,000,000. It will be undertaken as soon as certain franchises are granted by the city of Los Angeles and permission obtained from the Railroad Commission, as well as from the War Department, to span the west basin with a trestle.

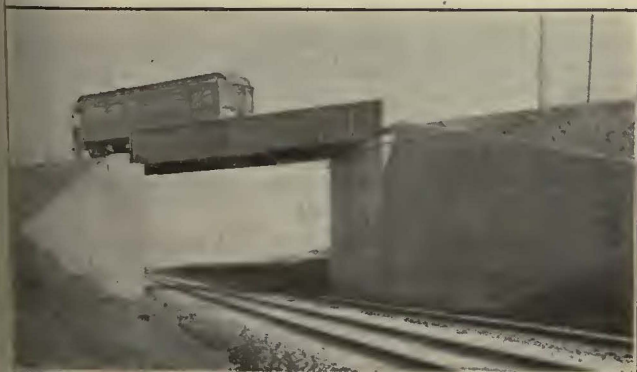
Practically all the municipally owned tracks of the city of Los Angeles at the harbor serving the municipally owned wharves and warehouses in the inner and outer harbors, as well as numerous large industrial plants, are electrified and electrically operated. The city's trackage of approximately 12 miles equivalent single track was electrified at time of original construction, and the switching on these tracks is performed by the electric locomotives of the Pacific Electric Railway, which has interchange connections with the city's trackage and handles the service for the city through agreement.

	1914	1916	1918	1920
Gross earnings.....	\$137,454	\$271,107	\$328,611	\$547,375
Operating expenses.....	79,612	140,684	228,737	337,254
Net earnings.....	\$57,842	\$130,423	\$99,874	\$210,121
Interest and taxes.....	58,387	83,222	95,150	79,646
Net revenue.....	\$545*	\$47,201	\$4,724	\$130,475

\* Loss

also track connections with some of the steam roads. Other steam-line connections are expected to be put in at Newton. Through traffic arrangements with the steam lines are anticipated, and with these physical connections the interurban will be in position to handle all classes of freight, both carload and l.c.l., to and from all points, which should be the means of very materially increasing the freight revenue.

Another thing which may bring additional passenger business to the interurban is the construction of a new



A. V. I. CROSSING OVER SANTA FE TRACKS ON NEWTON BRANCH



## Checking Idle Time of Locomotives and Service Cars

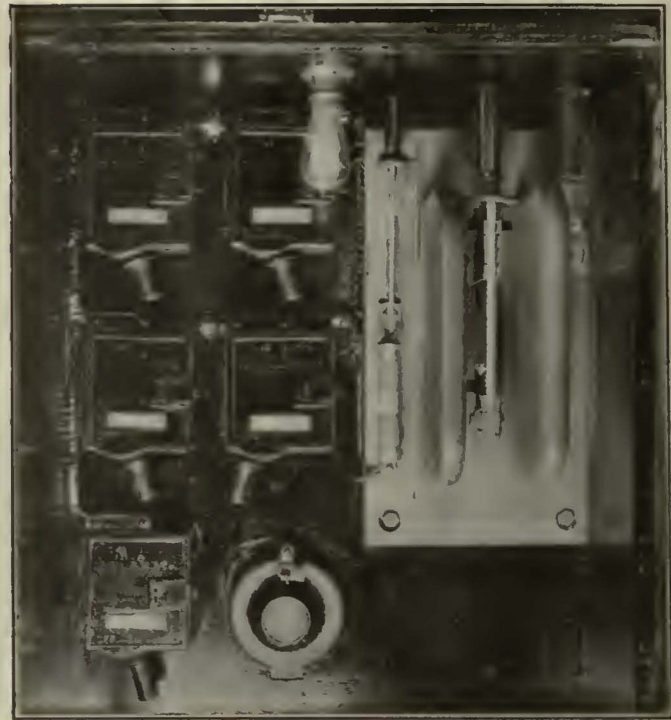
Compact Device of Simple Design Makes Graphic Record of Movements—Keeps Crews of Trains Not on Time Card Working and Accounts for Legitimate Delays

MANY freight trains, line cars and maintenance of way work trains on an interurban railway are operated without definite schedule time and do not appear on the time cards. They operate between towns and passing points and work points, and keep in the clear of scheduled traffic on orders from the dispatcher. The crews of such trains are therefore out on the line largely without supervision and the amount of work they do is at their own discretion. As a natural human trait, some loafing develops.

As a check on the idle time of these "extra" trains, the Illinois Traction System has installed on twenty-five of its electric locomotives a small device called a "service recorder" which makes a twenty-four-hour graphic record of the time during which a locomotive is running or standing idle. This device is manufactured by the Service Recorder Company, Cleveland Ohio, and consists of a simple clock mechanism for driving the paper chart and a pivoted weight having a steel point which bears against the paper chart. The whole mechanism is contained in a neat little steel case about 6 in. in diameter and 4 in. thick, and the device may be mounted anywhere in a car. When the engine or car is standing, the device produces a simple line on the chart, but while running, the vibration causes the weight to swing slightly, producing a jagged mark. The use of a special type of paper results in a distinct marking of the chart without the use of ink. There is therefore nothing to do to keep the device operating except to wind the clock and replace the chart once in twenty-four hours. On the Illinois Traction System locomotives, the device is mounted in the bottom of the switch cabinet, where it cannot readily be mechanically connected with

the air pump, for example, to produce an artificial motion record. The value of the device is greatest on engines engaged entirely in switching, as the dispatcher has some check on a train out on the road, but he has practically none on a switch engine. A device is taken off a locomotive now and then and put on a line car for checking up on the work done by a crew stringing trolley wire, setting poles, etc., or on other work cars for a check period. If excessive idle time appears on the chart, a check-up is made.

The routine on the Illinois Traction System is that the mechanical department inserts and removes the charts and forwards them to the superintendent, who has the chart checked with the train operation report,

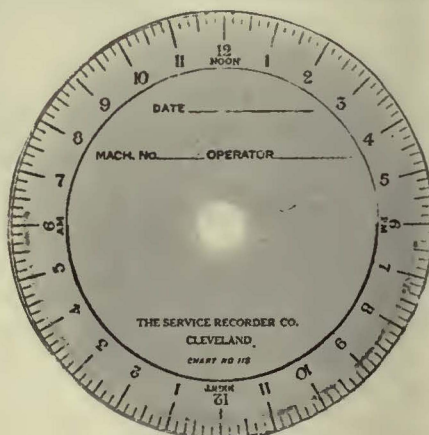


"SERVICE RECORDER" MOUNTED IN SWITCH CABINET OF AN ILLINOIS TRACTION SYSTEM LOCOMOTIVE

daily. If the chart for any locomotive shows up excessive idle time, the superintendent writes a letter to the crew for explanation, and then the reply and the whole correspondence are forwarded to the general manager.

A typical chart taken from the "service recorder" is reproduced herewith. By consulting the train operation report, the movements of the particular engine can readily be traced and explained for the day, as follows:

The engine left Springfield, Ill., at 7:01 p.m., with fifteen cars of grain for Granite City, Ill., where it arrived at 6:30 a.m. En route, at 11:10 p.m. it had to clear, at the Alton siding, a northbound fast freight train which had the right of way. There was a delay of nearly forty-five minutes here waiting for the passing. It was necessary for the train to remain here rather than to proceed further while waiting, as the next passing point was beyond Carlinville and there was work to be done at Carlinville. The train then lay at Benld from 1:15 to 2:10 in order to clear a sleeping-car train. The freight train left Benld right after the sleeping-car train showed up, indicating that the crew had completed the loading and unloading work at this point before the wait for the passenger train began, although there was evidently not time to go to the next siding to make the meet. By thus studying the train operation report, it is seen that in this particular case the two delays were explained to be legitimate. There was also an allowance of twenty minutes for lunch which may have been taken at Benld. This illustrates how a long standing period as recorded on the device may be analyzed to disclose unwarranted idleness.



A TYPICAL CHART MADE BY "SERVICE RECORDER" MOUNTED ON LOCOMOTIVE

The first one-man safety car in England is being tested out by the London United Tramways. Owing to the absence of a double deck and other special features, it is attracting considerable attention. About the only change from the standard American style of car is the use of track brake.



# Electric Railway Publicity

*Devoted to How to Tell the Story*

## \$825,000 of Preferred Stock Sold

Publicity Playing a Very Important Part in Distributing Security Issue Among Residents of Territory Served by Northern Ohio Traction & Light Company

BY E. B. ATCHLEY

EMPLOYEES of the Northern Ohio Traction & Light Company, Akron, Ohio, began the sale of the company's 7 per cent preferred stock to the public last July. At the close of business on Feb. 28 approximately 6,750 shares of a par value of \$100 each—\$675,000—had been sold by them. About 1,500 shares have been sold through other sources, bringing the total to a little more than \$825,000 in approximately seven months.

How was this accomplished in view of the business depression so keenly felt in that section of Ohio traversed by the lines of the company? That is the first question to arise. What methods were adopted to interest the employees and to keep that interest aroused? That, perhaps, is the second question to arise. Every company planning to start a customer-ownership stock selling movement is interested only in this—and presentation of the advantages to the public.

The Northern Ohio Traction & Light Company has approximately 2,000 employees. When the movement to sell the stock was launched in July, meetings of employees were held in every department over a period of a week. The reason for issuing the stock and the reasons why the employees were needed to sell it were thoroughly explained by A. C. Blinn, vice-president and general manager, and other company officials. At these meetings the employees were asked to buy stock.

### DETAILED PREPARATION FOR SALE

Prior to calling the meetings, the company had prepared an extensive advertising campaign. The issue was thoroughly explained in the employees' magazine. Letters to all employees and all customers had been prepared and signed by Mr. Blinn and were ready to go into the mail. This advertising—letters, magazine, all literature—was released immediately following the meetings with employees. The newspaper advertising and the street car advertising were used effectively to back up the employees. Each advertisement contained this line: "Ask any employee for information."

Almost 1,700 shares had been sold by Aug. 1 and 1,450 more were sold in August. Most of these 3,150 shares were taken by employees. The work of selling the actual stock to employees proved easy, despite the fact that the plan was launched immediately following a strike of the trainmen. The task of selling them the idea of selling customers proved not so easy, however. Trainmen were particularly slow to take hold in the sale. The employees in the ways and structures department—track men—were the first to respond to the appeal. In September 516 shares were sold to customers principally by the track gangs—the men who use the pick and shovel. The production and distribution department

employees had a hand in the sale, but not to any great extent. General office employees sold very little.

In October and November, in view of the great number of unemployed in Akron and the coming of winter, there was a heavy decline in sales. In December sales picked up to 1,054 for the month, held steady in January and February, while in March about 1,500 were sold, indicating a steady purchase of 1,000 to 1,500 shares by customers monthly.

### AROUSING INTEREST PLAYS BIG PART

Now, how has the interest been kept up? The answer to this may prove worth while to companies contemplating permanent financing by this method.

In the beginning, employees were paid a commission of \$3 for the sale of one, two, three or four shares, \$5 for five shares and 50 cents per share for each additional share to one individual. Special editions of the *Northern Light*, the company publication, were issued weekly containing names of employees who made sales and the number of shares each man sold. Meetings were held weekly with the heads of all departments to discuss the sale of the stock and special meetings were held with the men monthly. An employee of the company who had been placed in charge of the sale talked to all employees once every month, going out to the track and line gangs, shop men, track men and all others. In most instances these talks were delivered to the men in small groups. The men stopped work for a few minutes until the talk and the discussion were ended, when they went back to the job. Appeals were made again and again. After two months only forty-five employees out of 2,000 were actually producing, although prospects were being turned in by about 150 others. It was an uphill job, but after six months effort more than 150 employees are now actually making sales and 1,000 or more others are turning in live prospects.

Late in November the slogan "Buy a Share of Stock for a Christmas Present" was taken up. This slogan, carried in all the advertising, pushed up the December sales. In January, to keep the interest going, special bonuses were offered to the individuals selling the greatest number of shares, to those selling to the greatest number of individuals and to the department making the best sale record. In all, seven prizes were offered.

Following this a new plan was adopted. The commissions were increased to a point where each employee now receives at least \$1 for each share he sells. In addition, a special bonus has been arranged. A quota of 1,000 shares was set for the special contest now in progress. If the quota was reached in March each man producing sales received an additional \$1 per share. If 1,100 shares are sold, the producing employee receives a bonus of \$1.10 per share, or if only 900 are sold the bonus is 90 cents per share and so on, up or down. This method of arousing interest is proving the most effective of all.

In the stock department of the general office in Akron



hangs a large chart showing the day-to-day standing of all departments of the company. On this chart the thermometer idea is carried out, the changing conditions appearing in red paint on the thermometer. The chart shows seven departments with the quota for each department. This quota is based upon the number of employees in the department. Similar charts on a smaller scale are placed with each of the seven departments and there is an additional chart showing the department subdivision which is painted in the same manner. This has brought the responsibility for selling the quota assigned to very small subdivisions. For instance, the general office is divided into accounting, billing, commercial, cashier, credit and collection, meter reading, stenographic, payroll, purchasing and claim departments. There is a thermometer showing the standing of each of these divisions based on the quota assigned to it.

#### STOCK DEPARTMENT RESEMBLES BROKER'S OFFICE

Aside from the charts referred to, there is a large wall map of the system hung in the stock department. Whenever a share of stock is sold a pin goes into the map at the point where the purchaser resides. Needless to say, there are a few thousand pins in this chart, and it is pretty well plastered up. There is little doubt that the map will prove interesting to aspirants for office in this section in the future when questions concerning this utility arise.

Every morning the department head calls the subheads in his department and receives the stock report. This has brought about strong rivalry among the various subheads and often the stock department resembles a broker's office where the tape is bringing figures to be chalked up.

Daily bulletins are quickly made up and are sent to the departments pointing out what some department has accomplished and spurring the others along. These bulletins keep the interest going and have been instrumental in building the sales. Stickers with commission and regular pay checks bearing the words, "I Am Doing My Share, Are You?" and "Sell a Share a Month" also aid in keeping up the enthusiasm.

And now a word about publicity advertising the stock. The price of the stock was fixed at \$95 a share and accrued dividend. This price yields the purchaser 7.37 per cent. These figures—7.37—have become synonymous with the company stock the whole length of the system. They appear on all company envelopes, on stickers, in all cars, billboard and newspaper advertising. When the customer-ownership plan was started solid red posters bearing the figures 7.37 in white went into all cars. This created interest and people began asking what they meant. Five days later other solid red posters were displayed in the cars. They carried the words "7.37 per cent. The N. O. T. & L. Co. is offering its 7 per cent cumulative preferred stock at \$95 and dividend per share, yielding 7.37 per cent."

The first newspaper advertisement consisted of a full page in all papers in the territory, changed to meet local conditions. In Akron the advertisement dealt principally with the light and power business. Outside of Akron it was confined to the railway business. "Make These Sockets Earn You Money" was the heading of the one with a giant hand turning on light in the home. The other bore the heading "It Earns as It Runs," the words carrying an interurban train. The page advertising was followed by "ads" of four full columns, illustrated,

with the headings: "Your Salary May Stop, but Dividends Keep Coming In," "The 'Old Age of Want' Bogie," "Prepare Your Boy for the Battle of Life," "Put the Northern Ohio Traction & Light Company on Your Investment Map," "Protecting Your Electric and Transportation Service When There Is a Storm," "S.O.S." and "The Finest Christmas Present in the World."

Three-column "ads" followed these. Later, however, the "ads" were dropped to two-column, 8 in. Today very little newspaper advertising is being done. Two novel window displays, one consisting of a miniature city, electrically lighted and containing a street railway system with moving cars, and the other displaying the entire interurban system from Cleveland to Uhrichsville, attracted the attention of thousands. These displays widely advertised the stock. In the miniature city little billboards, advantageously placed, urged stock purchases. The displays were in the windows of the Terminal Building, Akron, and just inside that building a "Stock Department" was established, with an employee in charge who had been a successful salesman. Steadily through all this the *N. O. T. & L. News*, the weekly publication placed on the cars, carried information concerning the stock with a blank to be filled out by all persons interested. Many good prospects were developed from this source.

The methods adopted in the sale of stock of the Northern Ohio Traction & Light Company are the same as those that have been adopted on the Consumers Power Company in Michigan, in Peoria, Ill.; Springfield, Ohio; Evansville, Ind., and on other properties operated by Hodenpyl, Hardy & Company, who also operate the Northern Ohio property. On all these properties the sale of stock has been successful, not only in the amount issued to customers but in the establishment of increased confidence and good will.

## Publicity Popularizing Weekly Pass

After You Light Up at the Cigar Store Buy a Pass for Fort Wayne City Lines for \$1 Good for a Week—Company Supplements Its Original Work

THE Indiana Service Corporation in starting its new weekly pass system on the city lines in Fort Wayne, Ind., relied entirely upon newspaper publicity to acquaint the public with the innovation and to work up a good sale of the passes. No car cards, booklets, folders, billboards or other methods of advertising were used. But the newspaper space used was very large; half-page ads predominated. The newspapers, of course, devoted much news space to the passes, thereby greatly increasing the publicity secured for the new plan.

Later on the company intends to issue a booklet similar to the one which it now uses, and in which the schedules for the different lines are given and in which there is much general information concerning the company. The corporation also intends to include all the information regarding the passes in this booklet. It will be widely distributed on the Fort Wayne city cars, at cigar stores and through the mails.

The initial information which the people of Fort Wayne received as to the intention of the company to sell weekly passes for a dollar good at any time during the week on any Fort Wayne city lines—these passes being transferable—was through news items in the local daily papers.



Following this initial shot—this news being played up by all the local papers quite extensively on the first pages under big headlines—the corporation placed a half-page ad in all the papers. This announcement read:

"THIS IS THE WEEKLY PASS.

"Indiana Service Corporation.

"Weekly Pass.

"Feb. 27 to March 5, 1922 (Inc.).

"Pass bearer on cars of the Indiana Service Corporation within the one fare limits of the city of Fort Wayne for a period of seven (7) days as shown by dates on the face of this pass.

"Pass must be shown conductor upon entering car and is good only for one (1) passenger.

"No. 3994. SAMUEL W. GREENLAND."

(S. W. Greenland, it might be noted here, is the general manager of the company, so is the person to sign the passes as indicated above.)

"Savings.

"If you ride twenty times per week your fare will be 5 cents. If you ride thirty times per week it will be 3.3 cents per ride.

"Why not buy a weekly pass and ride home to lunch. Get a hot home cooked dinner.

"It's cheaper than shoe leather, why walk to and from work? Buy a weekly pass—save time and energy.

"Why fuss every morning with that cold engine?

"Warm, comfortable street cars are ready to serve you at any time. The \$1 weekly pass makes it convenient and economical.

"Money saved is money earned, buy a weekly card pass, save car fare and deposit the difference in a savings bank.

"Pass can be purchased from our operators.

"The weekly pass will save time in loading and relieve congestion.

"Transfers are unnecessary for passholders.

"Passholders may ride as frequently as desired and transfer to suit their convenience."

The foregoing advertisement appeared in the local papers without change several times during the week preceding the start of the new system.

During the second week the new system was in force the company used the following ad in all the papers in half-page space:

"WEEKLY PASS.

"The popularity of the weekly pass has been indicated by the sales during the sale period, from Friday to Monday inclusive, viz.: the first week 2,967 were sold and the second week 3,546, making an increase of 579.

"Some confusion has developed relative to transfers since the weekly pass has been put into effect.

"Transfers will not be issued to passholders and therefore it becomes absolutely necessary that all passengers paying cash fares or tokens must request their transfers when they board the car and at time of paying their fares; otherwise transfers will not be issued.

"To issue transfers after fare has been paid not only imposes a double duty on the operator, but very materially interferes with loading and unloading of passengers. Neglecting to get your transfer at the proper time only stimulates the forgetting habit and in turn often results in unpleasant controversies and misunderstandings. The operator with his many and ever changing passengers cannot be expected to know whether a transfer has already been issued; neither does he know whether you paid your fare by presenting a pass and therefore are not entitled to a transfer.

Compliance with these instructions will prove to our mutual advantage.

"We solicit your co-operation.

"INDIANA SERVICE CORPORATION."

One other advertisement, also half page in size, which was a slight variation of the ad quoted above, was used in putting over the pass system with the Fort Wayne public.

That the publicity combined with the value of the system effectively "sold" the new system to the Fort Wayne public is indicated by the record of passes sold during the first month's operation of the system. Here is the record: First week, 2,967; second week, 3,546; third week, 3,517; fourth week, 3,722.

The officials of the company believe that when the system's value is fully appreciated by the general public

the sales of passes will run up to 5,000 or 6,000 a week. It is the intention of the corporation to continue its newspaper advertising, using smaller space, though, than has so far been used and telling the real news of the pass system in these advertisements. It is believed that by showing by figures just how the use of the passes is growing and by telling specific instances of people



HOW THE Journal-Gazette ARTIST SAW THE PASS IN A PLAYFUL MOMENT

who have found the use of the passes a big saving and who by using passes have been able to get home during the noon hours when they were formerly unable to do so, more will be done to popularize the pass than could be done by any amount of plain, unadorned urging of folks to buy the cardboards.

It is interesting to know that the adoption of the pass system on the Fort Wayne city lines of the Indiana Service Corporation has been welcomed by the operators of the cars—most of the lines are one-man car lines—and that the use of the passes has greatly expedited the loading and unloading of cars.

Passes are on sale by operators and conductors from Fridays to Mondays and are also on sale at the Alter Cigar Store and the Riegel Cigar Stores at the "Transfer Corner," where all the city lines meet, during the same period. The number of passes sold by the cigar stores is negligible, but by having the passes on sale at these stores the corporation gets more publicity for the stunt and this having the passes on sale there also has a psychological effect toward popularizing the use of the passes.

The newspaper advertising space used by the corporation was partly paid for in transportation. Each month the corporation settles up on a cash basis for the transportation used by the papers and the advertising it has used.



## Express Service Defeats Jitneys

THE way to beat the attractive features of competing jitney service is to offer features equally or more attractive! That is the theory of the officials of the United Electric Railways, Providence, R. I., and it seems to be working out in their recent experiment of fast express service between Providence and Pawtucket.

For several years the passenger-carrying automobiles, jitneys and motor buses have been making heavy inroads into the revenues of the street car lines in and about Providence. There is a steady flow of traffic at all times between Providence and its near neighbor Pawtucket, a city of textile mills, about 4 miles away. Into this traffic the automobiles cut heavily. A veritable flock of jitneys throng the "Loop" at Providence and when they secure a load start off for Pawtucket.

On Jan. 16 the United Electric Railways inaugurated an express service and advertised it thoroughly by means of dasher signs and the press. Express cars leave each end of the line every ten minutes all day. They make stops to receive and discharge passengers only in

the center of the two cities, running without stops outside of the congested district. They start just ahead of the local cars, and so make the run without delay.

The run of 4.1 miles is made in eighteen to twenty minutes, depending on traffic conditions. The fare is 12 cents. This is a little faster than the motor buses, which charge a 10-cent fare. The jitneys, so called, which are ordinary passenger touring cars, independently operated, make it in about fifteen minutes, but charge a 15-cent fare. As the jitneys do not start on any schedule time, but wait for a paying load, the regular ten-minute starting schedule of the railway offers a favorable factor of dependability.

