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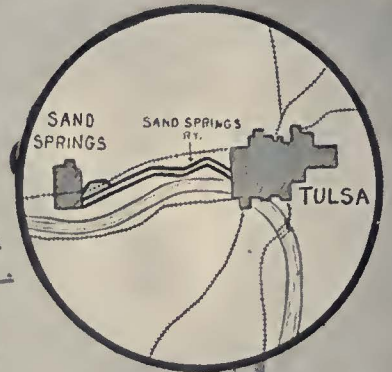
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# ELECTRIC RAILWAY JOURNAL

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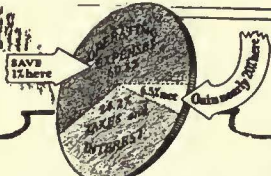
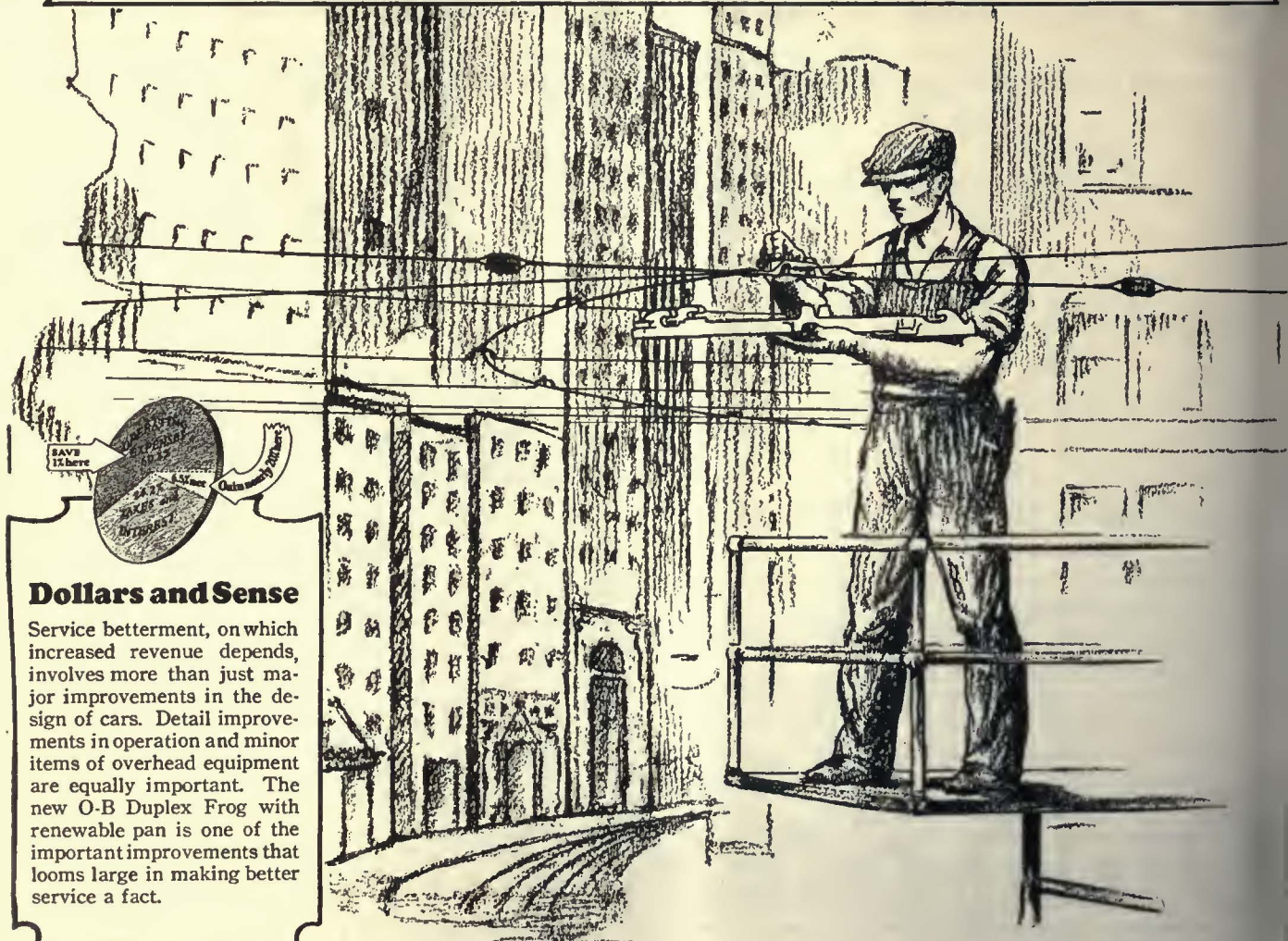
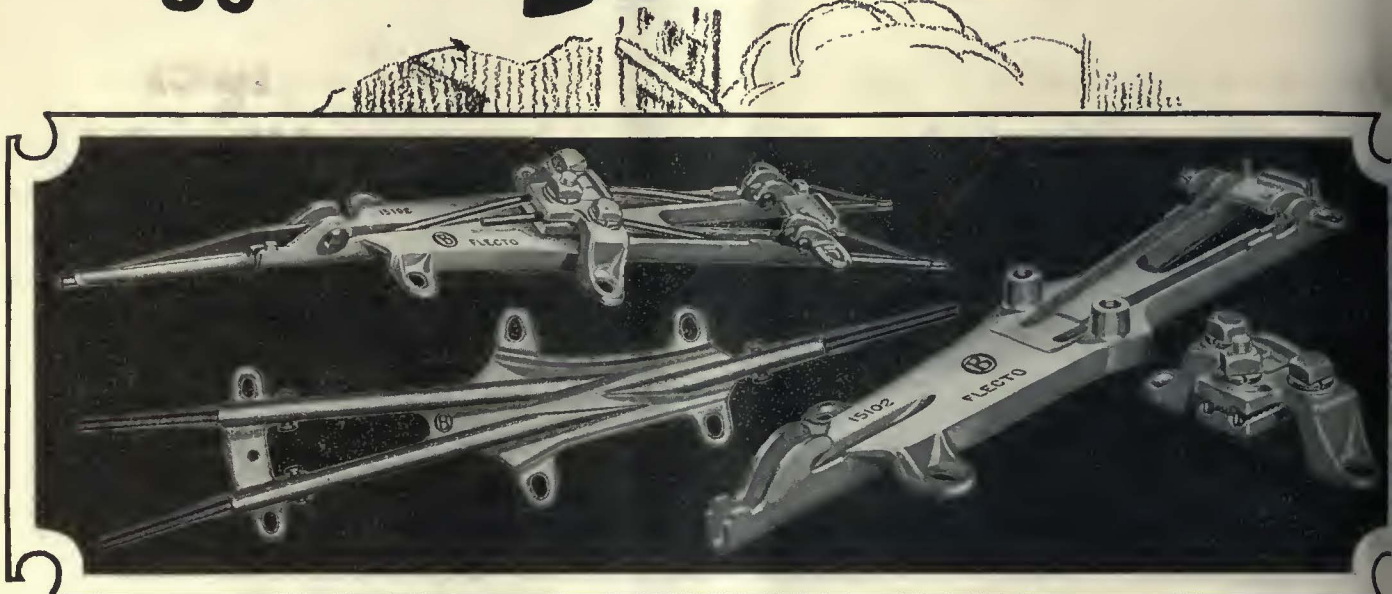
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# Dollars & Sense Suggest