White dasher signs 21 x 22 in. are carried on all the express cars. They have large red letters calling attention to the special service. These signs read as follows: "Ride on the cars between Providence and Pawtucket. Time-saving express service now in operation."

Officials of the United Electric Railways are enthusiastic over the results already secured. They assert that patronage on this line already has doubled.

## Valuation of Public Utilities for Taxation\*

An Outline of the Wisconsin Ad Valorem System of Valuation for Taxation Purposes Is Presented—Why a Rate Valuation Is Not Applicable as a Basis to Compute Taxes

By EDMUND J. BRABANT

Public Utility Statistician Wisconsin Tax Commission, Madison, Wis.

GAS, electric and street railway companies in Wisconsin are paying in taxes approximately 25 per cent of their net income which would otherwise be available for interest and dividends. In 1910 these companies paid in taxes \$548,500. For the year 1921 they were called upon to pay \$2,473,000—four and one-half times as much as in 1910. The total assessed valuation increased from \$58,749,635 in 1910 to \$117,503,422 in 1921. The average rate of taxation has increased from .01125 in 1910 to .02106 in 1921.

The question is sometimes asked, "What is the use of taxing public utilities at all if the facts are, as commonly stated, that the public pays the tax? Is not this the same thing as taking money out of one pocket and putting it into the other?" The answer to this question, however, is quite obvious to anyone who will give the matter a little thought. Even in communities where the widest use is made of the service offered by the utility there remains a large proportion of the tax-paying public who make little or no use of it. Then it must be remembered that rural communities do not have as a rule an opportunity to obtain service. So that, if this property were exempted from taxation, the deficiency caused by such exemption, which would have to be met by increased taxation of other property, would fall upon all taxpayers, user and non-user alike. In my opinion all public utilities should be taxed, including municipally owned utilities. The failure to charge taxes against a consumer in

the case of municipal utilities is unfair to all other taxpayers who are unable to obtain service.

Taxes in 1920 were more than ten times what they were in 1880, while the population of the state had merely doubled in the same period. To put it in another way, government cost each individual in this state in 1880 \$6.92, and in 1920 \$36.58. This, of course omits all federal taxation. Unfortunately the increases are not evenly spread between different years. That is in 1919 the increase over the previous year was 37 per cent. On top of this in 1920 there was another increase of 24 per cent. We are now enjoying what may be called a lucid interval, the increase of 1921 over 1920 being but 1 per cent. The average rate applicable to public utilities for the year 1922 will be \$21.16 per thousand while in the year 1921 it was \$21.06 per thousand.

The Tax Commission is not, of course, responsible for levying taxes. The Tax Commission is, however, responsible for valuations put upon the property of public utilities which it assesses, and must be held accountable to the owners and operators of these properties and to the public for valuations in accordance with law and equity.

The support for the activities of the state government is derived largely from taxes paid by these companies. There has been no levy upon the general property of the state for state purposes since 1913. Mill taxes paid to the state treasurer for education and highways, while often spoken of as state taxes, are not in fact used by the state government. The state merely administers these funds for and dis-

tributes them to the local units. The classes of companies valued and assessed by the tax commission with the amounts of valuation and taxes on each for the year 1921 are as follows:

ASSESSMENTS AND TAXES—PUBLIC SERVICE CORPORATIONS IN WISCONSIN, 1921		
	Valuation	Taxes at .02106389
Railroads .....	\$345,559,000	\$7,278,816.75
Street railways* ..	74,085,000	1,560,518.20
Telegraph .....	4,825,000	101,633.27
Express .....	500,000	10,531.94
Sleeping car.....	1,600,000	33,702.22
Freight line.....	1,350,000	28,446.79
Improvement ...	375,000	7,898.95
Water, gas and electric .....	43,418,422	914,559.86
	\$471,712,422	\$9,936,107.98

\*Includes gas and electric utilities operated in connection.

### WHY A SPECIAL SYSTEM IS USED

The system in Wisconsin for the taxation of public utilities is known as the ad valorem system; that is, valuation is the basis for computing the tax. Most of the states of the union have a species of ad valorem taxation of public utilities, although a few, of which our neighbor, Minnesota, is one, seem to prefer the license fee system, that is, a tax on gross revenue. Wisconsin discarded the license fee system about twenty years ago. The trouble with the system in this state was that there was constant complaint that public service corporations were not paying their proper proportion of taxes. Attempts to increase the rate of the license fee met with determined opposition on the part of railroad companies. They claimed that in view of the fact that intangible property, consisting of

\*Abstract of paper presented before joint meeting of Wisconsin Gas Association and Wisconsin Electrical Association, Milwaukee, Wis., March 23, 1922.



stocks, bonds, mortgages, bank deposits, and money, practically escaped taxation, that the railroads in comparison, when taking into account this property, were paying more than their share of taxes under the license fee system. The failure of the attempts in the Legislature to increase the license fee over 4 per cent, which was then being paid as a maximum, resulted in the adoption of the ad valorem system. It was felt that the only way of putting public utilities and other property on an equal basis for taxation was to apply so far as possible the same methods in their taxation. So valuation became the basis for these properties as well as the general property of the state.

The word "valuation" as applied to the property of public service corporations in this state, as well as in several other states, requires explanation, interpretation and qualification. It is clear that the word as used in our laws does not always carry the same significance. The statutes require valuations to be made for several different purposes:

1. Taxation.
2. Rate making.
3. Purchase by municipalities.
4. Capitalization.

The statute specifically requires that the property and franchises of all these companies are to be assessed at "true cash value," but you will look in vain to find any direction as to how this true cash value is to be ascertained. While the statute lists a multitude of data which must be reported, it does not specify which are most important or significant, or what is to be the basis of the valuation. Neither does it require a classification of the properties included in the valuation. For example, no separate classification is required of tracks and cars in the case of electric railways, or of the generating plant, transmission lines and distribution systems in case of gas and electric plants.

The law with reference to the assessment of real and personal property is somewhat more specific. As to real property, the statute directs that it shall be assessed "at the full value which could ordinarily be obtained herefor at private sale." This has been construed by the Supreme Court to mean not such price as would produce a purchaser, for that would manifestly be a forced sale, but such value as could ordinarily be obtained by an owner assuming that he desired to sell, and that there was a purchaser with means desiring to buy.

#### FRANCHISE AND GOING VALUE

Undoubtedly among the reasons for placing public service corporations in special class for valuation and assessment is that under the law they enjoy special privileges, among which are right of eminent domain and in most cases virtual monopoly, these being inherent in the nature of the business. These rights and privileges may and often are of considerable value over and above investment in property. In

other cases, they seem to be worth little or nothing. The statute specifically requires that value of franchises, if there is such a thing, be included. Furthermore, the system set forth in the statute evidently contemplates that these companies shall be valued as going concerns, and not as so many parcels of real estate and items of equipment. In fact, it must be admitted by every one that a street railway, electric or gas plant, is something more than mere land, rails, cars, wires and machinery. It is a live, going business, guided by brains and having rights and privileges which give it an organic unity. The theory of our ad valorem tax law as applied by the Tax Commission was upheld by our Supreme Court in an exhaustive opinion involving the first valuation for assessment purposes of railways (Chicago & Northwestern Railroad vs. State, 128 Wis. 553).

The meaning of the word value as taken for tax purposes is market or exchange value. Now, in putting a price on a parcel of land, a residence or business block, the customary manner is to ascertain at what figure similar properties have sold. Such value in the long run is based on the opinion of the public, or more particularly, persons who stake their money back of their judgment. There is no better guide than this to market value. It is the basis of the method employed by the commission in fixing the value of real estate in the state equalization. Unfortunately for the Tax Commission, the larger public utilities, unlike other properties, are rarely sold as units. When transferred, it is usually by the sale of stocks and securities. Where these are quoted on the market, they afford one means of determining value. This method would be sufficient and adequate without other data perhaps were it not for the fact that as only a portion of the stocks and bonds of a given company are sold in any one year, it is questionable whether prevailing prices would hold in case a controlling interest were offered for sale. Besides this, the securities of any public utility usually represent not only property useful in the public utility business but also investments made in securities of other corporations and other investments having no relation to the public utility business. For these reasons, additional methods must be employed for comparison and verification even where the data are available. They are, in fact, not available for most of the street railway and electric companies assessed by the commission.

#### CAPITALIZATION OF NET EARNINGS

This method is based on the same theory that obtains in valuing annuities; that is, that the capital value of a given annual income may be computed, providing the length of time such annuity is to run is known or can be approximated. Now earnings of public utilities, unlike annuities, are

not uniform. They fluctuate from year to year, depending upon a variety of circumstances, management, markets, labor, local conditions, and the general trend of business. Furthermore, it must be kept in mind that it is not past earnings which really give value to these properties, but the value of future earnings, and this means earnings over a period of years. Of course there is no way of measuring future earning capacity except by past performance. The period taken has usually been five years. Averages of net earnings are computed and capitalized at various rates.

#### RATES OF CAPITALIZATION

The rates of capitalization employed being based on the rates demanded by the investing public necessarily cannot be uniform as to all classes of public utilities, nor even as to companies of the same character. Regularity, uniformity and stability, as well as amount of earnings, have an important bearing on the rates expected by investors. As a general rule the larger the company the less fluctuation there is in earnings. For this reason, the large interstate railways have been put in a special class, and the lowest rates have been applied to them. These rates range from 6 to 6½ per cent. In assessing street railways and light, heat and power companies, the rates have ranged from 6½ per cent to 8 per cent, depending on the hazard of the investment and the stability of the enterprise. Last year, the rates used were somewhat higher and ranged from 7½ per cent to 8 per cent. In a few cases involving small plants even higher rates were used, it being apparent that the revenues were large, and future prospects unattractive.

#### DEPRECIATION

In using this method, it must be borne in mind that, notwithstanding the rules of accounting prescribed by regulating bodies, there are marked variations in methods of financing and management, all of which affect net earnings as reported. It is therefore highly essential that in using this method of valuation the accounts should be looked into rather closely, in order to get at a correct statement of a net revenue. It would be manifestly unfair to capitalize the net earnings of a company as reported where no depreciation had been taken, as this would give entirely too high a valuation, as compared with the company which was taking a liberal amount. In practice the commission has added to or deducted from the net earnings of all companies assessed in order to put them on an equal basis in the matter of depreciation.

#### INVESTMENT

In the determination of valuation of public utilities for purchase, original actual cost, that is, what has gone into the property, has usually been considered a most significant factor. This



does not hold true as to valuation for taxation, for the simple reason that the original cost of a public utility does not necessarily represent its cash or market value any more than the cost of anything else represents its real value.

There has been no complete appraisal in recent years of the properties of public utilities in Wisconsin. From time to time the Railroad Commission makes appraisals for fixing rates, etc., which valuations are of course subject to examination by the Tax Commission. Our practice has been to take the last appraised value, and to add cost of improvements and extensions, and this is taken for the purpose of our records as the cost of reproduction of the physical property. The total cost of reproduction less depreciation of such properties as shown on our records is \$107,311,467, and the total true value for assessment for the year 1921 is \$111,444,229.

#### NON-PAYING PROPERTIES

There are a good many cases where the commission has no data relating to stock and bond quotations, and where there are no net earnings to capitalize, as the companies are running at a loss. There were five street railway companies in 1921 which reported deficits from operation, and in addition to this there were several others whose earnings were so low as to be insufficient to meet taxes and interest. Where these companies are operated in connection with light, heat and power companies, they have an advantage in this state. This is due to the fact that in arriving at valuations on the unit property including the street railway any deficits which may be suffered from operation on the street railway are deducted from the net shown by the light, heat and power property. It is impossible to state separately what the exact taxes are on the street railways proper, where they are assessed along with electric and gas properties. Our computations indicate that the percentage of taxes to net earnings runs about the same as for electric light properties in the case of companies operating street railway systems separately. In the case of non-paying properties, it has been the custom of the commission to assess them at greatly below the cost of reproduction. We have endeavored to ascertain if there was any future for properties of this kind, and if possible, what the owners would be willing to sell them for.

#### COMPARISON OF VALUATION FOR RATE AND TAX PURPOSES

From the inquiries which are occasionally presented, it is evident that many people are uninformed as to the methods used by the Tax Commission in arriving at the valuation of public service corporations. There seems to be an impression not uncommon that the valuation is based largely upon the cost

of reproduction of the physical property. The principal basis for a valuation for rate purposes is the investment in or, in case this cannot be ascertained, the cost of reproduction of the physical property. The owners cannot be allowed and have not in well considered cases been allowed to earn profits on anything more than such actual investment or cost of reproduction. Their claims in some cases of a right to earn on what was formerly considered valuable franchises, good will, increases in land valuation or capitalization of earnings have been denied. But your rejoinder may be, "Is not this amount invested or cost of reproduction really the value of the property in view of the fact that these companies are absolutely limited by the state to nothing more than the fair rate of return which is fixed by the state?"

This seems somewhat reasonable, but let us look at what is meant by fair return. As stated before, the purpose is to allow a high enough return to induce capital to develop new enterprises of this character. It must be remembered that the state or federal government, while it limits the profits of public utilities to a "fair return," does not ordinarily guarantee that or any other return. If the public or the local industries do not take advantage of the services; if the cost of the service is more than was anticipated; if the business does not develop as was expected, it is the investor's loss. The state will not reimburse him. In any private enterprise, the ever present danger of loss is offset by the possibility or probability of attractive profit. The attractiveness of investments in private enterprise must, therefore, be offset to some extent in the case of public utilities. The possibility of loss in public service enterprises must be met by the same inducement. A rate of return must be allowed which will attract capital sufficiently to brave the possibility of loss. For example, suppose that investors were willing to take the securities of electric lighting plants already established and with business worked up, say at 7 per cent. They naturally would not be willing to go into new enterprises with additional hazards on the same basis. So, to attract capital, a margin over 7 per cent must be allowed by the rate making body. Suppose this margin is 1 per cent so that the return upon which the rate schedules are based is 8 per cent; that a given utility with business established does actually earn 8 per cent. What is the result from a valuation standpoint; that is, from the standpoint of the investor? There can be but one result, and that is, that the investment or the stock, if it coincides in amount with the investment, will climb above par; that is, it will command a premium in the market. This is what actually takes place. A fair return, therefore, is such a rate as will draw capital into established

public service business plus such additional percentage as will invite capital into new enterprises along this line. Such a return when realized has the effect of increasing the actual or market value of the property. The actual or market value of the property, we will assume, was originally the same as the investment. At that time the valuation for rate and tax purposes should have been the same, but from that time on, with increases in business, it may never be the same again.

The foregoing indicates one of the important reasons why the same valuation cannot be used for rate making and taxation. There is, however, further reason. The purpose of a rate increase is, of course, to allow the utility a greater rate of return. The purpose of a rate decrease is to cut down the rate of return. A valuation fixed with these purposes in mind does not always work out as expected. There have been cases where rate decreases instead of cutting down the rate of return have tended greatly to increase the earnings and the rate of return upon the investment. In other cases, increases in rates have failed to increase the earnings or the rate of return. This has been found to be true recently in the case of street railways where people simply refuse to ride under the increased fares.

Another thing with reference to rate regulation should be mentioned. In this state it has been found impracticable to make wholesale changes in the rates of public utilities. As a usual thing changes are made only when a complaint or petition is filed either by the company or by a citizen. When these complaints are filed, there is usually a careful and comprehensive study made of the situation. It would be impossible to devote the necessary time to all of the utilities at the same time; to study all the varying conditions and to change all the rates. The Tax Commission, however, is required under the law to assess a large number of public utilities every year. The tax valuation can be determined with satisfactory accuracy in much less time than the valuation for rate making. It would seem from what has been said heretofore that it is unnecessary to argue that an increase in earnings increases the value of a public utility that whenever the Railroad Commission makes a change in the rate of any particular utility, this sooner or later will have some effect upon the market value of the property.

From the foregoing discussion I think a logical deduction may be drawn. That the so-called "fair valuation" for rate making is a misnomer. It may be fair, but it is not strictly speaking a valuation at all but rather a finding of cost—investment—what has gone into the property. What we are trying to arrive at for taxation is what is the market value—the actual value—and that depends on what can be got out of the property.



## Experiences Exchanged by Members of C. E. R. A. Engineering Council

Mechanical and Way Department Men Discuss Wheel Diameter, Electric Welding of Wheel Flanges, Contact Devices, Bearing Metal and Allied Topics at Toledo Conference

A NUMBER of pertinent engineering topics were thoroughly discussed at a round table meeting of the Northern Section of the C. E. R. A. Engineering Council held in Toledo on March 14. Besides the chairman, the meeting was attended by eighteen railway men interested in mechanical and way matters. The principal assigned topics on which the experiences of the different ones were exchanged pertained to the adaptability of 26-in. wheels for city and lightweight cars, the building up of worn wheel flanges by electric welding and the relative merits of the sliding contact shoe and the trolley wheel.

### SMALL WHEELS SATISFACTORY UNDER LIGHT CARS

In the discussion on whether or not the 26-in. wheel is the proper size for city and lightweight interurban cars, it developed that practically all the representatives had used this size wheel and found it to be satisfactory. A. Swartz, Community Traction Company, was of the opinion that the 26-in. wheel was satisfactory under city cars weighing from 16 to 20 tons. E. B. Gunn, Western Ohio Railway, who has recently made some investigations along these lines, said that he was convinced that this type of wheel was practical for interurban service. The Cincinnati, Milford & Blanchester Traction Company and the Cincinnati, Lawrenceburg & Aurora Electric Street Railroad have been using lightweight cars for some time equipped with 24-in. wheels with satisfactory results. On the former roads three lightweight cars for one-man operation were installed over a year ago and the 24-in. rolled steel wheels at the end of thirteen months continuous service showed but little wear, and in this time it has not been necessary to remove a wheel. The power consumption for these cars has been but 1.1 kw.-hr. per car-mile and the general maintenance has also been very low. The Cincinnati, Lawrenceburg & Aurora was also getting about the same results. After witnessing the demonstration of the new lightweight cars recently purchased by the Kentucky Traction & Terminal Company, Mr. Gunn stated that he was very enthusiastic over this type of car and expressed himself as being in favor of the 26-in. rolled steel wheel under this type of car.

J. F. Collins, Michigan United Railways, said that he had had no trouble whatsoever from 26-in. wheels under one-man safety cars. In regard to safety cars in general, agreements on several other points were reached, and the meeting as a whole favored double-end control for one-man cars. The question of whether or not one or two trolleys should be carried on the Bir-

ney and similar types of cars was settled in favor of one pole.

The conclusion reached was that the 24-in. wheel was thought inadvisable on account of the close clearance after wear followed by turning, but all agreed that the 26-in. diameter wheel was entirely satisfactory and practicable. The council accordingly recommended its use under lightweight interurban and city cars.

### STEEL WHEEL FLANGES CAN BE REPAIRED BY WELDING

The discussion on the practice of building up worn flanges on rolled steel wheels by electric welding was rather limited. Mr. Gunn and Mr. Heckler were the only members present who had done this work on wheels in use on interurban cars. Mr. Heckler remarked that with one pair of welded interurban wheels he had had good success, but owing to local conditions it was too expensive a practice to follow. Mr. Gunn, in relating his experience with the Lincoln machine for building up flanges, stated that he had been doing this work for the past three and a half years with excellent success. In this time only three wheels have shelled. The machine is used on the regular trolley voltage, but some trouble is experienced from the voltage fluctuation. He is contemplating installing a direct line from the substation to the shop to eliminate this drop. Mr. Gunn attributed his success largely to the care and skill of his welder and he is also of the opinion that the type of machine he is now using is the best for this work. The maximum wear is obtained by placing the welded wheels under freight trailers after they have been taken from motor car service. The Western Ohio Railway is not only welding its own wheels but has also built up a number of motor car wheels for the Dayton & Troy Railway and the Dayton & Western Railway. No recommendations were made on this subject because experience in this line had been confined to a limited number.

### THE SLIDING SHOE VERSUS THE TROLLEY WHEEL

A number of interesting points were brought out on the relative merits of sliding contact shoes and trolley wheels. Mr. Rankin, Community Traction Company, said the experience of his company was limited in this respect, but foreign cars entering Toledo were having trouble with the dewiring of sliders because it was almost impossible to adjust switch pans for the accommodation of both wheels and shoes. It is not feasible to use both types simultaneously on the same overhead system. Mr. Savage, Detroit United Railway, remarked that a steel

sliding shoe of the company's own pattern and manufacture was being used on the entire system with the exception of one division. When worn out these shoes are scrapped, since they can be produced cheaper than they can be reclaimed. In two-car operation their life averages from 1,300 to 1,800 miles, while a trolley wheel in the same service gave about 400 miles. When using the slider, the trolley pole tension is adjusted between the limits of 15 and 20 lb. The practice of regularly greasing the trolley wire where the shoe is used has been found helpful in facilitating backing up and lessening the wear on both the slider and the wire.

On the Northwestern Ohio Railway & Power Company lines E. E. Johnson said the Chapman sliding shoe was being used with good success, the life of which averaged about 6,000 miles. Mr. Shyrock of the same company added that the use of this shoe had reduced overhead maintenance by about 30 per cent and had not caused any trolley breaks since its installation on all equipment has been complete. It is also the practice of this company to assist the slider in backing up by greasing the wire at the regular meeting points of cars.

There was general agreement that interurban roads would adopt the sliding contact shoe for all their equipment when the manufacturers are able to bring out a shoe that will meet all requirements, particularly that of successfully backing.

### SPECIAL BEARING METAL GIVES GOOD RESULTS ON WESTERN OHIO

Following the discussion of the assigned topics, Mr. Gunn related his experience with the United Lead Company's Frary metal. The Western Ohio Railway installed four of these Frary metal bearings for test purposes in a passenger motor car on July 25, 1921. After making 40,000 miles each one had lost approximately 3 oz. in weight. Even with considerably less oil than is required by regular babbitt bearings, these bearings kept the axles polished and in good condition. In a 1,000-mile test run without any lubrication whatsoever, he said that the metal did not melt and run out but powdered out. After testing a few bearings of this type Mr. Savage said that he had ordered some fifty more for the purpose of making his test more conclusive. He was of the opinion that the use of this bearing metal would wipe out their bearing trouble entirely.

Helical gearing also came up for comment. The subject was closed with the general conclusion that helical gears had no particular advantage over the older type, and in fact a number of the representatives showed preference for the straight spur gears and pinions.

In response to an inquiry by one of the representatives as to the average rate at which bonds could be installed, it was brought out that one type of machine operated by a crew of three men had a capacity of about sixteen bonds per working hour. It was the



experience of Mr. Gunn that about seventy-five bonds could be placed in a day by one operator using a Lincoln type bonder and welder on a push car. When using a freight or passenger car the train crew assisted in the work so that an average of from 300 to 350 bonds per day could be installed.

## Rail Cars Finding Place on Steam Railroads

New York, New Haven & Hartford  
Official Gives Operating Experience—Three Cars Now Making  
Almost 350 Miles Each Day

IN a paper on Australia and its railways, F. M. Whyte, at the February meeting of the New York Railroad Club, explained that motor cars with internal combustion engines were being used there successfully on lines of light traffic. Such cars seem to be favored for service on outlying sections where traffic is not only light, but where fluctuations in demand are not wide.

The need for extensive experimental development in the rail car was pointed out by W. L. Bean, mechanical assistant New York, New Haven & Hartford Railroad. Mr. Bean said that the automotive industry must venture considerably and be willing to develop vehicles of greater capacity, speed and comfort.

Three rail cars are now operated on the New Haven property, with the results shown in the table. One of the cars, which seats thirty-five passengers, went into service Jan. 3, and makes two round trips on a branch 15 miles long. The speed between terminals, including three stops, is 25 m.p.h. The average of 1.2 minutes delay per trip is considered not excessive for breaking in a piece of equipment of radically new design, especially in midwinter.

The second car is operating on runs which require speeds on various schedules from one end of the line to the other from 19 to 23 m.p.h. This car runs, with frequent stops, over grades up to about 1 per cent for considerable stretches and over a very crooked line.

A third car went into service on Jan. 3 and until Jan. 30 made only about 20 miles a day. Since then it has averaged 146 miles a day, on schedules that range from a speed of 20 to 26 m.p.h.

In concluding, Mr. Bean said that the New Haven experience gave its officials confidence that there is a large economy available through gasoline rail equipment. The development should be rapid and along good engineering lines in order that there may be no serious setback and that no one gets loaded up with unsatisfactory equipment. The need for unit cars is impressive, particularly on branch lines, where engines are kept under steam, frequently from one washout period to

RAIL CAR OPERATING DATE, N. Y., N. H. &amp; H. R. R.

Operation Started	Average Daily Mileage	Average Operating Speed, M.P.H.	Total Train-Miles	Average Delay Per Trip, Min.	Passenger Data			
					Total	Average	Per Trip Max.	Min.
January 3.....	146	20-26	2,661	1.2	4,443	...	73	10
January 18.....	60	25	1,497	1.2	2,118	21.2	38	3
January 30.....	137	19-23	.....	0.4	1,467	27.2	66	10

another, and only make 30 or 40 miles per day. The field of economy is great if a rail car can be developed that will compare with a motor truck on the highways in reliability, in the saving

in fuel, in the saving in wages and in the saving in attendance other than operating wages, to say nothing of possibilities in maintenance cost reductions.

## Difficulties Confronting Electric Railways in California\*

Short Franchises, Heavy Taxation, Paving Burdens and Unfair Automobile Competition Delay Electric Railway Development—Public Opinion Becoming More Favorable to Electric Roads

BY W. V. HILL

Manager California Electric Railway Association

THERE are thirty-four electric railway companies in California operating 3,140 miles of single track with 5,736 cars and employing 17,544 men. The investment in these properties is approximately \$350,000,000. Their gross receipts in 1920 were close to \$50,000,000, and their deficit for that year was \$1,244,337, according to the report of the Railroad Commission. During 1920 they carried 624,991,946 passengers. California ranks fifth in point of mileage, cars operated and passengers carried on electric railways.

When the electric car replaced the horse car it succeeded to all of the obligations incurred by its predecessor with compound interest, including the obligation to pave and repave the tracks and for 2 ft. on each side thereof. With the advent of the automobile and trucks, the expense of track construction has grown from \$5,000 a mile during the early days to \$143,000 per mile in some of the cities in California. Notwithstanding the tremendous increase in this and in all other costs of operation, the little old nickel carfare that was charged thirty years ago is still doing duty in San Francisco and on one of the lines in Los Angeles.

### FRANCHISES ARE BURDENSOME AND SHORT LIVED

With the exception of Oakland, the franchises in the larger cities are limited to from twenty to twenty-five years. In San Francisco the city reserves the right to take over the property without payment therefor and has taken over some of the lines and paralleled others. In Los Angeles the city agrees to pay for the property if it desires to take it over at the expiration date. You can appreciate the difficulties of financing a property of forty or fifty-year bonds with franchises that run about one-half of the life of the bonds and with all the uncertainties that are liable to arise, and have arisen, at the expiration thereof.

In addition to the paving charge,

there are other obligations in the franchise. They vary somewhat to meet local situations, but the more important provisions are contained in all.

Take Los Angeles for example: Twenty-one year limitation; right of city to purchase; may grant extensions of three years; grantee must pay 2 per cent of gross receipts to city (this in addition to state tax of 5½ per cent); grantee must carry free on cars city officials, policemen, firemen and mail carriers (free rides on the Los Angeles Railway amounted to 4 per cent of the total travel in 1920); grantee must use heavy girder rail and track construction, including paving, in accordance with plans and specifications of the City Engineer; grantee must give transfers to all lines operated, and a 5-cent fare is stipulated. The Railroad Commission, however, has been vested with jurisdiction over fares. There are requirements to build culverts at street intersections where curve tracks are constructed; there are restrictions as to the kind of cars used, the service performed, the hours service must be performed and many other minor restrictions. These are a few of the requirements to which a company must agree when it accepts a franchise to operate an electric railway.

Is it surprising that the electric railways have failed to keep abreast of the development of this wonderful state? I think I speak conservatively when I say that there should be 5,000 miles of electric lines in operation in this state today properly to care for the transportation needs of the people.

There should be a drastic change in our system of granting franchises and this power should be vested in the State Railroad Commission. It is too large a problem for the average city hall politician to handle; it is a state problem for after all most of the electric railways operate in more than one city. The Pacific Electric, for instance, operates in fifty-two incorporated cities and towns. Just imagine conforming to the different franchise requirements of these municipalities. It reminds me of the conflicting ordinances in Los An-

\*Abstract of address presented before California Real Estate Association, Los Angeles, March 25, 1922.



ges and Pasadena relating to smoking on cars. A passenger wanting to smoke on a car operating in and between these cities is required to start smoking on the front end in Los Angeles and go to the rear end when reaching Pasadena. I expected South Pasadena to require smokers to sit in the center of the cars, for they never could agree with Pasadena or Los Angeles on anything as a rule. The Railroad Commission now has jurisdiction over fares, rates, service, finances, accounts, extensions and abandonments of electric lines, and in order to work out these important problems it should have jurisdiction over the granting of franchises, for after all the franchises are the foundation of the structure, and unless that is made secure it will be impossible to finance further extensions, and the officials responsible for these properties have already come to the conclusion that they cannot hope to place them in a sound financial condition and render adequate service to the public until the franchise problem is remedied.

#### BUS AND AUTO TRUCK COMPETITION IS SERIOUS

While the large number of privately owned automobiles are responsible to some extent for our loss of revenue during the past six or seven years, yet we do not feel we have any grievance with this class of competition, for the highways and paved streets were built by the taxpayers for this kind of traffic.

On the other hand we have some 800 companies and individuals operating about 2,500 large buses and trucks as common carriers over these highways (which we are being taxed to help build and maintain), doing a business estimated to be close to twenty millions annually—or about one-third of the gross business of the electric railways—destroying these highways without paying anything in the way of rental or taxes therefore, excepting a pittance of a motor vehicle tax, and nominal licenses imposed by less than 10 per cent of the cities and counties in the state. Of all the impositions ever placed on an industry, I consider this the worst. C. A. Whitmore, a member of the State Highway Commission, in a recent speech, clearly expressed the situation when he said:

A peculiar paradox exists in California. We raise the money to meet highway bonds and interest from taxes on railroads and public utilities. With this money we build highways which are now used by automobile transportation lines in competition with the railroads. The competition reduces the revenues of the railroads and reduces the income which accrues to the state, with a part of which it builds highways. The state furnishes almost free a roadway for one common carrier out of money provided by taxation of another. Obviously this situation cannot continue. Highways cannot be maintained under circumstances like these.

Mr. Whitmore also stated that it was costing about double the amount per mile to care for the 5 per cent (trucks and buses) of the vehicles using the highways. In other words, they could build highways for \$25,000 a mile that would withstand the traffic of 95 per cent using them, but it would cost \$55,000 per mile to build highways that

would withstand the other 5 per cent of the traffic.

The Highway Commission in its last report said: "The chief need for the heavier duty highway comes from the truck and auto passenger traffic. We believe that present laws should be amended to place a larger burden of maintenance cost on this particular class of traffic."

#### PUBLIC SENTIMENT CHANGING

A feeling is growing throughout the state that we have been given a raw deal by the taxpayers subsidizing our competitors with a free right of way and the non-payment of state taxes, and if this sentiment continues to grow, as reflected in more than a hundred editorials appearing recently in as many papers, we have hopes this injustice will be soon corrected. About one-half the county boards of supervisors and numerous chambers of commerce have petitioned the Railroad Commission not to grant any more permits where they compete with rail carriers, for it is now realized by public-spirited men that it has resulted in the impairment of service and in some cases the entire abandonment of lines, and that after all no community can thrive without a dependable transportation service.

So far these bus and truck operators have utterly failed to render as satisfactory service as that performed by the rail carriers, but have taken just enough revenue away from them to make it impossible for the rail carriers to maintain their former high standard of service and meet the demands of the public in making extensions in keeping with the progress of the state's de-

velopment. Until the franchise burdens and the injustice of this subsidized competition are corrected the electric railways cannot hope to board the bandwagon with you again and take their rightful place in the future development of this wonderful state.

#### Technical League Prospers

THE Technical League of Milwaukee, which is one of the activities of the Employees' Mutual Benefit Association of the Milwaukee Electric Railway & Light Company, and was organized in December, 1919, reports that during 1921 its membership practically doubled. Meetings are held monthly in the Public Service Building, usually preceded by a supper.

During the year, out of seven papers read before the league, five were presented by company employees. The assistant general claim agent discussed the work of the claims department; the general auditor, that of the accounting department; the chemist, that of the chemical and physical laboratory, and so on. Other addresses were given by the local resident engineer of the Wisconsin Railroad Commission and a prominent banker formerly intimately connected with public utility work.

At the annual meeting prizes were awarded to a transportation department man for a paper on "Power Saving as a Factor of the Transportation Department Bonus," and for papers on "Electric Characteristics of the Electric Steel Furnace," "The Three-Truck, Two-Car Train," "My Job and I" and "Essentials of a Service-at-Cost Contract."

## American Association News

#### Way Committee Holds Well Attended Meeting

THE committee on way matters held its second meeting for the year at association headquarters in New York City on March 29 and 30. In attendance were: W. F. Graves, chairman; H. H. George, vice-chairman; R. C. Cram, sponsor; C. A. Alden, V. Angerer, E. B. Entwisle, W. R. Dunham, Jr., C. F. Gailor, E. P. Roundey, E. M. T. Ryder, F. Tingley, W. W. Wysor, G. C. Hecker, E. J. McIlraith, H. M. Steward, W. C. Emory and F. A. Weymouth. The items covered are segregated below by subject assignments:

**Standardization of Branch-Off Frogs and Car Clearance Curves**—The proposed standardization scheme for branch-off frogs, as submitted in Plan B Appendix A of the 1921 report, was discussed. The general opinion was that this should not be approved. The proposed tables and data for car clearance curves presented last year as Appendix C was approved with addition of a drawing to assist engineers in making selections for varying street con-

ditions. This material will be offered for approval as a recommended design. The tables are to be amplified with data covering the use of clearance curves for tracks of other than standard gages.

**Proper Location of Tongue Switches in Turnouts, Crossovers and Branch-offs**—Drawings were submitted and approved for adoption as recommended design.

**Design of Curved Treads for Wheels and Study of Design of Flange and Tread Contours**—These subjects had been combined to facilitate discussion with the committee on equipment. It was decided that a set of three flanges of different heights but uniform thickness be suggested for discussion at the meeting of the equipment committee on April 6. The view was expressed that treads should be at least 3 in. wide and that 2½-in. wide treads should be used only when conditions will not permit a wider tread. A suggested compound tread contour applicable to all treads regardless of flange depths was to be discussed with the equipment committee also. The object of this is to secure a uniform contour of contact



surface, more nearly in conformity with actual conditions found in the contact between worn wheels and worn rails.

**Revision of Specifications for Girder Rails in Respect to the Method of Tests and Review of the Engineering Manual**—An exhaustive study was stated to have been made of the manufacture of the steel test balls proposed for use with the modified impression test as originally suggested by the A. S. T. M. A slightly revised draft of the modified impression test was approved for adoption in place of the drop test. The manufacturers advised that they would continue to make the drop test or would substitute the impression test. Mr. Weymouth, for the A. S. T. M. sub-committee, stated his belief that the A. S. T. M. would accept the modifications proposed. A suggestion for change in the present specification for splice bars was also presented. The present specification will be set aside and certain A. S. T. M. specifications for splice bars are to be substituted. These cover all grades of hardness from the soft steel desired for use with seam welded joints to the high carbon bars of a nature similar to those provided by the existing specifications.

**Designs of Substitute Ties**—The sub-committee on this subject reported that it is preparing a statement of the controlling factors of design from data received.

**Investigation of Arc-Weld Joints**—The committee devoted detailed study to the design of a proposed machine for making an accelerated form of test of these as well as other joints. The manufacturers of welding equipment will be asked to devote their metallurgical studies to the question of the best methods of producing a satisfactory top seam. A statement was made to the effect that the committee on welded rail joints is compiling data from its recent questionnaire. A general meeting of this committee will probably be held late in April.

**Wood Preservation**—The sub-committee reported that some data from Europe are being gathered on the use of sodium fluoride as a preservative. Papers describing several timber treating plants of member companies are being prepared.

**Review of Report of the American Committee on Electrolysis**—Under this head there was some discussion of the definition of "stray currents." The matter was assigned for conference with the power distribution committee.

**Specifications for Sundry Track Materials**—On this subject the committee decided to suggest adoption of the A. S. T. M. specifications for tie plates, track bolts, ordinary hookhead and screw spikes. The specification for tie rods is to be considered further.

**Dimension of Frogs**—A set of angles and lengths for standard frogs used in turnouts in split-switch and tongue-switch construction was adopted for submission as recommended design.

**Design of Track Construction in Co-operation with the A. S. M. I.**—The sub-committee reported on correspondence had with a sub-committee of the A. S. M. I. It is hoped to arrange a joint sub-committee meeting soon.

### Special American Association Reports and Compilations

THE following list of reports, which are available to members on request, has been issued by Executive Secretary Welsh.

**Financial and Operating Statistics:** Combined reports of approximately 175 companies showing complete income statement, operating expenses by departments, on various unit bases including operating and traffic ratios.

**Motor-Bus Operating Costs:** Gives operating figures for Chicago, Washington, D. C.; Lincoln, Neb., and a comparison of the relative costs of operation of motor buses, trolley buses and one-man cars.

**Recent Official Valuations:** Summary of commission decisions in valuation cases occurring since January, 1921, giving details of values found and the principles followed in determining them.

**Fare Changes on Interurban Properties:** Gives present fares in effect on interurban lines, changes that have occurred in past year and method of effecting change, i. e., whether by increasing mileage rate, increasing zone rate, rearranging zones or other methods.

**Depreciation Decisions:** Summary of depreciation rates fixed by public utility commissions. This is a supplement to compilation of the same name issued June 1, 1921.

**Metal Tokens:** A list of companies using metal tokens, showing size of token and rate at which they are sold.

**Printing Transfers:** Showing companies that print their own transfers, number printed, type of transfer and cost of printing.

In addition to the above, supplements to the wage bulletin, the fare bulletin and the cost of living studies have been prepared bringing them down to date.

### Help the Mail Pay Committee

THE Post-Office Department has recently mailed to all electric railway companies in the country that handle United States mail a series of forms calling for information necessary to enable the Interstate Commerce Commission to decide the petition recently filed before it, Docket No. 10227, by counsel for the committee on mail pay asking for increase in mail pay.

The American Electric Railway Association committee on mail pay has been in consultation with the Post-Office Department on this question, ironing out differences and reaching agreement on the method of procedure and scope of data needed. These efforts have been conducted for the department by Joseph Stewart, special assistant to the attorney general, and former second

assistant postmaster general, and for the electric railways by L. H. Palmer, chairman, and W. H. Maltbie, counsel, of the committee on mail pay. The results are contained in the forms just sent out with a pamphlet of instructions.

Executive Secretary Welsh, of the association, has mailed to all companies copies of the petition filed with the Interstate Commerce Commission and two circular letters of explanation.

As the department desires operating data based on April, 1922, the compilation of the data called for on the forms cannot be completed until after May 1. As soon as possible thereafter, with the prompt co-operative efforts of the railway companies, an analysis and summary of the figures will be made and the case prepared for argument before the Interstate Commerce Commission.

Chairman Palmer states that the mail pay committee expects to develop some interesting and authoritative data on the relation between service provided as measured in seat-miles operated and the ratio of use of same. It hopes to show the costs of providing space for carrying mail both in pouches and compartments so that this difficult question may be solved once and for all. Finally the committee is sanguine that it can prove the inadequacy of the existing rates and the justice of an increase therein. None of these desired ends can be accomplished, however, says Mr. Palmer, without the co-operation of the mail-carrying electric roads in filling out the forms accurately, completely and promptly. Further work must be done in tabulating and analyzing the information after it has been forwarded to the Department and the counsel for the committee.

### Merchandising Transportation

A MEETING of the committee on merchandising transportation of the T. & T. Association was held at association headquarters in New York on March 31. Those in attendance were E. M. Walker, chairman, Terre Haute; K. A. Simmon, East Pittsburgh; Victor S. Curtis, New Haven; W. H. Boyce, New Brighton, and J. B. Stewart, Jr., Youngstown, Ohio.

The meeting was devoted principally to deciding on the scope of the report for the October convention.

### Busy Days for Committees

DURING the past week the Engineering Association committees on power distribution and equipment each held two-day meetings, largely attended, in New York City. The committee on purchases and stores was also scheduled to meet. Reports of these meetings will appear in a later issue.

Among coming meetings already scheduled is a two-day meeting of the buildings and structures committee, April 10 and 11, at Cincinnati, Ohio, and a one-day meeting of the committee on heavy traction, on April 19, at association headquarters.



# News of the Electric Railways

FINANCIAL AND CORPORATE :: TRAFFIC AND TRANSPORTATION  
PERSONAL MENTION

## Bacharach Bill Opposed

Public Opinion Aroused Over Measure Which Would Curtail Courts' Powers Over Commission Decisions

It would seem from the attitude of members of the judiciary committee of the House of Representatives that there is little chance of success for Representative Bacharach's bill to limit the jurisdiction of Federal courts in matters pertaining to state public utility orders. Still it appears likely that the bill will be vigorously sponsored. A further hearing on the bill will be held April 25.

In explaining the object of the legislation, Mr. Bacharach said:

This bill seeks to amend the judicial code of the United States so as to compel utility corporations dissatisfied with the findings of the state utility commissioners to carry their cases through the courts of the state and then on to the Supreme Court of the United States if necessary. The enactment into law of this bill would deprive utility companies of any of their just rights for they have every protection afforded them in the high type of men who compose the membership of the higher courts of the various states.

To enact such a bill as that proposed by Mr. Bacharach would be highly injurious to the public welfare, in the opinion of Everett T. Wheeler, of the jurisprudence and Law Reform Committee of the American Bar Association. Among other things he brought this opinion to the attention of the committee:

We often hear criticisms upon the writ of injunction from those who feel its effects. It is in my judgment it is just as beneficial and important for the public welfare as the writ of habeas corpus. It prevents parties from taking the law into their own hands and provides for a continuance of existing conditions until a competent court has adjudicated the rights of the parties.

Former Senator Charles S. Thomas, Colorado, says that he cannot conceive of any law that is more iniquitous than the legislation proposed. Mr. Thomas said:

This bill is designed to reach a class of cases which will result from legislation pending or to be enacted in the future that will challenge the application thereto of such provisions of the Constitution as the thirteenth amendment. It seeks to deny the Federal Courts the right to preserve property and the rights of individuals pending the determination of the constitutional question and thereby in my judgment brings upon the fourteenth amendment.

One of the most able of those who spoke for the bill was Clyde M. Reed, chairman of the Kansas Public Utilities Commission. This was the high point of his argument:

It is not in the interest of public policy for the government to interfere where a remedy has been created under the state law for the benefit of the states laws and state judicial bodies. If a constitutional question is involved, they can appeal to the Supreme Court of the United States. We have had in Kansas during the last eight or ten years a very large volume of litigation over these questions invoking the state courts and Federal courts and many of these cases have come direct to the Supreme Court of the United States. Usually the state power has been upheld but there has been a very considerable interference in the meantime by the lower Federal courts.

Paul V. Keyser, Des Moines, representing the Investment Bankers' Association of America, said that if the suggested legislation be adopted, it will affect very materially the value of securities already issued and outstanding. In addition, it would have a direct and immediate effect upon the credit of the utilities in respect to all additional capital requirements.

William Chamberlain, of Cedar Rapids, Iowa, representing utility companies in Iowa, Illinois, Indiana, Michigan and Tennessee, said in part:

I think that it would be a serious thing to the finances and to the development of the utilities in the entire middle west to have a law passed which would take away from investors the protection of the Federal courts. I think that the result would be that in the financing of the utilities in the West you would practically drive away many millions of dollars which would otherwise be available for development.

## Wage Reduction Accepted

Recently a wage reduction approximating 8 cents an hour for trainmen was placed in effect by the Pacific Northwest Traction Company and the Puget Sound International Railway, operating in Everett, Wash. The Pacific Northwest Traction Company operates the interurban line between Everett and Seattle and the Puget Sound International, the railway lines in Everett.

The old rate of wages paid trainmen by the Pacific Northwest was 58 cents an hour for the first year, 63 cents an hour for the second year and 68 cents an hour for the third year. The new rate is 50, 55 and 60 cents an hour. The present rate of wages on the city traction lines is 48 cents an hour for the first year, 52 cents for the second year and 56 cents an hour for the third year.

These reductions were accepted by the trainmen voluntarily following a conference with executive heads. This schedule prevails until 1923.

## Traction Companies Will Save Through Centralized Plant

Power for all railway systems in Dayton, Ohio, soon will be supplied by the Dayton Power & Light Company. All but one of the five Dayton companies have been producing their own power heretofore, and in the case of this one exception, only part of the power was supplied. The Dayton power company some months ago secured a contract by which it will furnish all of the energy for the Indiana, Columbus & Eastern traction line. For a number of years it has supplied the Dayton & Troy, Dayton & Western, Dayton, Springfield & Xenia, and the Springfield and Xenia traction lines. In order to take care of these additional power contracts the company plans to spend more than \$2,000,000 in extensions and improvements.

## Election Result Awaited

Municipal Interests Planning Ahead, but Withholding Action Pending the Election

Little interest has been displayed in the railway situation by residents of Detroit, Mich., since the agreement was reached by the company and city officials regarding the purchase plan that will be voted on by the electors on April 17. The street railway officials are awaiting the outcome of the election before proceeding with their plans although little doubt is expressed that the purchase plan will be accepted by the voters.

While no financial statement has been given out for the year ending Dec. 31, 1921, covering the operation of the municipal railway lines, the revenues from operation have been satisfactory to the street railway commission and the municipal officials. The first municipal cars were operated over short sections of lines in February of last year and the first sections were put in operation for service only without the expectation of revenue until the lines were made into a more complete system by connecting the various sections. The crosstown lines have grown in importance until lines that at first showed receipts of only \$200 a day are now producing \$1,300 and \$1,600 a day.