# The New



## Dollars and Sense

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# Duplex Frog

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by what it sees.

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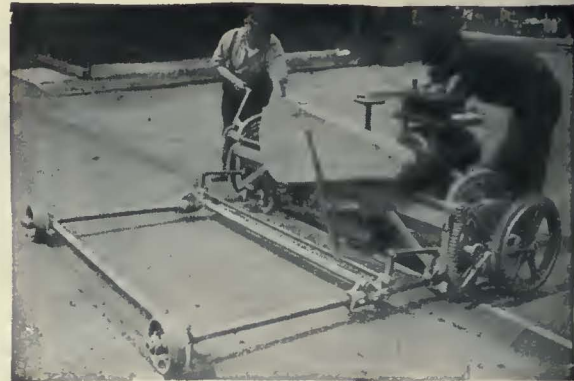
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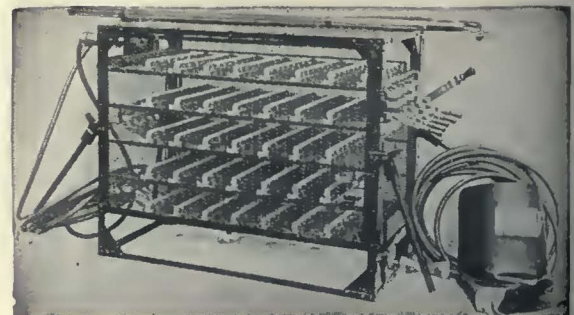
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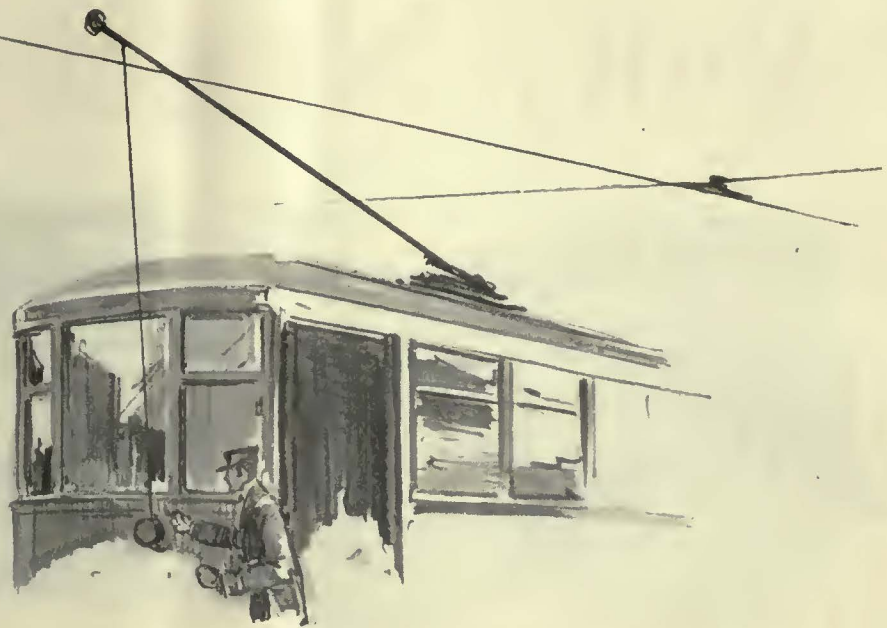