The opening of new city lines has changed somewhat the routes taken by some of the car riders and a study is being made of the traffic conditions with a view to determining future extensions in the way of branch lines and connecting links, to be constructed in carrying out the program of expansion. Schedules have been changed from day to day on certain lines to meet the requirements of the riders as they became accustomed to and used the new routes traversed by the M. O. lines.

While the proposed use of trolley buses in connection with the municipal system has not been abandoned, the commission has decided that no further steps will be taken to establish trolley bus lines until the more important problems pertaining to the main lines have been worked out so as to make the need of buses more evident. The idea of using buses has not been abandoned and new developments of importance are looked for in connection with trolley bus equipment. Gas buses are not looked upon with favor by the commission as it is believed that under the existing conditions on the lines contemplated gas buses could not be operated satisfactorily on a 5-cent fare. As noted elsewhere in this issue the municipal railway is preparing specifications for 200 Peter Witt cars with the idea of buying this new rolling stock if the city takes over the D. U. R. lines.



### Scores City Jurisdiction—Commends State Regulation

N. W. Simpson, member of the Missouri Public Service Commission, in a speech delivered before the St. Louis Rotary Club on March 9 declared that if the people of St. Louis insisted upon a cut in electric railway fares, which are now 7 cents, they would have to "stand up for a slash in wages." He said that not only should the public utilities be permitted to earn a reasonable return on their invested capital, but they should also be allowed enough money on which to operate.

Mr. Simpson referred to the old days when politics played so important a part in readjustments, when a man who was running for office did so on the promise that he would have fares cut or gas rates reduced. He said that the commission had ended all this. Mr. Simpson said in part:

When the cities controlled public utilities they did not do it properly. State supervision was the answer. Would the United Railways have so large an amount of stocks and bonds outstanding against it today if the State had been supervising its operations? Franchises cannot cover the relations of the utilities with the public. The commission is needed.

The public is woefully ignorant on questions in which public utilities are involved and the cities were decidedly recreant to the trust placed in them. This trust never will be returned to the cities unless there is some absolute assurance that the control will be exercised judiciously.

The hardest work the commission has to do is to undo the bungled job that the cities did when they controlled utilities. Trying to untangle these knots has put gray hairs in my head. The utilities want more money, the public wants lower rates and the investors want more dividends.

Commissioner Simpson flayed the city press for its misinformed criticism of the utilities. He said he had just read an editorial on a subject on which he happened to be well posted, and he found that the editorial writer knew nothing about the subject. He said that he suspected he was the man who had been writing certain other utility editorials.

### Wage Controversy Settled

A wage agreement has been signed by the East St. Louis & Suburban Railway, East St. Louis, Ill., and its many members of the Amalgamated Association, ending a controversy that has lasted for a year and litigation which has been in the federal courts for several months. Under the contract the men get 51 cents an hour, until May 1, 1923. This is the same rate of pay they have been receiving pending the settlement. Up to July 1, 1921, the men received 70 cents an hour.

The employees demanded 65 cents an hour. After the men submitted their demand a board of arbitration was named. The arbitrator representing the company resigned before the board rendered a decision. The company then obtained an injunction restraining the board of arbitration from rendering a binding decision, as it attempted to do through the two remaining members, the union's agent and a third party. Since the injunction was granted the

employees have been working at 51 cents an hour, and the contract just signed by President W. H. Sawyer, continuing the scale for thirteen months, has been ratified by the union.

### Transportation Commission Reports

#### Sees Bright Prospect for San Diego Property—Transportation of Passengers Necessary Part of City Building

Declaring that the San Diego (Cal.) Electric Railway has a bright future if properly managed, and condemning some of the practices in the past of the company, the citizens transportation commission of San Diego appointed last fall by Mayor John Bacon, made its report to the City Council on March 27. Among the more important recommendations made in the report were suggestions that the city create a Public Utilities Commission, consisting of three members, one to be a paid executive, to supervise operations of all public utilities, but especially transportation; the consolidation of all transportation lines into one company; discontinuance of the 2 per cent municipal franchise tax; relieving the company of obligation to pave between car tracks after 1930; and that the company begin reconstructing its lines without delay. The commission also takes a stand against the zone system of fares, recommending that the 5-cent fare for all points between the bay and the eastern boundary of the city be restored as soon as the company's earnings justify.

A change in management of the company was recommended, which recommendation, the commission added, had already been complied with. The commission also opposes the plan whereby the J. D. & A. B. Spreckels Securities Company, owner of the railway company's stock in exchange for 2 per cent of the gross receipts, furnished the railway's operating and accounting staff.

The commission report says that the San Diego Electric Railway lost \$15,000 in operating the Point Loma Railway in 1920, and broke even on that line in 1921. The San Diego company operates the Point Loma company's line at a rental of 10 cents per car mile and normal maintenance, for use of track and trolley. The commission also thinks the railway paid excessive charges to the San Diego-Coronado Ferries company when it paid \$12,000 in 1921 for use of terminals at both shore approaches to the ferry. Both the Point Loma company and the Ferry company are owned by the Spreckels.

The commission commends the use of one-man cars for light traffic, and recommends the use of the auto bus for furnishing transportation to districts not sufficiently populated to justify the laying of tracks.

"Transportation of our people is as necessary and integral part of city

building as gas, water, sewer, police and fire station service," the commission report states, and recommends that the interest of the city in the welfare of the company should not be sporadic or occasional, but constant, constructive, energetic and reasonable. The report says:

These companies demand security for their investments and a fair return in interest. This is as it should be, but the other equation is the city's right to demand the greatest degree of efficiency and economy in the conduct of that business. The people should know that the men administering these public trusts are capable and honest and serving the public no less zealously than the stockholders. In the last analysis their masters are the people and the stockholders jointly and equally.

The commission pointed out that any extravagance in management, any waste, or any franchise tax or paving charge against the company, meant a higher fare to the commuters. The commission declared that the San Diego system is helping to pay for the building up of Tent City (Coronado line) and Ocean Beach (Point Loma line) resorts, and that this is unjust, and a fare should be charged on these lines to make them self-sustaining, thus aiding toward a lower fare on San Diego city lines.

### \$75,000 Saved by Want Ad

Car riders were saved \$75,000 by a "want ad," according to officials of the Cleveland (Ohio) Railway, which has just won a damage suit for this amount.

The "want ad" was used to get information about lapses of consciousness suffered by Mrs. Helen Bachman, 5600 Hough Avenue, N.E., who sued the company for \$75,000 as the result of an accident in which she was squeezed by the door of a Wade Park car on March 20, 1920.

Mrs. Bachman, who was wheeled into court, maintained that her condition is the result of the accident. During the trial Mrs. Bachman submitted to "pain tests," in one of which a bandage was slipped from her head, and she showed no sign of emotion when a doctor drove a needle into her arm. As soon as the bandage was replaced, she became apparently fully conscious.

After an article appeared, telling of the "pain tests" in the court room, one of Mrs. Bachman's neighbors reported to Cleveland Railway officials that Mrs. Bachman had suffered in a similar way before the accident.

The company placed a "want ad" in a newspaper asking for information from other persons who knew of Mrs. Bachman's condition. Several appeared in response to the "ad" and testified that Mrs. Bachman had suffered lapses of consciousness prior to the accident. The jury returned a verdict in favor of the company. The case was heard before Judge Maurice Bernon.

"That little 'want ad' saved the street car riders of Cleveland about \$75,000 to apply on the fund that will help reduce the present rate of fare," says Paul E. Wilson, secretary of the Cleveland Railway.



### Agreement Being Drawn to Provide Trackless Trolley

Counsel for the United Railways & Electric Company, Baltimore, Md., and for the Liberty Roads Improvement Association are preparing a formal agreement regarding the trackless trolley service from Gwynn Oak Junction to Randallstown. The association has notified the United Railways that the fund of \$32,500, required by the company to protect it from operating at a loss during the first five years, had been raised.

As soon as the agreement is signed, the company will set about securing the necessary licenses and franchises, ordering the buses, and erecting the poles and wires. Three trackless trolleys will be purchased.

Under the agreement the residents of the section will guarantee the United against loss up to \$10,000 during the first year of service, \$7,500 during the second, and \$5,000 during the remaining three years. By that time it is hoped that the territory will be sufficiently developed to support the line. A 14-cent fare will be charged on the line, and there will be no transfer privileges.

### \$575,000 Program of Improvements for Tampa

Increase of the Tampa (Fla.) Electric Company's capital stock from \$2,879,800 to \$3,454,800 to provide funds with which to finance extension and improvements to its property is proposed and a meeting of the stockholders will be held in Tampa on May 2 to ratify the decision of the board to go ahead with the improvements and to increase the stock or providing funds. Altogether \$800,000 will be spent by the company in new construction, improvements and extensions, according to T. J. Hanlon, Jr., manager. Improvements include:

Construction of additional trackage on the Nebraska Avenue line to permit increased service. This is to include double-tracking of certain parts of the line so that ten cars may be operated on it. Additional turnouts and double tracks are to be installed in Jefferson Street from the county jail to Nebraska Avenue. Track changes on the Union station line to permit of Birney car operation. This will include double track in Seventh Avenue from Twenty-second Street for a considerable stretch and will permit cars to operate on an eight-minute schedule during rush hours. In addition approximately 1.5 miles of new track will be laid on various lines about the city, double tracking present lines.

Purchase of twenty single-truck Birney cars for use on the Ross Avenue and Union station and Ballast Point lines, and for additional rush hour use on city lines. Ten of the new cars are to be delivered in July and the other ten in October.

Purchase of four double-truck cars for the Port Tampa line.

Additional storage and repair facilities to take care of this new rolling stock.

Establishment of substations in Gary and Sulphur Springs from which the supply of electrical current will be distributed.

Installation of a 600-hp. boiler and boiler accessories, pumps, etc., at the West Jackson Street power plant, which will make a sixth power unit at this plant.

Construction of a new store room and employees' room on part of the vacant property at the West Jackson Street plant.

One of the most important features of the program of improvements is the plan to place underground the light and power wires and cables leading from

the east cable house at Whiting Street to remove danger of interruption of service from high water in the cable house or from fires in the lower downtown district. This item will cost approximately \$300,000.

### Labor Statistics Published

The *Monthly Labor Review* for February, 1922, contains a summary of a report by the Joint Commission of Agricultural Inquiry, which was created during the summer of 1921 to investigate agricultural conditions in the United States. According to the summary the inquiry covered "the condition of agriculture and the factors which caused it, the adequacy and effectiveness of the credit machinery and resources of the country transportation and marketing and distribution." A

Year	Current Money	Value at Prices of 1913	Indexes of the Purchasing Power of Annual Earnings, Base, 1913
1909	\$623	\$653	96.3
1910	638	653	96.3
1911	641	652	96.2
1912	652	656	96.8
1913	678	678	100.0
1914	683	676	99.7
1915	666	647	95.4
1916	732	665	98.1
1917	790	613	90.4
1918	878	556	82.0

comparison is made of the average annual earnings of employees usually engaged in several of the leading industries in the United States for the years from 1909 to 1918, a comparison also of the value of these earnings at the prices of 1913 and their relative purchasing power. Included in the table are the following statistics on the average annual earnings of employees normally engaged in the electric railway, light and power, the telegraph and telephone industries.

### Augusta Matters Unchanged

The situation in Augusta, Ga., has remained practically unchanged since the Augusta-Aiken Railway & Electric Corporation took its cars from the streets on March 16. The City Council at its last meeting referred the matter back to the committee on traffic and transportation. It appears now to be generally recognized that affairs are reaching a point where some constructive action will have to be taken soon.

Efforts have been made by city officials to regulate the jitneys, which are now the only means of transportation. There is some dissension among the jitney operators themselves in regard to the present situation.

**Will Investigate Monthly Pass.**—The Public Utilities Committee of the City Council of Seattle, Wash., has asked Superintendent of Railways D. W. Henderson to investigate the success of the monthly pass system in use on the Youngstown (Ohio) Municipal Railway.

### Progress Seen in Trackless Trolley Plan

Such progress has been made in adapting a Brill trackless trolley for the Minneapolis (Minn.) Street Railway that the starting of its use on the Bloomington Avenue line from Thirty-eighth to Fortieth Streets is expected about April 15. Some of the changes made for the Minneapolis car, which is likely to be standard hereafter due to the logic of the development is a 36-in. wheel instead of 34-in., thirty seats instead of twenty-eight, one steel trolley pole instead of two of wood, a track shoe by which the car may be operated back to the company station from the end of the line.

T. Julian McGill, vice-president of the railway, believes from experiment that a trackless trolley must be constructed so that it will fit into all operations of the trolley system, otherwise it will be a mistaken policy to adopt use of such equipment. This car may be operated at a maximum of 12 ft. from the tracks in operation over the regular trolley routes back to the station, where emergency may require a detour to be made to avoid an obstruction.

The steel trolley pole with twin wheels to fit the double wire is believed to be an improvement of the original plan for a double wood pole. The company is operating successfully a motor bus as a crosstown line from the end of the Second Street line N.E. to the end of the Fremont Avenue line N., intercepting the Camden place line en route.

### Plan for Removal of Traffic Danger Suggested

Los Angeles, Cal., will be 3½ in. above the danger mark in traffic accidents if the plans of a member of the Greater Los Angeles traffic commission are adopted. These plans are now in the hands of the commission for investigation. They provide for safety "islands" 3½ in. above the street, 30 ft. long, and surrounded by 18-inch lamp posts. These "islands" would be placed at each street intersection where cars stop, and would eliminate the possibility of automobiles driving into the space designated by the traffic department for boarding street cars. Another plan involves the erection of curbs 6 in. high at street intersections, running parallel to the direction of traffic, to guide four streams of traffic, two in each direction. This plan, if adopted, would eliminate the possibility of autoists crowding into streams four and five abreast and imperiling lives of pedestrians who must use the street intersections.

Los Angeles now has from 80,000 to 100,000 automobiles tributary to the congested district, and the registration for 1922 in California exceeds 700,000 automobiles, and it is estimated at least one-fourth of these will be seen on the streets of Los Angeles.



### Taxpayers' Appeal Taken Under Advisement

Seattle's Municipal Railway controversy came one step nearer settlement recently when the Supreme Court of the State took under advisement the appeal of the "fourteen taxpayers" in their suit to enjoin the city from invading the general tax fund for operation and maintenance of the railway. The case was heard by the Supreme Court, en banc. Attorneys for the taxpayers contended that the city was under no obligation to tax the city generally for operation and maintenance of the street railway or to retire the \$15,000,000 bonds which the city gave for the purchase of the system; that the city had no power to levy a general tax for such purpose, but that it was intended to tax by directing a portion of the general fund to the operation and maintenance of the railway. Counsel for the city of Seattle contended that the city was under no obligation to tax, but that it has the power to tax, although it has no intention of so doing.

George T. Donworth, appearing as a friend of the court, a citizen of Seattle and of the State of Washington, argued that the statutes and the constitution provided against the creation of a general indebtedness for the operation of the street railway system except by popular vote, and that no such vote had been held in this case.

### Plan to Resume New Orleans Negotiations

Security holders of the New Orleans Railway & Light Company, New Orleans, La., are ready to proceed with a settlement of the company's troubles on the same basis proposed last November. This was the declaration of C. C. Chappelle upon his arrival in New Orleans to represent the security holders. He will be followed in a few days by G. M. Dahl, vice-president of the Chase National Bank, and a final settlement of the problem is expected to be reached shortly after his arrival.

Mr. Chappelle is quoted as follows:

The city of New Orleans and its people are to be congratulated that the recent decision of the Supreme Court of Louisiana establishes home rule in reference to regulation and control of its local public utilities.

The city now has full power and authority to dispose of its utility problems upon constructive and permanent lines.

I am here to co-operate, as in the past, with the Commission Council to reach an understanding whereby the New Orleans Railway & Light Company can be reorganized into a new concern—a New Orleans institution, which can be financed and kept financed through the years to come, adequately to serve the public at reasonable rates.

We were in substantial accord when negotiations were interrupted last November, upon all matters vital from the city's standpoint—valuation, rate of return, limitations upon the issuance of securities, and upon disbursements to existing securities—hence, it would seem matters should be concluded speedily.

An enormous amount of legal routine and detail is necessary to bring about a reorganization. Therefore, an early and definite understanding between the city and the security holders as to the basis is essential to real progress.

The security holders, who will undertake the responsibility of reorganization, are ready to proceed and I have taken matters up with Commissioner Maloney.

The arrival of G. M. Dahl, vice-president of the Chase National Bank, in New Orleans, La., is being anxiously awaited by the members of the Commission Council so that the conference which was interrupted by action of the Supreme Court last fall may be resumed. The members of the Commission Council are ready and willing to begin where they left off in the conference as soon as it is agreeable and convenient for Chairman Dahl to do so. Meanwhile, however, all sorts of reports are afloat. The chief of these is that the Commission Council will oppose the rate of return of 7½ per cent on the valuation fixed by agreement and will insist on a lower rate of interest.

It may be stated authoritatively that these rumors are misleading. The only objection that has been voiced against the rate of return has been that of Mayor McShane, who has called upon the railway for certain data upon which he is alleged to base his opposition to the points already agreed to by the conferees. The other members of the commission are noncommittal and disposed to deal as fairly with the railway as they are with the public in general.

## News Notes

**Approve Queensboro Subway.**—Committee of the whole of the Board of Estimate of New York, N. Y., has approved the tentative proposal for an appropriation of \$4,000,000 for the Queensboro subway from Grand Central station to Eighth Avenue and Forty-first Street.

**Company Claims Damages.**—As a result of the Nova Scotia Legislature adopting the bill changing the "drive to the left" rule to "drive to the right," the Nova Scotia Tramways & Power Company, Halifax, N. S., has claimed compensation to the amount of \$50,000. It is said this amount is necessary to change tracks, cars and snow sweepers.

**Investigates Grade Crossings.**—Investigation of grade crossings in Tiffin, Ohio, was ordered by the City Council on March 14, upon petition of a large number of residents. Safety Director George T. West was directed to probe conditions following complaints that rail crossings are left unguarded where there are no gates.

**Examinations Announced.**—The United States Civil Service Commission announces an open competitive examination for tax examiner specialist. The salary for this position ranges from \$2,400 to \$3,600. Receipt of applications will close on May 9. The commission also announces an open competitive examination for transitman on May 10.

**Paving Suits Threatened in New York.**—Borough President Julius Miller of Manhattan has disclosed that suits aggregating about \$150,000 probably will be brought by the city of New

York against the various traction companies operating surface lines to compel these corporations to pay for repaving and other repairs within the railroad area.

**Meets on Wage Matter.**—At Lima, on March 27, there was a meeting between B. J. Jones, receiver for the Ohio Electric Railway, which operates the Lima City Railway, and W. P. Anderson, J. C. Hutchinson and John Sweeney, arbitration committee appointed to adjust wage scale differences between the men and the company. A working agreement adopted last fall continues until August, but the wage scale terminated on Feb. 15. The men oppose a further cut in wages and ask for a slight increase. The committee ruled against any change.

**Third Arbitrator Selected.**—Professor George W. Rightmire of Ohio State University, Columbus, Ohio, has agreed to serve as the third member of the board of arbitration which is endeavoring to settle the wage dispute between the Indiana, Columbus & Eastern Traction Company, Cincinnati, Ohio, and its employees. The other members of the board are C. W. Rich, Springfield, who was selected by the trainmen, and S. F. Hutchins, Columbus, selected by the company. These two agreed on Mr. Rightmire for the third member. The first meeting of the full board will be held at the company's office in Springfield on April 13.

**Crews, 100 per Cent on Safety, Praised.**—The Co-operative Welfare Association of the Louisville Railway and the Louisville Interurban Company gave a dinner and entertainment in honor of the motormen and conductors of the Brook Street car line who went through the month of February without a single accident. The festivity took place at "Safety Hall" at the Eighteenth and Walnut Streets carhouses. James P. Barnes, president of the railway, praised the efforts of the men and said that they were keeping up their good work for in the twenty-one days of March these same men had run 9,668 miles without an accident.

**Fort Smith Awaits Settlement.**—Meetings between the executive committee of the men and D. C. Green, general manager of the Fort Smith Light & Traction Company, Fort Smith, Ark., have brought no concessions whatever from either side. The company is standing firm on its proposal of a separate contract for powerhouse men and trainmen; a cut of 6 cents an hour in the basic scale for carmen, and an additional cut of 3 cents an hour for swing run carmen; and the existing scale for powerhouse men and carhouse mechanics. The men are holding out for their original propositions: First, the same joint contract that has been in effect; second, the same contract, with a provision that any change in car fare would automatically open the wage scale to negotiations; and third, arbitration of the whole matter.



## Financial and Corporate

### Rental Agreement Proposed

As Result of Court's Aid Readjustment Between I. R. T. and Elevated Will Go Before Security Holders

A tentative agreement has been reached between representatives of the Interborough Rapid Transit Company, New York, N. Y., and the Manhattan (Elevated) Railway which provides for a reduction in the 7 per cent dividend paid by the Interborough on \$60,000,000, the fixed value of the Manhattan elevated lines, to 3 per cent for the fiscal year beginning July 1 next, 4 per cent for the succeeding fiscal year and 5 per cent thereafter. If the earnings of the Interborough system, subway and elevated lines, yield more than 4 per cent, the excess is to be divided between the two companies until the Manhattan again receives 7 per cent.

The agreement also provides for sacrifices by the Interborough. Its stockholders are to subscribe for \$7,000,000 of new Interborough notes, and its bondholders are to waive the sinking fund charges to retire \$160,000,000 of bonds. This waiver, which is expected to give the Interborough an additional \$2,000,000 a year, the reduction in the Manhattan dividends, the money from a new issue of notes and other money to be gained by economies and new devices, will supply the Interborough, it is estimated, an average of \$5,000,000 a year for five years. The Interborough has indicated that this sum would be needed to meet expected orders of the Transit Commission for increased service.

The agreement was the result of intervention by Federal Judge Julius M. Mayer, who appointed James R. Sheffield a trustee in bankruptcy of the Interborough Consolidated Corporation, the holding concern of the Interborough, to act as mediator.

The announcement that the Interborough would not continue to pay 7 per cent dividends to the Manhattan Company and the passing of two quarterly dividends aggregating \$2,100,000 led to conferences between representatives of the Interborough and the Manhattan. No progress was made toward reaching an adjustment that would save the Interborough from a receivership. Two applications for a receiver have been pending before Judge Mayer and the time for their disposal was near.

Judge Mayer took charge of the matter in an extra-judicial capacity for the purpose of bringing the two groups together. The agreement must have the indorsement of the security holders of the two companies.

While the Interborough directors were trying to meet the financial difficulties of the company, Mayor Hylan introduced in the Board of Estimate a resolution calling upon the Transit Commission to declare the Interborough in de-

fault of its contract on the ground of inadequate service and to seize and operate the subways. The resolution also authorized Corporation Counsel O'Brien to proceed independently, presumably in the courts, if the Transit Commission did not comply with the board's mandate. The resolution, on motion of Comptroller Charles L. Craig, was referred to the committee of the whole for consideration.

The Interborough has also obtained a further extension upon the two applications for a receivership, one by the American Brake Shoe & Foundry Company and the other by the Continental Securities Company, the latter a minority stockholder action. The litigation involves an issue of \$38,144,400 short term notes. Counsel for the Interborough said that only \$721,000 of these notes had not been deposited for extension and Judge Julius M. Mayer of the United States District Court extended the time until April 28. He coupled with this order an additional order that any party in interest might apply for a receiver on an hour's notice.

### Receiver Submits 1921 Report

Receiver O'Keefe of the New Orleans Railway & Light Company, New Orleans, La., has furnished Commissioner Maloney of the Department of Public Utilities with a report of the earnings for the twelve months ended Dec. 31, 1921. It makes a very good showing for the last three months of the year, when the population of tourists and winter residents was at its greatest.

The railway operating revenue for the year ended Dec. 31, 1921, was \$8,845,876 and the expenses amounted to \$5,790,269. The net operating income amounted to \$2,322,354. The annual return based on the twelve months ended Dec. 31, 1921 and on proposed compromise valuation as of Dec. 31, 1920, was 6.1 per cent.

### Surplus of \$1,893 in Holyoke

At the annual meeting of the Holyoke (Mass.) Street Railway, on March 21, the directors were authorized to renew the lease of the Mount Tom Railroad, to expire in June next, on as favorable terms as could be arranged. The last lease was for twenty-five years at 6 per cent return on the capital. At the meeting Isaac E. Sawyer was elected a director.

Net earnings of the Holyoke Street Railway for the past year were \$82,413, and after paying dividends at 6 per cent, amounting to \$80,520, a surplus of \$1,893 remained. Receipts and miscellaneous revenue totaled \$1,104,250. Total operating expenses were \$901,431, taxes \$371,571 and interest \$82,834, bringing total expenses to \$1,021,836.

### Buffalo Property Reports

International Railway Fails to Realize Fair Return—Traffic Falls Off—\$3,000,000 for Improvements

The 1921 operating revenue of the International Railway, Buffalo, N. Y., last year was \$10,721,279. This was insufficient by \$1,186,562 to provide for maintenance, depreciation and renewals, operating expenses, taxes and a fair return upon the value of the property in accordance with a formula adopted by the Public Service Commission when it granted the 7-cent fare or four tokens for 25 cents for the city of Buffalo. This statement was made in the annual report of the company submitted to stockholders on March 28, 1922.

In brief the company sets forth that it inherited from horse-car days a continuing charge against its revenues for the paving of city streets. H. G. Tulley, president of the company, and T. E. Mitten, Philadelphia, chairman of the executive committee, contend in the statement that this charge is unreasonable and an unjustifiable burden upon the car-riding public and one that ought to be removed.

In touching upon service, the report says that 23,000,000 fewer passengers were carried in 1921 than in 1920. Schedules were adjusted to meet traffic requirements and unnecessary service was eliminated. This saving in operating costs offsets in part the loss in revenue. The report calls attention to the survey made in November and December by engineers of the Public Service Commission whose report recommended but 1 per cent additional service. The so-called old Buffalo and Niagara Falls line practically ceased to serve as a through route between these two cities when the modern high-speed line was placed in operation, according to the report which says that those sections of the old line between Buffalo and North Tonawanda and between Niagara Falls and LaSalle are needed for local traffic, but the intervening section between North Tonawanda and LaSalle parallels the high-speed line and represents wasted service, resulting in an operating loss of more than \$150,000 per annum; this adding to the cost of transportation borne by the car riders, should, in the public interest, be eliminated. To avoid the expenditure of approximately \$1,000,000 for municipal paving requirements and reconstruction of track, permission was requested and received from the commission, to abandon the line between North Tonawanda and LaSalle.

New working conditions affecting all hourly paid employees were adopted and made effective May 1, 1921, the report says, and adds that all rates paid employees working at unskilled occupations were adjusted to compare with those paid for similar work in the industries of Buffalo. The International Railway Company's Co-Operative Benefit Association was organized last year for the purpose of promoting true co-operation between men and manage-



ment, and to provide protection to employees in the form of \$1,000 group life insurance certificates and sick benefits of \$1.50 a day. The membership dues were fixed at \$1 a month, the company contributing each month to the funds of the association a sum equal to the aggregate amount of dues paid by members. Nine death claims and sick benefits to 160 members have been paid during the year.

The report closes the first year's operation of the International system under the Mitten Management, Inc., contract. Valuation of the company's property has been prepared for presentation to support the proposed application for a system basis of fare. Industrial relations have been much improved and the Co-operative Benefit Association so advanced in membership as to represent approximately 80 per cent of all employees. The property, it is stated, has been brought to a better state of excellence, with lessened accidents, and the number of suits pending reduced from 1,486 to 778.

W. S. Dunbar, comptroller of the company, sets forth in his report that existing tariffs for transportation over interurban divisions show wide variations. These rates originated largely through agreements made between municipalities and previous managements, prior to the formation of the Public Service Commission. Some of the fares are inadequate, Mr. Dunbar reports, in that they do not pay for the cost of service rendered.

It has, therefore, been recommended that a review of the entire rate structure be made, and a valuation of the system property as a whole be presented to the Public Service Commission with an application for a general adjustment of the rates charged on the International system; this in order to establish reasonable fares conducive to the maximum use of the cars, and productive of an adequate return upon the total investment in the combined system property. The expenditure incurred through improvements and betterments amounting to more than \$3,000,000 entirely consumed the appropriation made from 1921 earnings for maintenance and renewals and approximately \$500,000 of working capital provided by the stockholders.

### Seeks to Abandon Line

The Pacific Northwest Traction Company operating out of Everett, Wash., has filed a formal request with the Public Service Commission for permission to abandon its line between Everett and Snohomish, over which no cars have operated since December of last year. Floods late last year caused damage that would require an expenditure of \$60,000 to repair, and this the company is unwilling to spend, in view of the fact that the line has been operated at a loss for three years. The line is about 7½ miles long, 2 miles of which is owned by the traction company, and the remainder is operated under a lease with the Northern Pacific Railway.

### Middle West Utilities Makes Report

The Middle West Utilities Company, Chicago, Ill., for the fiscal year ended Dec. 31, 1921, reports a total income of \$3,441,561 and a net income of \$1,616,326. The combined surplus earnings for the year, including \$493,978 the proportion of the subsidiary companies' aggregate undistributed surplus, totalled \$1,207,407. The total gross earnings of the subsidiary companies increased from \$22,729,923 for the year ended 1920 to \$26,348,234 for the year just ended. The company's balance as of Dec. 31, 1921, was \$813,048.

The company refers to its activity with new properties during the year. It makes mention of its acquiring control of the Hydro-Electric Light & Power Company of Connersville, Ind., and also of its securing a controlling interest in the Ironwood & Bessemer Railway & Light Company, the Ashland Light, Power & Street Railway Company and the Big Falls Water Power Company. The report also includes a statement on the status of the company's ten-year 6 per cent collateral gold bonds, the three-year 6 per cent collateral gold notes and the five-year 7 per cent convertible gold notes. During 1921 the company gained approximately 8,000 new stockholders and 5,000 subscribers who are becoming stockholders. This was accomplished through the company's issuing and selling \$4,375,000 in par amount of its 7 per cent cumulative prior lien stock. In addition, \$1,591,600 par amount of prior lien stock was sold on partial payment plan to be issued when fully paid.

### York Railways Planning New Property Acquisition

Negotiations are now pending by which the York (Pa.) Railways will ultimately get control of the York Haven Water & Power Company, located on the Susquehanna River at York Haven. This company has been closely associated with the York Railways and has an operating contract with the Edison Light & Power Company, by which an interchange of water power and steam power is effected, enabling the successful operation and development of the water power plant which formerly suffered from shortages due to conditions on the Susquehanna River, resulting in deficiencies which are now supplied by the steam plant of the Edison Company.

The officials of the York Railways, who also control the Edison Electric Light & Power Company, have been in conference with two groups of bankers located in Philadelphia. The deal involves about \$500,000 or about 27,000 shares of common stock now held by Brown Brothers & Company, who hold the controlling interest in the York Railways, and the Edison Electric Light & Power Company.

The York Railways operates 85 miles of electric railway and controls the Edison Light & Power Company, which does a large electric lighting and power

business. If the deal is consummated it will combine the three corporations—the York Haven Water & Power Company, the Edison Electric Light & Power Company and the York Railways.

The York Haven Water Power Company has a funded debt of \$3,760,000 and \$3,000,000 of stock at par. The plant generates 20,000 h.p.

The negotiations are being carried on by Charles R. Rhoads, a member of Brown Brothers & Company; Day & Zimmermann, engineers of Philadelphia; Janney & Company, bankers; Charles H. Bean & Company, bankers, and the York contingent.

Should the deal be consummated, the entire operation will be controlled at York, with local management and with Gordon Campbell as the probable responsible operating official in the capacity of president.

### Valuation Case to Be Concluded

With the presentation of testimony as to intangible values, cost of promotion, consolidation and other items, the United Railways, St. Louis, Mo., expects to complete its side of the case at the valuation hearing before the Missouri Public Service Commission at Jefferson City, on April 17. At the recent hearing this phase of the case was opened.

Robert L. Warner, a New York financier, former vice-president of United Railways and an official of the North American Company, testified that there should be an allowance of 10 per cent for going value, 10 per cent for consolidation of the old lines, 10 per cent allowance to cover the expense of financing, and 10 per cent to cover the cost of promotion.

Frank O. Watts, president of the First National Bank, St. Louis, testified as to the allowance for financing, and stated that from 5 to 10 per cent would be a reasonable charge. Breckenridge Jones of the Mississippi Valley Trust Company gave similar testimony. Col. Albert T. Perkins, manager for the receiver of the United Railways, testified that not less than 20 per cent of the reproduction value of the property would be necessary to pay for promotion and financing. "No large amount of capital can be collected for consolidation purposes in handling transportation corporations without large bankers' and brokers' cost," he said.

The tentative valuation fixed by the commission for rate-making purposes is \$50,000,000. Representatives of the corporation and also the receiver expect to show that the value is not less than \$75,000,000. Manager Perkins, in his testimony, said that many things entered into a valuation of such property as that of the United Railways, besides the actual physical value. He cited the contract the United Railways holds with the Keokuk water power dam. "Financed at 7 per cent," he said. "this contract would represent a value in excess of \$16,000,000." And yet, a few years ago, this contract was under vicious attack by newspapers.



### Stock to Be Issued to Cover Deferred Dividends

The directors of the Columbus Railway, Power & Light Company, Columbus, Ohio, on March 29 took the final step in the declaration of stock dividends on A and B preferred stocks and set March 31 as the date upon which the books will close. The dividend on A is 24.8 per cent and on B 2 per cent. The directors took the first step in declaring these dividends several weeks ago and their action was approved unanimously at a special meeting of the stockholders. Announcement was made that the stock dividend will be distributed as rapidly as the stock certificates can be made out.

The directors plan to hold a meeting about April 10 to declare a cash dividend on B. They will meet about June 10 to declare a cash dividend on A. The directors hope to pay a dividend on common later, but no date has been selected.

The Ohio Public Utilities Commission has approved the issuance of stocks of the company aggregating \$1,288,996, so that the stock dividends could be paid. The commission gave its approval to the revocation of stocks and bonds of the company never disposed aggregating \$774,900.

### Abandonment Likely

Railway lines between Mechanicsburg, Carlisle and Cumberland County towns will probably be abandoned by the Valley Railways, Lemoyne, Pa., although some amicable arrangement is being sought. Residents of Carlisle have made a proposal which includes suspension of service on Hanover Street and the continuation of the present Harrisburg-Carlisle line to Cave Hill. The railway officials claim that the lines east of Mechanicsburg are the only ones which pay for operation and that eventually all lines west of Mechanicsburg will be abandoned. The company representatives will report the proposal made by the Carlisle people to the company's board of directors and will inform the Carlisle borough council of the directors' action before their next regular council meeting, April 13.

### Ohio Traction Distributes Report

The first printed annual report of the Ohio Traction Company, Cincinnati, Ohio, to be submitted to stockholders was received on March 29. Heretofore the report has been read at the annual meeting, but no copies have been distributed among the stockholders. The report shows railway operating revenue for 1921 of \$8,885,632, a decrease of \$84,723. Net operating revenues were \$2,979,695, an increase of \$298,093. After taxes and rentals, excepting the franchise tax, there was a balance for the year of \$1,079,232, or \$298,093, greater than in 1920. Interest and sinking fund obligations took \$686,117, leaving \$393,115 available for return on capital, or \$22,885 short of the amount

of the allowance for capital return.

The report declares that the present rate of fare should be sufficient to provide the full return on capital for 1922. Passengers carried during 1921 showed a reduction as compared to the previous year, the number being 106,527,759, against 118,618,862 in 1920. The report estimates that there will be a surplus of \$200,000 for 1922, which if realized will pay all but \$133,000 of the accumulated deficit of the company under the service-at-cost ordinance.

The Ohio Traction Company owns practically all the stock of the Cincinnati Traction Company.

### Seattle Shows Gain

Annual Report Shows Three Year Deficit of Municipal Railway Reduced to \$1,526,869

D. W. Henderson, superintendent of the Seattle (Wash.) Municipal Street Railway has presented to Mayor Hugh M. Caldwell his annual report showing a gain of \$378,824 resulting from operation of the railway system in 1921.

At the same time City Comptroller Harry W. Carroll made public figures showing that the deficit incurred from the operation of the railway for the three years since the Stone & Webster properties were purchased now stands at \$1,526,869.

Mr. Henderson's figures of railway

#### SEATTLE MUNICIPAL STREET RAILWAY INCOME PROFIT AND LOSS STATEMENT YEAR ENDED DEC. 31, 1921

Operating revenues.....	\$6,295,564
Operating expenses.....	5,105,487
Operating income.....	\$1,190,076
Non-operating income.....	51,611
Gross income.....	\$1,241,688
Deductions from gross income.....	866,846
Net income.....	\$374,841
Losses accrued (other than income).....	1,412
Income profit and loss income.....	\$373,428
Delayed gains in prior period.....	53,133
Delayed losses in prior period.....	\$202,673
Income profit and loss earned.....	\$223,888
Unearned decrease of deficit by donations.....	2,700
Income profit and loss balance (credit).....	\$226,588
*The operating expenses will check with the reports for twelve months of 1921 by adding \$680,629 depreciation charge, \$1,190 ground rental and the auto bus expense of \$31,837, and deducting \$12,079 which is an overestimated amount for industrial insurance.	
Included in operating revenues are auto bus revenues of \$16,964.	

expense for the year include the large item for depreciation specified by the state accountants, \$680,629, a book charge, while only \$100,000 was actually set aside for depreciation. On the other hand, they do not include any monthly apportionment to meet the \$833,000 annual payment to the owners of the sys-

tem which was made on March 1, and which the Mayor has always considered in analyzing the financial condition of the railway.

Deducting the book depreciation charge from the total expense of the year, and adding the actual depreciation apportionment and the apportionment for redemption of bonds, the gain would be \$326,453, it was pointed out.

#### FEWER PASSENGERS CARRIED

Superintendent Henderson's report showed that the total expense of the railway for 1921, including operating costs, depreciation and interest on bonds, was \$5,951,385. The revenues for the year were \$6,330,210. The municipal bus lines were operated at a loss of \$14,872.

The total number of pay passengers carried on city cars during the year was 75,724,088, as compared with 98,824,369 in 1920, a difference of 22,916,386.

The report showed a marked decrease in the number of railway accidents. Car collisions decreased 106, collisions with automobiles decreased 433, derailments 125, and miscellaneous accidents 489. The total number of accidents decreased from 5,254 in 1920 to 3,972 in 1921, a difference of 1,282. The only increase reported was in the item of ejections and disputes, which are listed as accidents, of which there were nineteen more in 1921 than in 1920. Such controversies between traintment and passengers in 1921 numbered 125.

Comptroller Carroll's figures varied somewhat from those of the superintendent. They credited the railway with a gain of \$226,588 for the year, as compared with large losses during the two previous years. The loss in 1919 was \$517,173 and in 1920 \$1,236,283.

The capital assets of the railway, as shown by Comptroller Carroll's figures, on Dec. 31, 1921, were \$15,205,588, the capital liabilities, \$17,217,765, and the capital deficit, \$2,012,176. The capital deficit, Mr. Carroll explained, is larger than the deficit for the past three years because of the deficit in the old municipal railway fund before the Stone & Webster properties were purchased.

Current assets of the railway, including materials and supplies and cash on hand, at the end of the year were \$1,347,629, while current liabilities, including accounts payable and warrants outstanding were \$922,901. The current surplus was \$424,728.

In his calculations, Comptroller Carroll made the accompanying tabulation, comparing the three years of municipal operation of the general street railway system.

#### SEATTLE MUNICIPAL RAILWAY RESULTS

	1919	1920	1921	Total
Operating revenue.....	\$4,114,885	\$5,410,764	\$6,295,564	\$15,821,214
Miscellaneous revenue.....	43,268	52,628	51,611	147,507
Operating expense.....	4,067,902	5,585,301	5,105,487	14,758,691
Interest payments.....	607,424	865,660	866,846	2,339,931
Loss.....	517,173	1,236,283	.....	.....
Gain.....	.....	.....	226,688	.....
Deficit.....	.....	.....	.....	1,526,869
	1919	1920	1921	Total
Replacements and betterments.....	\$ 193,217	\$ 148,274	\$ 146,074	\$ 477,560



## New York State Railways Shows Improved Earnings

The New York State Railways, Rochester, N. Y., has reported railway operating revenues for 1921 at \$10,692,263 against \$10,454,410 in 1920. Operating expenses including \$762,087 for depreciation in 1921 increased from \$8,369,558 in 1920 to \$8,511,376 in 1921. The 1920 expense figure included a depreciation amount of \$567,554. From a net income of \$568,854 in 1921 sinking fund appropriations amounting to \$34,074 were deducted leaving a surplus of \$534,780 against a surplus \$397,047 in 1920.

James F. Hamilton, president of the railways, referred to the company's property in Rochester being valued tentatively at \$17,500,000 and being finally fixed by the board of appraisers at \$19,216,000. He alluded to the fare questions in Syracuse and Utica and intimated that a further reduction in wages was likely at the expiration of the agreement ending May 1, 1922. In discussing the earnings of the company, Mr. Hamilton said:

While the company has earned a substantial amount available for dividends, these earnings have had to be used for corporate purposes. Conditions have been such as to prevent the sale of bonds for the refunding of bonds of the People's Railroad Company of Syracuse and of the Rochester City & Brighton Railroad aggregating \$925,000, which when they became due had to be taken care of by issuing notes discounted at the banks.

In concluding his remarks to the stockholders Mr. Hamilton said the earnings were improving and he looked to the time when bonds would be sold to refund indebtedness and to reimburse the treasury for a certain amount of the expenditures on capital account which had been made from earnings. He was of the opinion that when this was effected it was to be expected that dividends could be resumed on the preferred stock and payment made on account of the dividends which have accumulated on that stock since 1918.

## Receivership Lifted in Des Moines

Harris, Forbes & Company, New York, announce that the Des Moines (Iowa) City Railway, having completed arrangements for the satisfaction of its outstanding matured obligations, the properties of that company, for more than three years in the hands of receivers appointed by the United States District Court, by order of the court, have been turned back to the company. The company is now operating under a new franchise under which the rate of fare to be charged will be automatically changed from time to time, according to the costs of operation.

The bondholders' protective committee, representing the general and refunding mortgage 5 per cent bonds, due 1936, announces that upon presentation of certificates of deposit the bonds will be returned without charge to the depositing bondholders, together with interest due July 1, 1921, and Jan. 1, 1922,

plus interest on overdue interest. Non-depositing holders may collect their overdue interest in the usual manner.

## Financial News Notes

**Valuation Fixed for Reorganization.**—The valuation of the properties of Buffalo & Lake Erie Traction Company outside the city of Erie, Pa., has been fixed at \$775,000 for reorganization purposes by the Pennsylvania Public Service Commission.

**Increased Gross Earnings in Chicago.**—Gross earnings of the Chicago (Ill.) Surface Lines increased from \$55,016,348 in the 1920-1921 period to \$60,343,733 during the twelve months ended Jan. 31. The total cost of operation amounted to \$46,516,150 leaving \$13,827,583 to be used for interest and surplus.

**Approval of Security Issue Sought.**—The Lafayette (Ind.) Street Railway, Inc., has petitioned for authority to issue \$250,000 of stock, half to be preferred. The company bought, under federal court jurisdiction, the local railway property for \$75,000. The petition says the company will buy new cars and improve the property.

**Balance Decreases.**—For the twelve months ended Feb. 28, 1922, the Republic Railway & Light Company, Youngstown, Ohio, reports gross earnings of \$7,213,677, against \$8,464,315 for the same period a year ago. The total income realized was \$2,403,676, from which deductions amounting to \$1,978,603 were subtracted, leaving a balance for depreciation, dividends, etc., amounting to \$425,074, against \$438,816 for the twelve months ended Feb. 28, 1921.

**Gold Bonds Offered.**—Halsey, Stuart & Company, Inc., and A. B. Leach & Company, Inc., are offering \$1,000,000 of the American Public Service Company's first lien 6 per cent gold bonds due Dec. 1, 1942. The price of the bonds is 89 and interest, yielding about 7 per cent. Coupon bonds are offered in denominations of \$1,000, \$500 and \$100. The American Public Service Company is controlled through stock ownership by the Middle West Utilities Company.

**Passenger Revenue and Traffic Decrease.**—For the two months of operation ended Feb. 28, 1922, the Philadelphia (Pa.) Rapid Transit Company realized a net income of \$350,876 against \$146,362 for the same period a year ago. The passenger revenue for the two months amounted to \$6,446,479 a decrease of \$246,494 over a total of January and February last year. The passengers carried totalled 130,660,707 for the two months of this year against 134,239,820 in 1921.

**A Larger Surplus than Ever.**—After all deductions the Eastern Pennsylvania

Railways, Pottsville, Pa., and subsidiary companies realized a balance for the year 1921 of \$393,065, which was transferred to surplus account, making the total accumulated surplus on Dec. 31, 1921, \$1,020,895. According to the annual report of President Pardee this surplus was greater than for any previous year. The operating revenue increased from \$1,932,751 in 1920 to \$2,290,526 in 1921. The expenses, including taxes and rentals, increased \$113,755.

**Net Income of \$980,838.**—The income statement of the Brooklyn (N. Y.) City Railroad for the eight months ended Feb. 28, 1922, and 1921, was made public recently by H. Hobart Porter, vice-president. The eight months ended Feb. 28, 1921, include the strike period. For the eight months ended February, 1922, the company realized revenue from passengers amounting to \$7,412,175, against \$6,345,330 for the same period a year ago. The net corporate income for this period amounted to \$980,838, against a deficit for the eight months ended February, 1921, of \$908,994.

**\$50,000 More Approved.**—An additional \$50,000 for the city's expenses in the valuation proceedings of the Philadelphia (Pa.) Rapid Transit Company before the Public Service Commission was recently approved by the finance committee of the City Council. An appropriation of \$175,000 has already been approved for the employment of experts. The work of fixing a value on the Philadelphia Rapid Transit properties is for the purpose of determining the permanent rate of fare the company should charge. Chairman Gaffney recently explained how the appropriations had so far been spent.