"Ajax" Electric Arc Welder

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BETTER RAIL, BETTER TRANSPORTATION

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AN INSPECTION TOUR  
OF THE WELL-EQUIPPED  
CAR

An ever-reliable catcher, the—

# KEYSTONE TROLLEY CATCHER

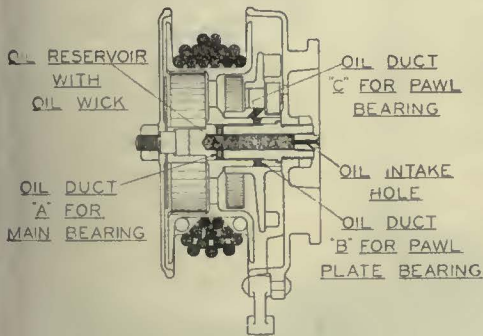
Protect your overhead structure against wear and tear by means of an efficient trolley catcher—the Keystone Trolley Catcher.

Mechanically sound design and construction enable these catchers to catch the pole an instant after it “flies”—thereby saving the “banging” of the overhead structure. This helps to eliminate expenses involved for repairs and for delays in service.

Let us send you full details of the Keystone Trolley Catcher as well as other Keystone Equipment found on the modern well-equipped car.

Ask for ESSCO Catalog No. 7.

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The universal oiling system of the Keystone Trolley Catcher is of particular interest. The diagram above shows the circulation of oil from the oil reservoir to every wearing surface. The oil reservoir is of generous proportions and will easily contain sufficient lubricant for many months of service.

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MANUFACTURER OF RAILWAY, POWER AND INDUSTRIAL ELECTRICAL MATERIAL

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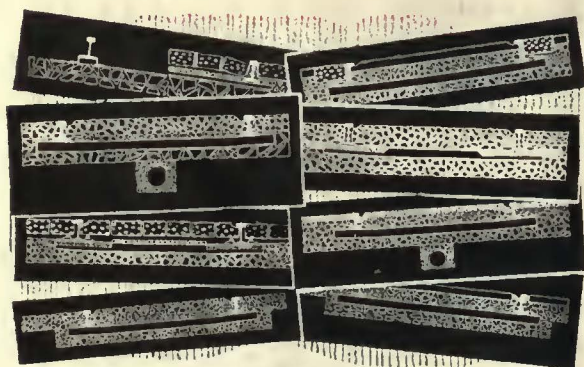
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**—more than a “steel tie,”**

Seven types of Steel Ties.

—a complete line of seven types of Twin Ties, developed by seventeen years of practical Steel Tie Experience.



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**—more than a track design,**

—a collection of track design information from 70% of the leading electric railways.

**—more than a way  
to build paved track,**

—a method of construction utilizing mass production principles and special labor saving machinery under the direct supervision of our field engineers.



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# STEEL TWIN

MODERNIZE THE TRACK AND THE METHODS



# THAN A "STEEL TIE"

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—a sincere desire to place the benefit of our 16 years of experience in specializing in paved track construction at your disposal.