**New United Light Issue Offered.**—A new issue of \$7,000,000 United Light & Railways Company, Grand Rapids, Mich., first lien and consolidated mortgage 6 per cent gold bonds, Series A, is being offered by Bonbright & Company, Inc., New York, N. Y. The bonds are dated April 1, 1922, and are due April 1, 1952, and are non-callable for twenty-five years. They are offered at 93 $\frac{3}{4}$  and accrued interest, to yield more than 6.45 per cent. The company operates properties furnishing diversified public utility service in seventy-seven communities in the Middle West, most of them in Iowa and Illinois.

**Service Will Be Resumed.**—Railway service will be resumed in Corpus Christi, Tex., by the Nueces Railway. Street car service in Corpus Christi has been suspended since the power plant was destroyed by fire in October, 1921. A new power plant has been built, and the three-phase equipment was cut in last week. During the time the cars were not in operation, transportation was afforded by motor buses operated by the trainmen of the traction company. When the new service is inaugurated a 5-cent fare will be charged, and a twelve-minute schedule will be maintained on the company's lines.



# Traffic and Transportation

## New Fare Expected

Commission Takes Under Consideration Chicago's Preferential 5-Cent Rate—Adjournment Until April 26

An order for a new rate of fare on the Chicago Surface Lines is expected in the near future. The 8-cent fare still continues under federal court injunction, and the Illinois Commerce Commission took under advisement on March 31 the city's application for an experimental rate, preferably 5 cents. The last hearing before the commission was marked by a formal notice from the employees' union that a cut in wages would mean a strike. The Chicago company is now paying a maximum wage of 80 cents an hour for platform men and the union representatives resented the suggestion of the commission and the city that they should do something to help reduce the cost of transportation.

The union statement was presented in written form at the conclusion of evidence. The men asserted that the cost of living in Chicago has not fallen so as to justify a reduction in wages, which, they claim, are for the first time on a basis parallel with living costs. They presented figures to show that rents, fuel and taxes are higher than the government data indicate. In speaking on behalf of 14,000 employees and their families they protested against "that which seems to them an attempt to force these workers and their families back into the condition of want and privation they experienced so many years." They also made a strong defense of present working conditions provided by their agreement with the company, claiming that the city's contentions for a longer work day and more swing runs would be a hardship and would reduce the number of runs so as to deprive thousands of employees of their jobs. They refused to bear the burden of any economies which the companies might be ordered to make.

After the city's attorney had talked for several hours in the closing arguments, the company's lawyer said he would rest his case on the showing made in the federal court that evidence had not been presented to justify a reduction of the 8-cent fare. Counsel for the city stated that he was not asking the commission to fix wages or salaries, but said it could order a rate of fare which would force the company to economize. He suggested that further payments into the renewal and damage funds be prohibited and that the commission might even consider the city's 55 per cent of net receipts as profits because the city will not accept this money.

Chairman Smith of the commission made a statement in which he denied any prejudice or political bias on the part of that body and regretted that the law did not empower him to demand

an explanation of those who have circulated such charges. It has been rumored that the commissioners were agreed on an order for a 6-cent fare and 1-cent transfer charge, to be made effective before primary day, April 11. An adjournment was taken until April 26, when evidence will be resumed in the main case, this proceeding having been based on a demand for a temporary trial of a lower fare.

## Petition for Ten-Cent Fare

A committee of business men recently conferred with officials of the Wheeling (W. Va.) Traction Company and urged that a straight 10-cent fare be established from Wheeling to Bridgeport, Martins Ferry and Bellaire, all Ohio towns, and that other fares be cut to not more than 60 per cent above those of 1914. H. C. Ogden, spokesman for the business men, said the company's franchises provide for a 5-cent fare, including transfers, and that these still constitute a contract, although every one agreed that during the war a higher fare was needed. The burden of proof was now on the company.

W. B. Wills, general manager of the Wheeling Traction Company, said the company was operating at a loss. The average seating capacity of a car, he said, was fifty-seven and the average load only twenty. He said the buses operating between Wheeling and the Ohio cities were taking \$10,000 a month from railway revenues. Company officials told the committee they would notify it before July 1 if a fare reduction were practicable.

## One-Man Cars Can Be Operated Safely

When the Illinois Commerce Commission authorized the use of one-man cars in Illinois by the Tri-City Railway it referred to the common objection that certain serious accidents have happened in the operation of one-man cars. Yet the commission indicates that there is nothing in the record to show that these particular accidents are due solely to the use of one-man cars.

According to the commission, statistics in the record showed that fewer accidents have happened by the operation of one-man cars than as a result of cars operated by two men, step accidents especially being reduced to a minimum due to one man being in full charge of the car in starting and stopping, obviously eliminating the divided responsibility under the two-men operation. In its statement the commission said that the safe operation of this type of car requires the motorman never to reverse or back them and further that the car should never be operated except from the controller in the end facing the direction toward which it is moving.

## Hollywood Rehearing Held

Commission's Engineer Declares Impossible the Plan of Operating Hollywood Line Separately

The rehearing granted by the California Railroad Commission to communities who protested the recent rate increases on the lines of the Pacific Electric Railway was held on March 20, 21, 22 and 23. The commission's decision of Dec. 24, 1921, granted the Pacific Electric an increase on a mileage basis in interurban fares, which were put into effect on Jan. 1, 1922, and an increase of local passenger fares on its nine local lines in Los Angeles, whereby the commission established a zone system for a 6-cent fare for traveling in each of the two zones, inner and outer and a 10-cent fare for traveling from one zone to another with transfer privileges. Details of the fare order were given in the *ELECTRIC RAILWAY JOURNAL*, issues of Jan. 7 and Jan. 14.

The strongest protest came from the Hollywood Board of Trade, and following the protestants' request the hearing was held in the Masonic Auditorium in Hollywood. It developed at the first day of the rehearing that due to amended petitions filed by the Hollywood contestants, the main issue involved the subject of the extensions to Hollywood of the lines of the Los Angeles Railway rather than the anticipated protest. The Los Angeles Railway angle of the case was disposed of when the commission ordered interested parties to the controversy to submit briefs of arguments within a period of twenty-five days. Ten days additional in which to answer the briefs were also provided for in the governing body's stipulation.

## COMMISSION'S JURISDICTION DISCUSSED

At the opening of the rehearing held en banc before the Railroad Commission, President Harley W. Brundige of the commission brought up the point of the jurisdiction of the commission over public utilities and asked for citations upon the point of this overlapping jurisdiction that would make clear whether the power to order extensions of paralleling lines into the territory already occupied by a public utility is vested in the Board of Public Utilities of Los Angeles or in the Railroad Commission.

The Hollywood Board of Trade attorney said that the authority of the commission was paramount in the instance under discussion. The Los Angeles city attorney claimed that the line between the jurisdiction of the city and the commission was not clearly drawn. The opposite side of the argument was taken by E. O. Edgerton, former head of the railroad commission, and at present acting as special counsel for the Los Angeles Railway. Mr. Edgerton stated that the city's present class of twenty-one year franchise makes the financing of such lines an impossibility. The Hollywood Board of Trade is trying to force some authority to extend five different lines of the Los Angeles Railway into Hollywood territory now exclusively served by the Pacific Elec-



tric. The Los Angeles Railway still operates a 5-cent fare in Los Angeles.

It was declared by the Los Angeles Railway counsel that the lines demanded extended had only 4, 5, 9 and 19 years yet to run on their existing franchises, and that the class of franchise now obtainable in the City of Los Angeles was not an asset as the old 40 and 50 year type of franchise granted in the early days; but the newer type was a liability. It was opined that any order of any governing body to extend these lines would be confiscatory and force the Los Angeles Railway to apply for higher rates on its entire city lines if it was forced to extend its 5-cent lines into Pacific Electric 10-cent Hollywood territory to satisfy Hollywood's clamor for a 5-cent fare regardless of the haul of over 8 miles involved.

Paul J. Ost, Assistant City Engineer of San Francisco Municipal Street Car Lines, and employed by the Hollywood Board of Trade to show that the Railroad Commission's basis on which the Pacific Electric was granted an increase of rates was unsound met with considerable opposition. He claimed under testimony that his calculations were based on data supplied by the commission's engineers in their service survey and valuation report of the Pacific Electric Railway's property; but it appeared that Mr. Ost got hold of some wrong figures in the report, as Mr. Richard Sachse, Chief Engineer of the Commission, stated that the figures used by Mr. Ost were taken from an incomplete report of the state engineers compiled in June, 1921.

#### SUGGESTS INDEPENDENT OPERATION

Mr. Ost attempted to set the Hollywood lines out as a separate entity—to be operated independent of the other nine local city lines of the company. The commission's chief engineer explained that this was impossible. It was also cited that the State Constitution and Public Utilities Act prohibits the commission from discriminating against persons and places. It was shown that the earnings of the Hollywood Lines in January and February of this year installing the higher fares showed an increase of approximately \$30,000 over the same months of 1920.

The zone alteration asked for in the amended protest filed with the commission was withdrawn by the Hollywood attorney restoring the zone to original bounds, as Engineer Ost for Hollywood recommended the inner zone be expanded.

Mr. Sachse of the Commission is defending his reports and recommendations to the commission, as attacked by Mr. Ost, claimed Mr. Ost's methods of rate-making theory were wrong and would not apply in the Hollywood case. Mr. Ost opined himself as opposed to a zoning system, being favorable to the straight fare as applies on the San Francisco municipal lines. He stated that the main point in which his report departed from the data furnished him by the commission's engineers was in

estimated operating expenses of the Hollywood Lines. The maintenance charged these lines he insisted would bear trimming. His methodical theory of a reasonable rate on the Hollywood Lines was that the present 10-cent fare from the outer zone in Hollywood into the inner zone or vice versa should be 8 cents—a haul of over 8 miles.

During the first two days of the rehearing the Hollywood interests were concluded, and the last two days, as held in the commission's court rooms in Los Angeles, were devoted to rehearing other communities of Southern California served by the Pacific Electric local and interurban lines, who were petitioning the commission for a further readjustment of the rates.

#### BUS LINES UNDER CONSIDERATION

Attorneys for Alhambra, South Pasadena and Glendale communities leading in the petition for readjustment of the rates had municipal bus lines under consideration, so they informed the commission, but Mr. Sachse gave it as his opinion that very careful investigation should be made before any effort was made to start bus lines to compete with the Pacific Electric. Other suburbs of Los Angeles also filed petitions.

The attorneys from outlying interurban cities did not offer further protest to the valuation figures of the Commission on which a fair return was estimated, as they had previously protested against the valuation figures including a fair return on donated rights of way and bonuses, claiming their rates should be lower on lines operated over such free rights of way and under such conditions.

These communities' attorneys testified it was a judicial point observed in rate-making throughout the United States and the law governed in this respect. The chief counsel of the Pacific Electric filed a brief with the commission outlining the Company's position and attitude in the matter and citing many and certain Supreme Court rulings in this particular instance.

It will probably be forty days before the commission can conclude a decision in this rehearing.

The Los Angeles Railway Corporation's application for a rehearing for a straight 6-cent fare on its lines without taking the token privilege, as formerly authorized by the commission, was scheduled for rehearing at this time. The Los Angeles Railway had rejected the commission's granting of an increase from 5 to 6-cent fare with token privileges and requested a rehearing for purpose of eliminating the token feature and obtain, if possible, permission for a straight 6-cent fare.

While the Hollywood-Pacific Electric case was under way the Los Angeles Railway requested permission of the commission to withdraw its petition for a rehearing, which was granted and the application wiped off the board. This means that the Los Angeles Railway will still continue operating under the 5-cent fare in Los Angeles.

#### Committee Claims Exoneration From Charges of Bad Faith

An adjustment committee from the Dallas (Tex.) Railway has filed a statement outlining the position of the railway in the present fare controversy. This committee claims that the railway operated at a loss from Dec. 1, 1920, until May 1, 1921, on which date the City Commission granted authority to increase fares from 5 cents to 6 cents. Further that statements showing the company's loss on file with the Supervisor of Public Utilities exonerates the committee which negotiated with the city as well as the executives and members of the railway's Board of Directors from charges of bad faith made by city officials.

The controversy arose when the city officials learned that \$100,000 collected by the traction company since the 6-cent fare went into effect over and above the authorized return of 8 per cent on its invested capital had been paid out to stockholders of the company in dividends. It was claimed that the agreement between the city and the traction company at the time the 6-cent fare was granted, was that additional earnings under the 6-cent fare would be used to make certain improvements, notably paving between the tracks on certain streets ordered paved by the city, and that in not using the earnings as agreed the company had acted in bad faith. The city, when it was learned that revenues under the 6-cent fare had been paid out in dividends, on the ground that back dividends guaranteed by the city were being paid, issued notice of hearing on April 6 on a proposal to reduce fares in Dallas from 6 cents to 5 cents and officials of the company were directed to appear before the commission and show cause why such reduction should not be made immediately.

A detailed statement from the committee outlining the company's position was submitted to the Mayor and Board of City Commissioners. This controversy in Dallas was referred to in the ELECTRIC RAILWAY JOURNAL, issue of March 18.

#### Increased Fares in Effect

The Public Utilities Commission of the state of Idaho on Feb. 25 handed down its decision in answer to applications of the Boise Valley Traction Company and the Boise Street Car Company for increased fares on city lines. This order authorizes the following schedule for the Boise Street Car Company's city lines and the Tenth and Eighteenth Streets Belt Line of the Boise Valley Traction Company:

Cash fare .....	7 cents
Ten tickets .....	.50 cents
Forty school tickets.....	\$1.00

The South Boise line operated by the Boise Valley Traction Company was excepted from the order and a cash fare of 5 cents authorized, with forty school tickets for \$1. The new fares became effective on March 6.



## Meeting Held in Waterbury on Fare Experiment

A proposal that the Connecticut Company be ordered to reduce the fares in Hartford, Conn., to 5 cents, with an additional charge of 2 cents for transfers, was laid before the Public Utilities Commission recently by Alderman Charles Schmidt of Waterbury during a hearing in Waterbury. It was proposed as a part of a suggested experiment for trial in the four largest cities, and after the experimental period the company would be asked to adopt for all the large cities the plan which has proved most successful in the tests. Alderman Schmidt's plan was to have Bridgeport continue with its present radial rate of 5 cents with no transfers, while New Haven would try a straight 7-cent fare, Waterbury a 5-cent fare with transfer privileges, and Hartford the plan mentioned above.

Two of the three members of the Public Utilities Commission who were present at the hearing announced that the commission would give consideration to the plan and announce its decision later.

A citizens' hearing on the matter of a 5-cent fare on the Connecticut Company's lines was largely attended at New Haven, Conn., recently. President Storrs of the company was not present, having been called to Denver by reason of illness of a relative, and the company was represented by Manager Harlan. Mr. Elwell presided for the Public Utilities Commission, as Chairman Higgins is ill. The petition was twofold—a nickel fare and a re-routing of local lines to give positive rather than indirect service on all lines. There were many speakers in behalf of the fare, some asking for the 5-cent unit and showing a willingness to have a transfer made an extra charge, while others wanted action which would end the plan of having transfer points at busy places on the central streets.

## Jitney Regulatory Ordinance Invalid

The city ordinance passed by the City Commission of San Antonio, Tex., several weeks ago regulating the operation of jitneys inside the city limits, has been held invalid and an injunction restraining the city authorities from enforcing its provisions has been granted by Judge R. B. Minor of San Antonio. The ordinance was passed by the city in carrying out its part of the agreement with the Public Service Company, which owns and operates the electric railway system in that city, under which fares were reduced to 5 cents on condition that the city stop the operation of jitneys within the city except those operating to Camp Travis, which is not served by a car line. Since the ordinance was held invalid and its enforcement enjoined, jitneys have run riot, taking any route desired and maintaining any schedule or no schedule at all.

In his opinion Judge Minor said that

if the controlling purpose of the commissioners in passing these ordinances was to destroy the jitney business and create a monopoly in the San Antonio Public Service Company then two conclusions must follow: First, that the ordinances were not passed for the bona fide purpose of relieving congestion in the interest of public safety, and, second, the ordinance would be void as having the deliberate purpose to create a practical monopoly.

## Transportation News Notes

**Hearings Ended.**—Hearings before the Nebraska State Railway Commission on the application of the Omaha & Council Bluffs Street Railway, Omaha, Neb., for a permanent rate of fare have been concluded. The finding will probably not be handed down before July 1.

**Better Relations Sought.**—*Trolley Wires* is a new publication in the interest of the employees of the South Covington & Cincinnati Street Railway, Covington, Ky. It made its appearance on March 30. The object of the publication is to seek a better understanding among railway officials, patrons and employees.

**Will Experiment with Lower Fare.**—If the State Public Service Commission gives its consent, the Grays Harbor Railway & Light Company, operating in Aberdeen and Hoquiam, Wash., will experiment with a 5-cent fare in the two cities, with a 10-cent fare for intercity travel or to Cosmopolis. The present fare is 10 cents in both cities, with the same fare for intercity travel.

**Reduced Fare on Toledo Beach Line.**—A reduction in fares on the Toledo, Ottawa Beach & Northern Railroad, Toledo, Ohio, has been announced to take effect April 1. The round-trip tickets from the Casino to Toledo Beach for adults will be 30 cents. Children over 5 and under 12 years of age will be charged 15 cents. Forty-five commutation books good for thirty days will cost \$4.80. The former price was \$5.75.

**I. C. C. Decision Expected April 15.**—The decision of the Interstate Commerce Commission in the matter of a general reduction in rates, it now appears, will not be forthcoming before April 15. At present the case is being studied by the commissioners individually. If they should find themselves in substantial accord, the decision probably could be handed down as early as April 15, but should there be important differences among them, it obviously will extend the time required for the consideration of the case.

**One-Man Car Operation Started.**—Operation of the new one-man cars on certain of the lines of the Dayton (Ohio) Street Railway was started April 2. At the invitation of W. L.

Smith, general manager of the company, a number of city officials and members of the City Commission, together with Mayor Hale and City Manager Eichelberger made a test trip the preceding week and expressed themselves highly satisfied with the operation of the cars. The city officials were accompanied on the trip by W. A. Keyes, president of the road, and general manager Smith.

**Rerouting Ordinance Passed.**—Ordinances calling for the rerouting of all downtown lines of the Cincinnati Traction Company were passed by the City Council by a vote of twenty-seven to five, despite the fact that several business organizations voiced strenuous objections to the plan. The principal argument against the rerouting plan is that it is based upon an elaborate scheme of one-way streets in the downtown section. W. Jerome Kuertz, Director of Street Railways, proposes to reroute nearly all downtown lines over seven different loops.

**Increased Fares Resought.**—The Galveston (Tex.) Electric Company has renewed its efforts to get an increased fare in Galveston, and at the meeting of the City Commission recently a petition from the traction company was presented setting forth that the company can not meet operating costs under its present fare. The petition was referred by the commission to the city attorney for investigation as to the propriety of considering the petition while the suit of the city of Galveston against the Galveston Electric Company, enjoining the company from increasing its fares, is pending in Federal Court.

**Fifteen Tokens for One Dollar.**—The Public Utilities Commission of the District of Columbia has authorized the Washington (D. C.) Railway & Electric Company to sell fifteen tokens for \$1. The Capital Traction company has been selling at this rate without express authority from the commission. The established fare is 8 cents cash or six tokens for 40 cents, and to save time in purchases the Capital Traction Company advertised fifteen for a dollar, which will now be followed by the Washington Railway & Electric Company.

**Fares Adjusted.**—Fares on the lines of the City Light & Traction Company, Sedalia, Mo., have been finally fixed by a recent ruling of the Missouri Public Service Commission. Numerous hearings and some changes in previous orders have resulted in a 10-cent cash fare with a ticket rate of ten tickets for 6 cents each and children's tickets for 3 cents each. The property is valued by the commission at \$300,000 and the earnings under the new finding are stated to be about 3 per cent with a 3 per cent allowance for depreciation. In the Feb. 18 issue of the *ELECTRIC RAILWAY JOURNAL* reference was made to the 8-cent cash fare order of the commission.



## New Publications

### Government Control and Operation of Industry in Great Britain and United States During the World War

By Charles Whiting Baker. Published by the Carnegie Endowment for International Peace, New York. 138 pages.

The tremendous output of the industries in the United States and Great Britain was one of the striking features of the war. The fate of Great Britain and the world, according to Mr. Baker, never hung on a more slender thread than during the early months of 1914, when the question was undecided whether British labor would sacrifice its dearly purchased power over wages, hours of labor, working conditions and output. But Lloyd George accomplished the feat of persuading labor to make this sacrifice, and had he performed no other service he would have deserved perpetual honor as the savior of his country and the world. The industrial record in this country for the five years was a revelation of the world's surplus production capacity, but such stimulation necessarily has to be followed by a period of depression. Mr. Baker's book covers quite thoroughly the action of the government in this country in the case of the railways, public utilities, shipping, labor, fuel, etc., as well as what was done in Great Britain. On the whole, Mr. Baker's answer to the question "How has government operation worked?" during the war must be considered favorable, and he sees in the future an extension of government control over certain industries, in cases where private ownership breaks down.

### Principles of Alternating Currents

By Ralph R. Lawrence, associate professor of electrical engineering, Massachusetts Institute of Technology, Published by McGraw-Hill Book Company, New York, N. Y. 432 + xiv pages, illustrated.

This text-book covers the fundamentals of electric circuits in a way which will prove clear and interesting to readers having a thorough preparation in physics and in mathematics through the calculus and the elements of differential equations. Its place is thus the classroom of the high-grade engineering school, or the reference library of the trained engineer who wishes to "brush up" on theory from time to time.

### The Electrification of Railways

By H. S. Trewman. Published by Sir Isaac Pitman & Sons, New York, 1920. Cloth 4 x 7 in., 78 pages.

To date there has been but little published on railway electrification for the benefit of the layman. It is the author's intention in this book, without going into detail, to bring to the reader's notice some of the main questions

to which attention must be paid, giving at the same time sufficient technical electrical information to enable these points to be understood. The occasion for the book is the wide discussion that has taken place in England for several years past of the electrification of steam railways. The importance of the subject has steadily increased, especially during recent years, and the author states that there is an urgent need for a more general appreciation of the possibilities of electric traction.

### Städtebau ("City Planning")

By Otto Blum, G. Schlumpf and W. Schmidt. 478 pages with 432 illustrations, published by Julius Springer, Berlin.

This is one volume of a library of twenty-two engineering books being issued by the publishers under the direction of Robert Otzen. It is divided into three parts, each written by one of the authors mentioned. The first takes up city planning in general, the second transportation in cities and the third paving. It is the second section, comprising 274 pages, or more than half of the book, in which readers of this paper will be most interested.

This chapter is a posthumous work of the author, Prof. Schlumpf of Aachen, who died shortly after he had practically completed the manuscript. He had studied American transportation systems in this country and his portion of the book embodies data from all countries. In the first chapter the author takes up the question of traffic distribution, hourly, daily and monthly, in different cities in Europe and America, with load curves and charts, showing lengths of ride in certain cities, with a theoretical division of travel between street cars, rapid transit lines and walkers, based on distance covered. In a second chapter he considers the relations, determined from records, between population, mileage of track, speed and number of passengers; then the subject of ideal and actual layouts for radial and longitudinal cities. The following chapter is devoted to rapid transit station layouts, actual and ideal; another to different types of elevated and subway structures, car-houses and repair shop layouts. The fifth section of the book is given up to equipment and contains designs of different types of rapid transit cars, showing seat arrangement, etc., with a table giving dimensions and weights of cars, total and per seat and per passenger, with other details. In the chapter on operation graphic time tables are given of the Hamburg Städtebahn and Elevated Railway, lengths of station stop on the Berlin Elevated Railway, according to the number of passenger interchanges, and whether the train consists of one, two, four or six cars, etc. There is almost an equally extended treatment of traffic, line layouts, waiting stations, track construction, overhead construction, car equipment, fares, etc., for surface lines. The concluding chapters in this section relate to bus and ferry operation.

## Legal Notes

### NEW YORK—Damages from Operation of Elevated Railway.

Where an owner of premises owns land to the center of the street, subject to the public easement, it is proper for the court to consider this fact in fixing the damage from the maintenance and operation of an elevated railway in the street. [Berry vs. City of N. Y., N. Y. Supp., 631.]

### NEW YORK—Removal of Subway Kiosks at Company's Expense Not Compelled.

Where a traction company located its subway kiosks on the sidewalks under a certificate issued by the board of rapid transit commissioners with the consent of the city, the company could not be compelled to bear the cost of removing the kiosks when the roadway was subsequently widened. [City of New York vs. Hudson & Manhattan R.R., North-eastern Rep., 152.]

### NEW YORK—Receipts from Advertising Are Receipts from Operation.

The section of the Transportation Corporation's Law under which certain routes of the Fifth Avenue Coach Company operated provided that such a corporation ". . . shall also pay to the comptroller or other fiscal officer of said city 5 per centum of its gross receipts from the operation of said routes." The question involved, which was decided in the affirmative, was whether the revenue derived from advertisements in the interior of stages constituted part of the "gross receipts from the operation of said routes." [City of New York vs. Fifth Avenue Coach Company, 127 Northeastern Rep., 910.]

### NEW YORK—Passenger, Who Passed Behind Car After Alighting Therefrom and Was Struck by Another Car, Held Contributorily Negligent.

A passenger, who, after alighting from a car, passed behind it and was struck by a car approaching on other track from opposite direction, though she did not actually step on the other track, was held to be contributorily negligent. [Wall vs. International Railway, 188 New York Supp., 550.]

### PENNSYLVANIA—A Passenger Struck While on the Step by a Passing Car Was Guilty of Contributory Negligence.

A boy 18 years of age, boarding a crowded street car which he could not enter and standing on a step where he knew that there was only 6 in. clearance between the car and any other car that would pass on the next track, was guilty of contributory negligence. [112 Atlantic Rep., 22.]



# Personal Mention

## H. S. Day Leaves Kansas City Railways

Henry S. Day, equipment engineer of the Kansas City (Mo.) Railways, has resigned to become vice-president, in charge of production, of Smith & Sons Manufacturing Company, Kansas City, manufacturers of road building machinery. His resignation became effective April 1. R. W. Bailey, superintendent of power, has been made superintendent of power and equipment and assumes the added responsibility of the mechanical department. R. S. Neal, heretofore in charge of the drafting room and engineering work in the mechanical department, has been appointed assistant superintendent of equipment.

Mr. Day took up his work with the Kansas City Railways on July 1, 1919, immediately after his return from France, where he served as a Captain of the 37th Engineers. Prior to the war he was a valuation engineer for Sanderson & Porter and before that was for seven years on the New Haven Railroad in a responsible position in connection with the maintenance of the equipment on the electrical division. His early training was gained with the Westinghouse Electric & Manufacturing Company.

Upon severing connection with the Kansas City Railways, his fellow employees at the shop presented him with a fine Hamilton watch and an alligator traveling bag, and Mrs. Day with a forty-eight piece silver service.

C. W. Preble, superintendent of inter-urban lines of the Ohio Electric Railway, Springfield, Ohio, has taken a similar position with the Cincinnati & Dayton Traction Company, Dayton.

W. G. Neibert, who for several years has been the auditor for the Monongahela Power & Railway Company, with headquarters at Fairmont, W. Va., has been transferred to Parkersburg and will be the auditor for the Parkersburg-Marietta division of the traction company.

M. J. Collins, for twenty-eight years in the service of the Ohio Electric Railway, at Hamilton, Ohio, has been named superintendent and claim agent for the Hamilton district, succeeding Gordon Lewis, to whom he was formerly assistant. Mr. Lewis has severed his connections with the railway.

George H. Hudson has just been appointed master mechanic of the Augusta-Aiken Railway & Electric Corporation, Augusta, Ga. Mr. Hudson was master mechanic of the Tampa Electric Company from 1910 to 1918. In the latter year he resigned to become superintendent of equipment of the Monongahela Traction Company, Fairmount, W. Va. He resigned from that company

because of illness and later joined the forces of the Ohmer Fare Register Company which he held until he took up his new work.

## Joins Transit Commission

E. A. Roberts of the Beeler Organization Appointed Chief of Transit Bureau

Chief of the Transit Bureau of the New York Transit Commission! This is the title, with its attendant duties and responsibilities as well as honors, bestowed upon Edward A. Roberts on March 23. Mr. Frank Bennett has been named his assistant.

Mr. Roberts takes up his work with no small previous training and experience. He has been assistant to John A. Beeler, consulting traffic expert, and



E. A. ROBERTS

during his connection with Mr. Beeler has done intensive work in the supervising of electric railway operations. His new work will be of prime importance to the Transit Commission, for the expert advice and suggestions which he qualified to offer will increase the value of the regulatory work of the commission.

For some time at least Mr. Roberts' duties will be to work out plans for the efficient utilization of the transportation facilities already in existence. The commission considers that this is the greatest immediate work until new subways can be completed—a matter of perhaps five years.

Mr. Roberts has a long list of accomplishments already to his credit. Since joining Mr. Beeler's organization in 1917 Mr. Roberts has served with the Massachusetts Public Service Commission in the investigation of operating methods and practices preceding state control of the Boston Elevated Railway, and with the Public Utilities Commission of the District of Columbia. His work there was to increase the capacity of the Washington railway systems

under war conditions. He has also made extensive investigations for the Philadelphia Rapid Transit Company and the Public Service Railway of New Jersey.

Among his many duties Mr. Roberts has found time to write several illuminating articles for the ELECTRIC RAILWAY JOURNAL.

After his graduation from Harvard College in 1914 Mr. Roberts spent two years with the General Electric Company at Lynn, Mass., and Erie, Pa., in departments connected with the manufacture of electric railway apparatus. During 1916-17 he was a research member of the faculty of the railway engineering department of the University of Illinois, and for a short time thereafter he was associated with the Boston Elevated Railway in its electrical engineering department.

Elbert G. Allen has recently become connected with the Philadelphia (Pa.) Rapid Transit Company's engineering forces. He was formerly advisory engineer with Stone & Webster. Mr. Allen was graduated from the Massachusetts Institute of Technology. He received the degree of B. S. in mechanical engineering in 1900 and E.E. in 1901. He immediately entered the service of Stone & Webster.

William J. Baldwin, assistant to General Manager Kempster of the New Orleans Railway & Light Company, New Orleans, La., in the capacity of publicity director, has resigned to accept the position of assistant to the president of the Alabama Power Company, Birmingham, Ala. Mr. Baldwin's work at New Orleans has attracted unusual attention both for its originality and its forcefulness.

Walter E. Bryan, superintendent of power of the United Railways, St. Louis, Mo., was recently elected president of the Engineers' Club of St. Louis, and president also of the Joint Council of the Associated Engineering Societies of St. Louis. For some time he has served as chairman of the electrolysis committee of the American Electric Railway Association. Mr. Bryan is a graduate of Washington University, and, with the exception of eight months, has served the United Railways in various technical positions continuously since his graduation.

Edwin Gruhl, vice-president and general manager of the North American Company, New York, N. Y., has been elected president of the North American Edison Company, a newly organized subsidiary of the North American Company. The new company was incorporated on March 25 in Delaware. It will own 72.7 per cent of the outstanding common stock of the Cleveland Electrical Illuminating Company and the entire outstanding common stock of the Union Electric Light & Power Company, St. Louis, Mo. The 200,000 shares of no par value stock of the North American Edison Company will all be owned by the North American Company.



### Mr. Gadsden Chairman of Committee Reporting on Trade Associations

Philip H. Gadsden, Philadelphia, former president of the American Electric Railway Association, has been appointed chairman of a committee of the Chamber of Commerce of the United States which meets in Washington on April 5 to report on the manner in which trade associations may render the greatest service to business and the public.

George W. Booz has been appointed supervisor of traffic of the Camden lines of the Public Service Railway, Camden, N. J. Mr. Booz was formerly day station master. Jake Adams now holds this position.

Thomas K. Glenn, president of the Georgia Railway & Electric Company, Atlanta, Ga., has been elected president of the Trust Company of Georgia. He plans to give up his work as president of the Atlantic Steel Company.

J. L. Egolf, general superintendent of the Interurban Railway & Terminal Company, Cincinnati, Ohio, has accepted a position as general manager of the Aurora, Elgin & Chicago Railway, Fox River Division, with headquarters at Chicago, Ill.

John Paul Lucas, editor of the *Southern Public Utilities Magazine*, will direct the state "Live-at-Home" campaign in North Carolina. He was appointed by Governor Morrison. Mr. Lucas' work will be to issue information concerning agricultural conditions in the state and to urge the farmers to raise food stuffs so that they may be economically independent.

E. J. Burns, formerly efficiency expert of the San Diego (Cal.) Electric Railway, who is largely responsible for the zone system of fare collection now in successful use there, has been appointed assistant general manager of the company. The appointment of Mr. Burns to the newly created position was one of the first acts of the company's new general manager, Claus Spreckels.

George E. Snider, who has been chief engineer of the Toledo Edison Company, has been promoted to chief engineer of the Ohio Public Service Company, with headquarters in Cleveland. The new position puts him at the head of the production department of the Henry L. Doherty properties at Elyria, Lorain, Warren, Alliance, Massillon, Orrville and Mansfield. J. F. O'Connor, who has had charge of the Acme plant at Toledo, will succeed Mr. Snider. A. L. Rider will take Mr. O'Connor's place.

F. M. Finlayson, superintendent of power of the Worcester (Mass.) Consolidated Street Railway, has been made superintendent of lines also. He has been with this company since 1906, first as chief engineer of the Fremont Street plant. He had previously served the company from 1902 until 1904 as engineer at this station. Prior to the time

he was engineer of power stations for the Newton & Boston Street Railway. During his absence from the Worcester company he was engineer of the power plant of the Pittsburgh, McKeesport & Connellsville Street Railway, Pittsburgh, Pa.

## Obituary

### Leo Daft

Leo Daft died at Albany, N. Y., on March 29. To many persons engaged in the electric railway industry today Mr. Daft's name is merely a memory, so rapidly is history made, but it was he and his contemporaries, Sprague, Van Depoele, Short, Bentley, Knight and others who, in the pioneer days of electric railroading, laid the foundations on



LEO DAFT

which the industry now rests. To record all the work done by Mr. Daft in the early days would require a volume in itself so firmly was what he did linked with the important developments of the times. These developments Mr. Daft sketched himself in an article over his own name published in the *STREET RAILWAY JOURNAL* for Oct. 8, 1904, on the occasion of the twentieth anniversary of the founding of the paper. This article, six pages in length, reviewed the work done under Mr. Daft's own supervision for the Daft Electric Company in Pittsburgh, Baltimore, Saratoga, Coney Island and on the Manhattan Elevated Railway in New York in 1882 and shortly thereafter. Mr. Daft's active connection with the electric railway industry ceased about 1895. He then traveled extensively at home and abroad until about 1901, when he settled in Rutherford, N. J., and commenced work on a process whereby rubber is vulcanized onto metal plated with alloy. It was along this and allied lines that Mr. Daft had worked recently except for such interruptions as occurred when he was acting as a consultant or as an expert. Mr. Daft was born in Birmingham, England, on Nov. 13, 1843. He was a charter member of the American

Institute of Electrical Engineers, a member of the International Conference of Electricians in 1904, a member of the American Association for the Advancement of Science and a member of the Electro-Chemical Society.

Michael J. Clark, for twenty years with the Associated Bureaus of the Pittsburgh Railways, died in that city on March 17.

George F. Allen, for many years a salesman with the Railway Materials Company, Chicago, and widely known and esteemed among steam and electric railway men of the Middle West, died March 24.

W. T. Pilcher, foreman in the Building Department of the United Railways St. Louis, Mo., was shot by an unknown assailant on Feb. 6, and died Feb. 11. Mr. Pilcher had been with the company nineteen years.

Fred C. Hinds, long identified with the construction of electric railways died March 12, at his home in West Newton, Mass. He was born in Calais Me., sixty-eight years ago. He was one of the builders of the Boston & Worcester Street Railway, and he also was interested in the construction of the Bay State Street Railway and other lines in Massachusetts.

Otis H. Cutler, former president of the American Brake Shoe & Foundry Company, died recently aboard the yacht "Seramia" off the Florida coast. At the time of his death Mr. Cutler was chairman of the board of directors of the company. His connection with the company dates back to 1902 when he became affiliated with it as vice-president and general manager. His term as president extended from 1903 to 1916. Previous to his connection with the American Brake Shoe & Foundry Company, Mr. Cutler was manager of the Ramapo Foundry Company. From 1895 to 1898 he served in the New York State Assembly and during the European war was manager of the insular and foreign division of the American Red Cross.

Henry P. Nawn, president of the Hugh Nawn Construction Company Boston, Mass., died March 28 at Gilboa N. Y. He was sixty-four years old. Mr. Nawn was associated with many large construction undertakings in New England. His work in and near Boston included the construction of the East Boston tunnel, the Washington Street tunnel, the Boylston Street subway and station, the Cambridge tunnel and stations, two sections of the Dorchester tunnel and stations, the tunnel stations at the junction of Washington and Summer Streets, the L Street tunnels of the Edison Electric Light Company, the foundations of the Elevated structure at Sullivan Square, and the concrete structure of the Boston Elevated Railway at Forest Hills. He organized the Hugh Nawn Contracting Company in 1905. Mr. Nawn was engaged on a construction job at Gilboa at the time of his death.



# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER, SALESMAN AND PURCHASING AGENT  
ROLLING STOCK PURCHASES BUSINESS ANNOUNCEMENTS

## American Gear Manufacturers to Meet in Buffalo

The sixth annual meeting of the American Gear Manufacturers' Association will be held April 20, 21 and 22 at the Lafayette Hotel, Buffalo, N. Y. This association, through a sectional committee, has been giving close co-operation to the American Engineering Standards Committee, and the report of this and other committees on standardization promises to be of unusual interest. Special emphasis will be given to business conditions in the gear industry and the outlook for the immediate future.

Among the subjects to be discussed are "Good Hob Practice," by H. E. Harris of the H. E. Harris Engineering Company; "The Use of the Projector Comparator in Testing Gear Teeth," by Ralph E. Flanders of the Jones & Lamson Machine Company; "Proportions of Industrial Gears," by G. E. Katzenmeyer of the R. D. Nuttall Company; "The Grinding of Gear Teeth and Its Future in the Industry," by R. S. Drummond of the Gear Grinding Machine Company; "The Gleason Works System of Bevel Gears," by F. E. McMullen and T. M. Surkan of the Gleason Works, and "Conditions in the Industry," discussed from the standpoint of the industrial member companies under the leadership of George L. Markland, Jr., of the Philadelphia Gear Works and from the automotive standpoint with R. P. Johnson of the Warner Gear Company presiding.

An informal banquet for representatives and guests will be held on Friday evening, April 21, the principal speaker which will be John C. Bradley of the Pratt & Letchworth Company, Buffalo, N. Y., who will take as his subject "hat's Ahead."

## New Cars Received in London

The London County Council has been to receive delivery of 125 new motor cars, which have been on order for considerable length of time. On Jan. 1 a demonstration trial run was given with one of these cars. In general appearance they are quite similar to the cars now in use, being double truck, double deck, with top deck covered, and having a total seating capacity of twenty-eight passengers. There are no changes in the equipment, however. The new cars have two motors of 60 hp. each, as compared with 42 hp. with the older cars. These latter when hauling trailers are not able to accelerate as rapidly as is desired. The new cars will be able to accelerate with trailer at a rate of 1.37 m.p.h. per

second, which is the rate of the older cars without trailers. By using the new cars in trailer service as far as possible, the average speed on any route will be increased. When running without a trailer the new cars can accelerate at a rate of 2.06 m.p.h. per second, up to a speed of 12 miles per hour. Another improvement is the use of a combined folding step and side lifeguard under it. When the motorman pulls up the step the guard comes into position. The lighting and ventilation on both decks are improved, the light being more evenly distributed and the ventilation improved to prevent draughts.

## Proposed Electrification in Hungary

Present conditions indicate the necessity for electrification of Hungarian railways. Although the Government has not arrived at any decision regarding this matter, it is proposed ultimately to electrify all trunk lines radiating from Budapest—a total of about 870 miles, or 1,245 miles including double tracks. No decision has been reached as to the system of electrification, though a new split-phase system, somewhat similar to that of the Norfolk & Western Elkhorn grade, will be given a trial. An experimental run will be started about the end of April on a short line of about 15 km., equipped with overhead construction. If the test proves satisfactory, a definite decision will be arrived at next year, and general electrification will be pushed as rapidly as financial and manufacturing conditions will permit.

## New Car Company to Start Operation

The Missouri Car Company, incorporated in Missouri in September, 1920, for \$500,000, has purchased a ten-acre tract with building 567 ft. by 102 ft. in East St. Louis and announces it will begin on June 1 the manufacture of trucks for one-man cars under patents by Theodore A. Brewster. Mr. Brewster was formerly with the St. Louis Car Company and the J. G. Brill Company. He will be vice-president and chief engineer of the new company. Edward S. Stebbins will be president of the company. He has been Western manager for a large Western corporation manufacturing hydraulic equipment and has lived in St. Louis six or seven years.

In describing his patents Mr. Brewster says his "non-rollicking" truck will be in the light-weight safety class, specially designed for cars of the Birney type. A feature is that the lower section of the journal box is removable, thereby making it pos-

sible to remove wheels and axles without disturbing the journal boxes. The side frames of the truck are of standard I-beam sections. The truck is designed strictly in accordance with A.E.R.A. principles, making it possible to use axles and wheels out of any A.E.R.A. trucks without change. It will manufacture all types of steel cars for city and suburban service, also large motor bus bodies. The company expects to employ 500 men. It will probably be in the market for steel sheets and structural shapes of various weights and sections, also malleable castings.

## Municipal System Planning Two Hundred Car Purchase

Inquiries have been made and specifications are being prepared for 200 Peter Witt type cars for the Detroit Municipal system. Bids for the construction and furnishing of these cars will be asked for soon after the election if a favorable vote is cast on the taking over of the city lines of the Detroit United Railways. The Peter Witt cars will be purchased to replace about 340 single-truck cars now being operated by the Detroit United Railway. The commission plans on improving the service by rerouting certain cars and providing new and clean cars to replace the older cars which are now being used.

## Rehearing Sought on Lumber Interests

Rehearing of the open price association practice in trade or modification of the decree in the hardwood lumber to permit of the collection and dissemination of production, sales and stock reports has been requested of the United States Supreme Court in a petition filed by the American Lumber & Lumber Company, the defendants in the recent suit in which the court decided the practice was illegal because in violation of the anti-trust law. The lumber interests base their request on misinterpretation of certain phases of the case, and make general denial of the conclusions of the court that the purpose of the practice employed by the lumber interests was to curtail production or enhance prices.

## Metal, Coal and Material Prices

Metals—New York	April 4, 1922
Copper, electrolytic, cents per lb.	12.675
Copper wire base, cents per lb.	14.062
Lead, cents per lb.	4.90
Zinc, cents per lb.	5.10
Tin, Straits, cents per lb.	29.50
<b>Bituminous Coal, f.o.b. Mines</b>	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	\$4 575
Somerset mine run, Boston, net tons	1.875
Pittsburgh, mina run, Pittsburgh, net tons	1.85
Franklin, Ill., screenings, Chicago, net tons	2.05
Central, Ill., screenings, Chicago, net tons	1.875
Kansas screenings, Kansas City, net tons	2.50
<b>Materials</b>	
Rubber-covered wire, N. Y., cents per lb.	5.90
Weatherproof wire base, N. Y., cents per lb.	15.50
Cement, Chicago net prices, without bags	\$1 97
Linseed oil, (5-bbl. lots), N. Y., cents per gal.	84.00
White lead, (100-lb. keg), N. Y., cents per lb.	12.25
Turpentine (bbl. lots), N. Y., cents per gal.	68.00



## Rolling Stock

Pittsburgh Railways has ordered forty cars from the Standard Steel Car Company.

Binghamton (N. Y.) Street Railway, through William G. Phelps, receiver, recently awarded a contract to the Cincinnati Car Company for seven new double-truck steel cars at a cost of \$71,545.

Tampa (Fla.) Electric Company will purchase twenty single truck Birney cars and four double truck cars if the funds for the program of improvements are voted at the meeting of the stockholders in Tampa on May 2.

Brooklyn (N. Y.) Rapid Transit Company will expend \$860,000 in converting several cars into the one-man type and for reconstructing tracks of several lines. Mr. Garrison, receiver, said that the present financial condition of the company warranted this expenditure to rehabilitate the company's service.

## Track and Roadway

Calgary (Alta.) Municipal Railway has asked the City Council to approve a recommendation for the rehabilitation of the electric railway. It is reported that approximately \$24,000 a year for ties and about \$40,000 a year for sub-base will be required during the next eight years.

United Railways, St. Louis, Mo., following approval by the receivers, is placing orders for material to construct fifty motor cars of the Peter Witt type to be built in its own shops. The new cars will be of the same general construction as fifty-one motor cars built last year. The approximate cost is \$500,000. A total seating capacity of sixty passengers will be provided and the approximate weight will be 35,000 lb.

Tacoma Railway & Power Company, Tacoma, Wash., will share in the repairing of Broadway, from Seventh to Seventeenth Streets, at a total cost of \$175,000, by the relaying of tracks and standing a portion of the paving expense. The new rails required will cost \$20,910. Laying new ties and foundations, tearing out old tracks and paving approximately one-third of the width of the street will cost between \$60,000 and \$70,000, making a total expense of \$90,000 to the company.

Seattle, Wash.—To finance the purchase of rails for use on First Avenue, to be installed in connection with new paving there, the city of Seattle, Wash., may resort to giving bonds to the manufacturers in payment for material and to the contractor who performs the work. A bond issue of \$680,000, including this project, has long been authorized, but the securities failed to sell recently, although publicly advertised. Corporation Counsel Walter F. Meier has begun preparation of an ordinance directing the Board of

Public Works to prepare plans and specifications for the improvement.

Columbus Railway, Power & Light Company, Columbus, Ohio, has several important improvements in prospect which were recently approved by the stockholders. These include paving of the company's share of Front, Third and East Main Streets, installing a double track on Third Street, extending the tracks used by Leonard, Linden, Mount Vernon and Shepard cars directly east on Spring Street to Cleveland Avenue instead of turning at Chestnut, Naghten and Fourth Streets.

Cincinnati, Ohio.—Plans and specifications for Section No. 6, the longest stretch of the rapid transit loop for Cincinnati, have been completed by the Rapid Transit Commission. The unit is to be built in the open and will extend a distance of approximately 3 miles. The estimated cost is \$399,635. Bids on the construction will be advertised at once. Frank Krug, chief engineer, reported at the meeting of the commission that of the \$6,000,000 bond issue voted for the rapid transit loop bonds to the amount of \$3,300,000 had been issued and sold and that the commission had remaining \$2,700,000 to be sold.

Indiana Service Corporation, Fort Wayne, Ind., track extensions to the site of the International Harvester Company plant east of the city will be delayed until actual work is started on the new plant, according to S. W. Greenland, general manager of the railway. Plans have practically been completed for the work. Mr. Greenland said, but the two lines called for in the contract between the traction company and the Harvester company will not be started until more definite information is available. The corporation, said Mr. Greenland, is now devoting its efforts to the erection of a high-tension line from the Decatur interurban road to the Fort Wayne, Van Wert & Lima electric system, to provide feeders for the Harvester company plant for power and lighting.

## Power Houses, Shops and Buildings

Toledo & Indiana Traction Company, Toledo, Ohio, is planning a new interurban freight station at Washington and Ontario Street.

Hagerstown, Md.—The Western Maryland Railway and the Hagerstown & Frederick Railway have entered into a contract by which the former will dismantle its electric power generating plant in the shops at Hagerstown and thereafter purchase power from the Hagerstown & Frederick Railway.

New Orleans Railway & Light Company, New Orleans, La., is revising plans perfected thirteen years ago for the erection of an office building. The company's headquarters were recently destroyed by fire. If found suitable with changes adaptable to present construction methods an up-to-date building will be erected upon the old site at

Common and Baronne Streets. Meanwhile the company's headquarters temporarily will be at 421 Baronne Street.

Rutland Railway, Light & Power Company, Rutland, Vt., has removed its motor-generator set from the Rutland substation and installed it at Castleton Corners. This will supply the railway with 60-cycle current at this point and is the last change necessary to transfer the railway load from 25 to 60 cycle. A new 60-cycle generator for the Cavers Falls generating station, which is replacing a 25-cycle machine, is now being installed.

Seattle, Wash., city officials are considering steps to reduce the amount of power purchased from the Puget Sound Power & Light Company to operate the Seattle Municipal Railway. The City Council utilities committee has ordered a favorable report on a resolution by Councilman Philip Tindall, calling on J. D. Ross, Superintendent of City Lighting Department, for a statement as to the earliest date at which the light plant will be ready to take over 5,000 kw. of the railway power load. Under the contract of purchase for the traction property, the city has a right at any time after March 1, 1922, to take over 5,000 kw. from the load now being furnished by the Puget Sound Company by giving one year's notice.

## Trade Notes

The Uehling Instrument Company, manufacturers of CO<sub>2</sub> recorders and other fuel economy equipment, announces that the principal office of the company is now located at its factory in Paterson, N. J., instead of at the former address, 71 Broadway, New York City.

Combustion Engineering Corporation, New York, N. Y., announces the opening of a new branch office at 1137 Guardian Building, Cleveland, Ohio. This office will be in charge of Frank Henderson, who has been associated with several of the most prominent stoker companies in this territory for many years.

Largest Order for Power-Saving Devices.—A note in this department in the issue of March 25 regarding the recent Philadelphia order for Economy watt-hour meters referred to it as "probably" the largest order for power-saving devices ever placed. The comparison intended was in amount of money involved. The Brooklyn order in 1920 for 2,400 Arthur recorders is claimed still to hold the record for number of devices sold on a single order.

Chester F. Gailor has resigned as consulting engineer of the Trackless Transportation Company, New York City, to devote his attention to other business with which he has been closely associated. He was in 1913 made assistant chief engineer of the United Railways & Electric Company, Baltimore, and before that was with the Hartford division of the Connecticut Company.



## The Remedy for

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- insufficient braking capacity*
- braking action which is too slow*

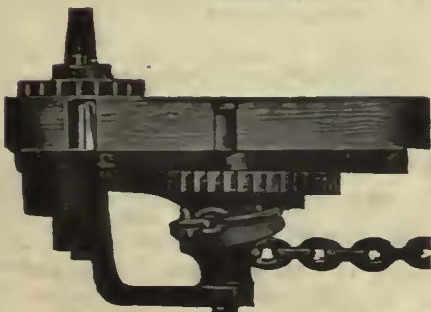
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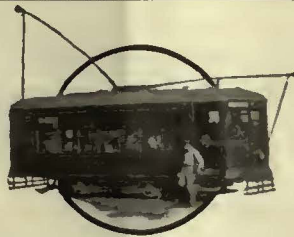
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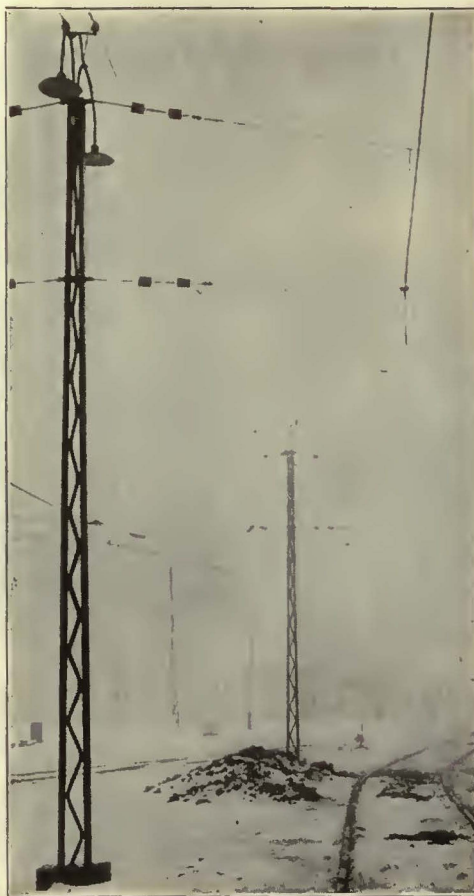
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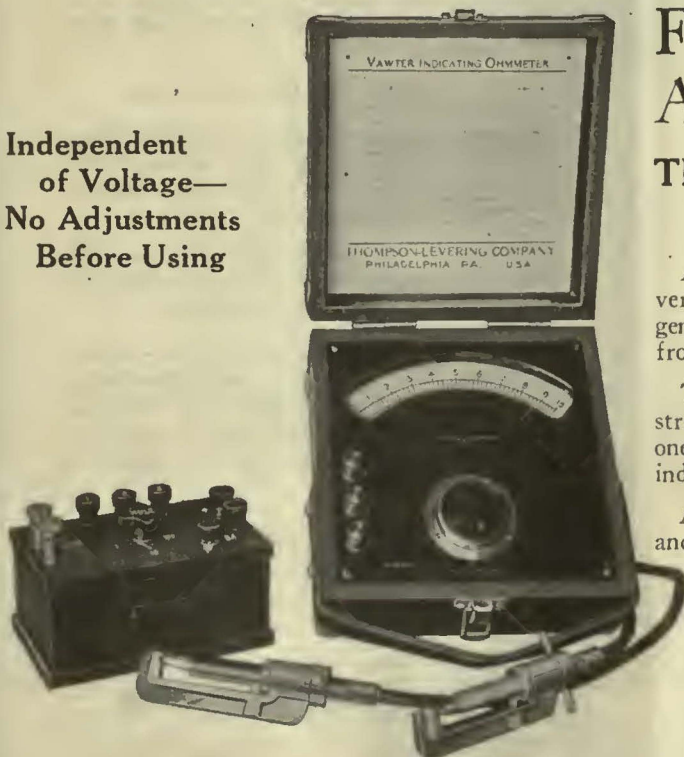
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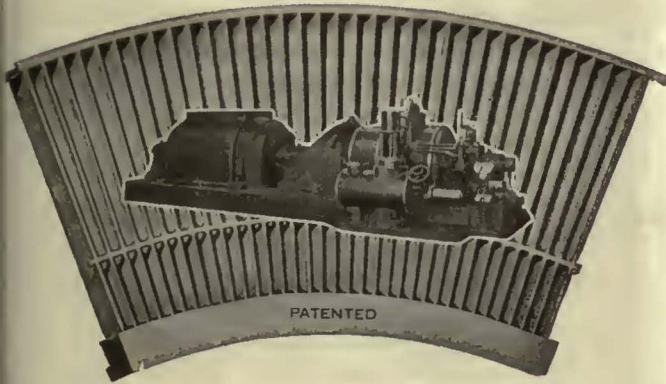
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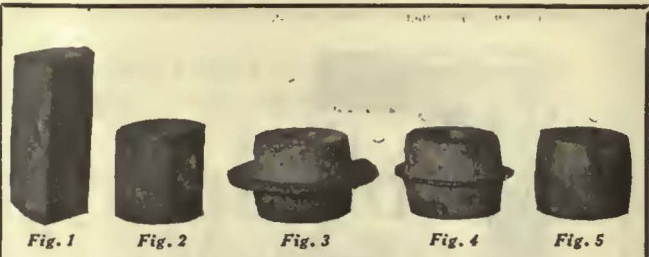


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Figure 1—Section cut from square rolled billet.

Figure 2—Billet upset and rounded.

Figure 3—Blank rough forged—first forming operation in retaining die.

Figure 4—Blank finish forged—second forming operation in retaining die.

Figure 5—Blank sized and trimmed—ready for machining.

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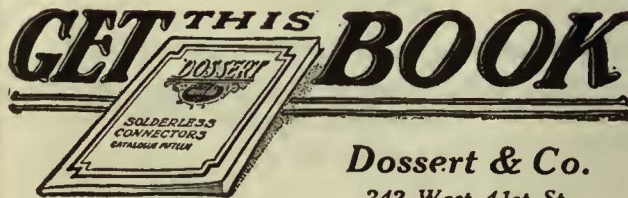
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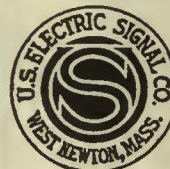
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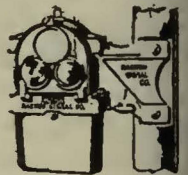
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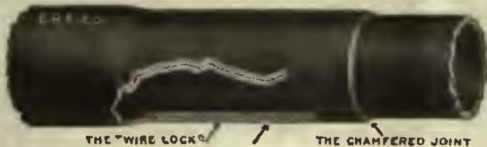
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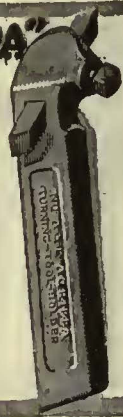
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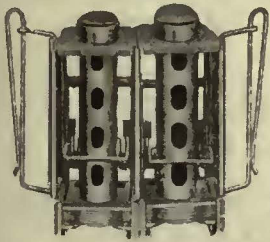
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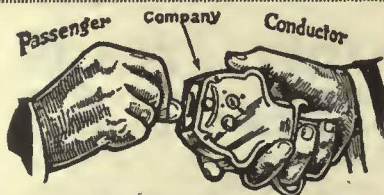
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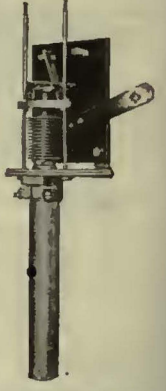
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Consolidated Steel Corporation, 35 Broadway, New York, is the sole exporter of our commercial products.

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**AMERICAN means QUALITY  
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present an unusual combination in that they give better results at less cost.

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Think "SEARCHLIGHT" First

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FOR SALE

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trucks and motors

ELECTRIC EQUIPMENT CO.  
Commonwealth Bldg., Phila., Pa.

LEGAL NOTICE

Publishers' Statement

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of Electric Railway Journal, published weekly at New York, N. Y., for April 1, 1922.

State of New York }  
County of New York } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared James H. McGraw, Jr., who, having been duly sworn according to law, deposes and says that he is the Secretary of the McGraw-Hill Co., Inc., Publishers of Electric Railway Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, McGraw-Hill Co., Inc., 10th Ave. at 36th St., New York, N. Y. Editors, Henry W. Blake and Harold V. Bozell, 10th Ave. at 36th St., New York, N. Y. Managing Editor, Henry W. Norris, 10th Ave. at 36th St., New York, N. Y. Business Manager, L. W. Seeligsberg, 10th Ave. at 36th St., New York, N. Y.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.) McGraw-Hill Co., Inc., 10th Ave. at 36th St., New York, N. Y. James H. McGraw, 10th Ave. at 36th St., New York, N. Y. Arthur J. Baldwin, 10th Ave. at 36th St., New York, N. Y. Henry W. Blake, 10th Ave. at 36th St., New York, N. Y. Fred. Low, 10th Ave. at 36th St., New York, N. Y. Leonard D. Baldwin, 27 Pine Street, New York, N. Y. John McHugh, 10th Ave. at 36th St., New York, N. Y. James H. McGraw and James H. McGraw, Jr., Trustees for Harold W. McGraw, James H. McGraw, Jr., Curtis W. McGraw, Donald C. McGraw, 10th Ave. at 36th St.

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4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation to whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

JAMES H. MCGRAW, JR.

Sworn to and subscribed before me this 30th day of March, 1922.

[Seal.] MARTIN J. WIEMER.

Notary Public Kings County Certificate No. 92. Certificate filed in New York County No. 202.

(My commission expires March 30, 1922.)

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50 cars, 60,000 lbs. capacity, 8 sill constr., 36 ft. long, Simplex trucks, passing all MCB and ICC requirements; immediate shipment.

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*Booklet: "Steel Cross Ties for Every Purpose."*

# Carnegie Steel Company

General Offices: Carnegie Building, Pittsburgh, Pa.

149-A-32

*Safety cars  
make  
safer dividends  
when equipped with  
"Tool Steel" gears & pinions*

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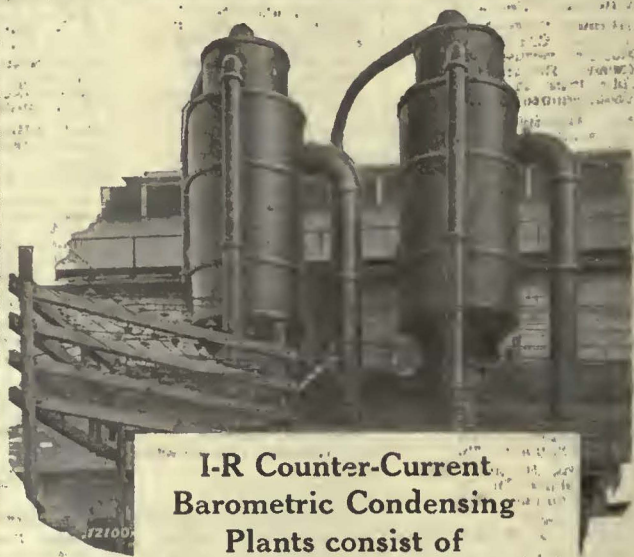
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Ingersoll-Rand Co.
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Booney-Vehslage Tool Co.  
Internat'l Reg. Co., The  
Wood Co., Chas. N.
- Rail Grinders (See Grinders)**
- Rails, Steel**  
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Carnegie Steel Co.  
Midvale Steel & Ordnance Co.
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Rail Welding & Bonding Co.  
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Brill Co., The J. G.  
McGuire-Cummings Mfg. Co.  
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Internat'l Reg. Co., The  
Rooke Automatic Reg. Co.
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American Steel & Wire Co.  
Carnegie Steel Co.
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Electric Service Sup. Co.
- Repair Work (See also Coils)**  
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Westinghouse E. & M. Co.
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Brill Co., The J. G.  
Columbia M. W. & M. I. Co.  
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Nichols-Lintern Co.  
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- Sash Fixtures, Car**  
Brill Co., The J. G.
- Scrapers Track (See Cleaners and Scrapers, Track)**
- Seating Materials**  
Brill Co., The J. G.
- Seats, Car (See also Rattan)**  
Amer. Rattan & Reed Mfg. Co.  
Brill Co., The J. G.  
St. Louis Car Co.
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- Shovels**  
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Bemis Car Truck Co.  
Brill Co., The J. G.  
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(See Batteries, Storage)
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Midvale Steel & Ordnance Co.  
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(See Track Special Work)  
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Barbour-Stockwell Co.  
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Anderson Mfg. Co., A. & J. M.  
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Electric Service Sup. Co.  
General Electric Co.  
Nuttall Co., R. D.  
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Anderson Mfg. Co., A. & J. M.  
Electric Service Sup. Co.  
General Electric Co.  
Nuttall Co., R. D.  
Ohio Brass Co.  
Trolley Buses  
Brill Co., The J. G.  
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Elec. Service Supplies Co.  
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Williams & Co., J. H.
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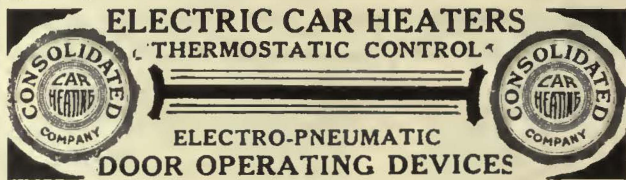
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# ALPHABETICAL INDEX TO ADVERTISEMENTS


Page	Page	Page	Page
<b>A</b>	<b>D</b>	<b>K</b>	<b>S</b>
Allis-Chalmers Mfg. Co. . . . . 25	Damon Chapman Co. . . . . 35	Kelly Cooke & Co. . . . . 20	Richey, Albert S. . . . . 20
Allison & Co., J. E. . . . . 20	Day & Zimmermann, Inc. . . . . 20	Kuhlman Car Co. . . . . 37	Roebling's Sons Co., John A. . . . . 26
American Abrasive Metals Co. . . . . 36			Rooke Automatic Register Co. . . . . 29
Amer. Brake Shoe & Fdry Co. . . . . 35			
American Bridge Co. . . . . 21			<b>L</b>
American Car Co. . . . . 37			Le Carbone Co. . . . . 30
American Electrical Works. . . . . 27			
Amer. Mason Safety Tread Co. . . . . 36			<b>M</b>
American Rattan & Reed Mfg. Co. . . . . 30			Marsh & McLennan. . . . . 6
American Steel Foundries. . . . . 36			Midvale Steel & Ordnance Co. . . . . 30
American Steel & Wire Co. . . . . 27			Miller Trolley Shoe Co. . . . . 10
Anaconda Copper Mining Co. . . . . 26			More-Jones Brass & Metal Co. . . . . 35
Anderson Mfg. Co., A. & J. M. . . . . 26			Morganite Brush Co., Inc. . . . . 23
Archbold-Brady Co. . . . . 27			Morton Mfg. Co. . . . . 30
Archer & Baldwin, Inc. . . . . 31			
Arnold Co., The. . . . . 20			<b>N</b>
Automatic Reclosing Circuit Breaker Co. . . . . 30			Nachod Signal Co., Inc. . . . . 26
			National Brake Co. . . . . 19
			National Carbon Co. . . . . 29
			National Fibre & Ins. Co. . . . . 30
			National Pneumatic Co., Inc. . . . . 13
			National Railway Appliance Co. . . . . 21
			Nelsonville Brick Co. . . . . 30
			New York Switch & Crossing Co. . . . . 28
			Nichols-Lintern Co. . . . . 29
			Nuttall Co., R. D. . . . . 25
			<b>O</b>
			Ohio Brass Co. . . . . 7
			<b>P</b>
			Parsons, Klapp, Bruckerhoff & Douglas . . . . . 20
			Perey Mfg. Co., Inc. . . . . 35
			Positions, Wanted and Vacant. . . . . 31
			<b>R</b>
			Rail Joint Co. . . . . 28
			Railway Track-work Co. . . . . 12
			Railway Utility Co. . . . . 36
			Rail Welding & Bonding Co. . . . . 28
			Ramapo Iron Works. . . . . 27
			Republic Truck Sales Corp. . . . . 31
			Front Cover
			<b>G</b>
			Galena-Signal Oil Co. . . . . 17
			General Electric Co. . . . . 18
			Gladium Co. . . . . 29
			Globe Ticket Co. . . . . 24
			Gold Car Heating & Ltg. Co. . . . . 29
			Griffin Wheel Co. . . . . 22
			<b>H</b>
			"Help Wanted" Ads. . . . . 31
			Hemphill & Wells . . . . . 20
			Holst Englehardt W. . . . . 20
			Hubbard & Co. . . . . 26
			Hyman-Michaels Co. . . . . 31
			<b>I</b>
			Ingersoll-Rand Co. . . . . 33
			International Crossting & Construction Co. . . . . 14
			International Register Co., The. . . . . 29
			International Steel Tie Co. . . . . 9
			<b>J</b>
			Jackson, Walter . . . . . 20
			Jandron, W. J. . . . . 30
			Johnson Fare Box Co. . . . . 29
			<b>E</b>
			Differential Steel Car Co., The. . . . . 8
			Dossert & Co. . . . . 26
			<b>F</b>
			Feustel, Robt. M. . . . . 20
			Flood City Mfg. Co. . . . . 26
			Ford, Bacon & Davis . . . . . 20
			Ford Chain Block Co. . . . . 29
			"For Sale" Ads. . . . . 31
			Foster Co., H. M. . . . . 31
			<b>C</b>
			Cambria Steel Co. . . . . 30
			Cameron Electrical Mfg. Co. . . . . 29
			Carnegie Steel Co. . . . . 33
			Cleveland Fare Box Co. . . . . 29
			Collier, Inc., Barron G. . . . . Back Cover
			Columbia, M. W. & M. I. Co. . . . . 13
			Consolidated Car Heating Co. . . . . 35
			Continental Fibre Co., The. . . . . 30
			Cutter Co. . . . . 28
			<b>B</b>
			Babcock & Wilcox Co. . . . . 28
			Barbour-Stockwell Co. . . . . 28
			Bates Expanded Steel Truss Co. . . . . 23
			Beeler, John A. . . . . 20
			Bemis Car Truck Co. . . . . 33
			Bonney-Vehslage Tool Co. . . . . 36
			Brill Co., J. G. . . . . 37
			Buckeye Jack Mfg. Co. . . . . 28
			Byllesby Eng. & Mfg. Corp. . . . . 21
			<b>T</b>
			Terry Steam Turbine Co. . . . . 28
			Texas Company, The. . . . . 15
			Thompson Levering Co. . . . . 24
			Tool Steel Gear & Pinion Co. . . . . 27, 30, 33, 35
			Transit Equipment Co. . . . . 31
			<b>U</b>
			U. S. Electric Signal Co. . . . . 26
			<b>W</b>
			"Want" Ads. . . . . 31
			Wason Mfg. Co. . . . . 37
			Westinghouse Elec. and Mfg. Co. . . . . 2, 4
			Westinghouse Traction Brake Co. . . . . 5
			Wharton, Jr., & Co., Wm. . . . . 27
			White Engineering Corp., The J. G. . . . . 20
			Williams & Co., J. H. . . . . 29
			Wish Service, The P. Edw. . . . . 21
			Witt, Peter. . . . . 21
			Wood Co., Chas. N. . . . . 26




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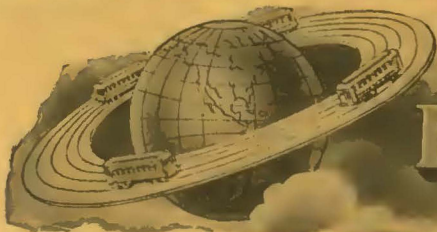
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