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# TIE TRACK

THE BASE OF MODERNIZATION

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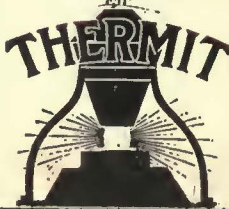


It might still be too costly a proposition. It might still be thoroughly bad economics, faulty engineering, and poor street railroading.

For it's not the cost of repairing the joint, whether cheap or otherwise, that counts. It's the cost of tearing up the paving, opening a hole, and then replacing it all again. It's the delay to traffic. It's bad public policy.

A cheap repair, a poor job of welding, only means a repetition of the performance in a year or two. And the cost of doing it over again will be many times the slightly greater cost of a Thermit Weld.

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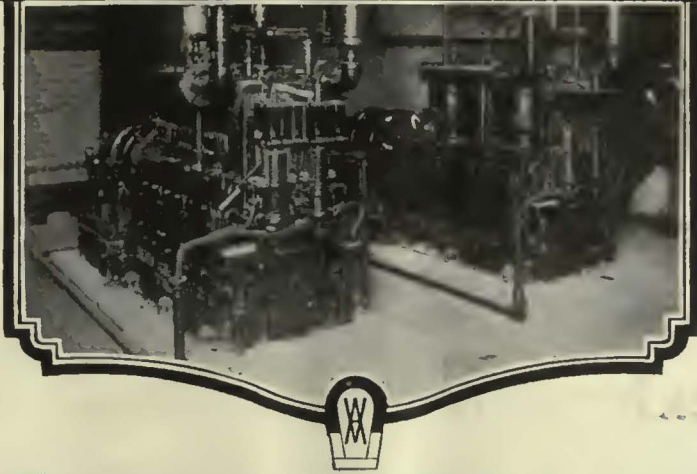
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**"QUALITY MACHINES FOR QUALITY SERVICE"**



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Typical power house installation showing two type "3VS" Westinghouse-National Air Compressors.



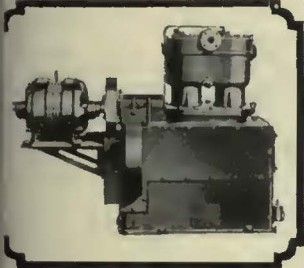
There is a Westinghouse National for every pneumatic requirement

**B**UILT in capacity sizes, ranging from 3 to 700 cu. ft. displacement, all Westinghouse National Air Compressors are designed and sturdily constructed to render a thoroughly dependable service. Infinite care and precision throughout their manufacture has given them unique recognition as the "Quality Machines For Quality Service."

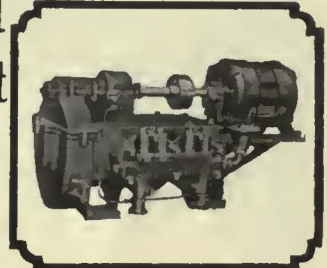
Traditionally dependable, they run quietly, take up minimum valuable floor space, operate economically, and demonstrate conclusively, throughout years of faithful service, their superiority in maintaining maximum pressure for all shop and power house requirements.

Detailed information, relative to the installation of a dependable pneumatic source, may be had by writing the Westinghouse Company, or from any of our conveniently located field offices. . . . This service is maintained exclusively for the use of those interested in Quality pneumatic systems and is in no way obligatory.

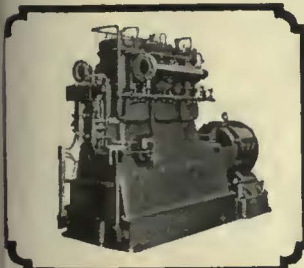
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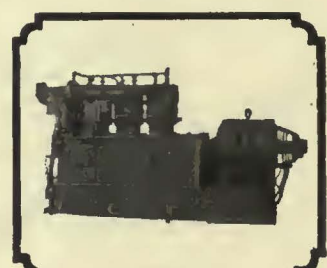
Type "2V" compressor... 75 to 150 cu.ft. displacement is fully described in publication T-2047.



Type "N" compressor... 12 to 60 cu.ft. displacement is fully described in publication T-2048.



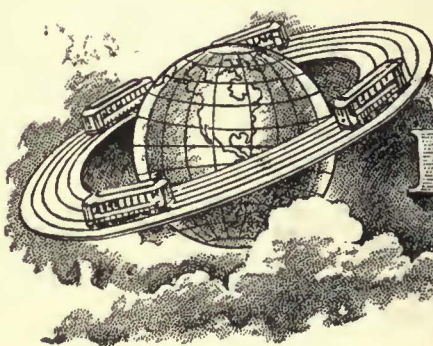
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Type "3VS" compressor... 208 to 468 cu.ft. displacement is fully described in publication T-2032.

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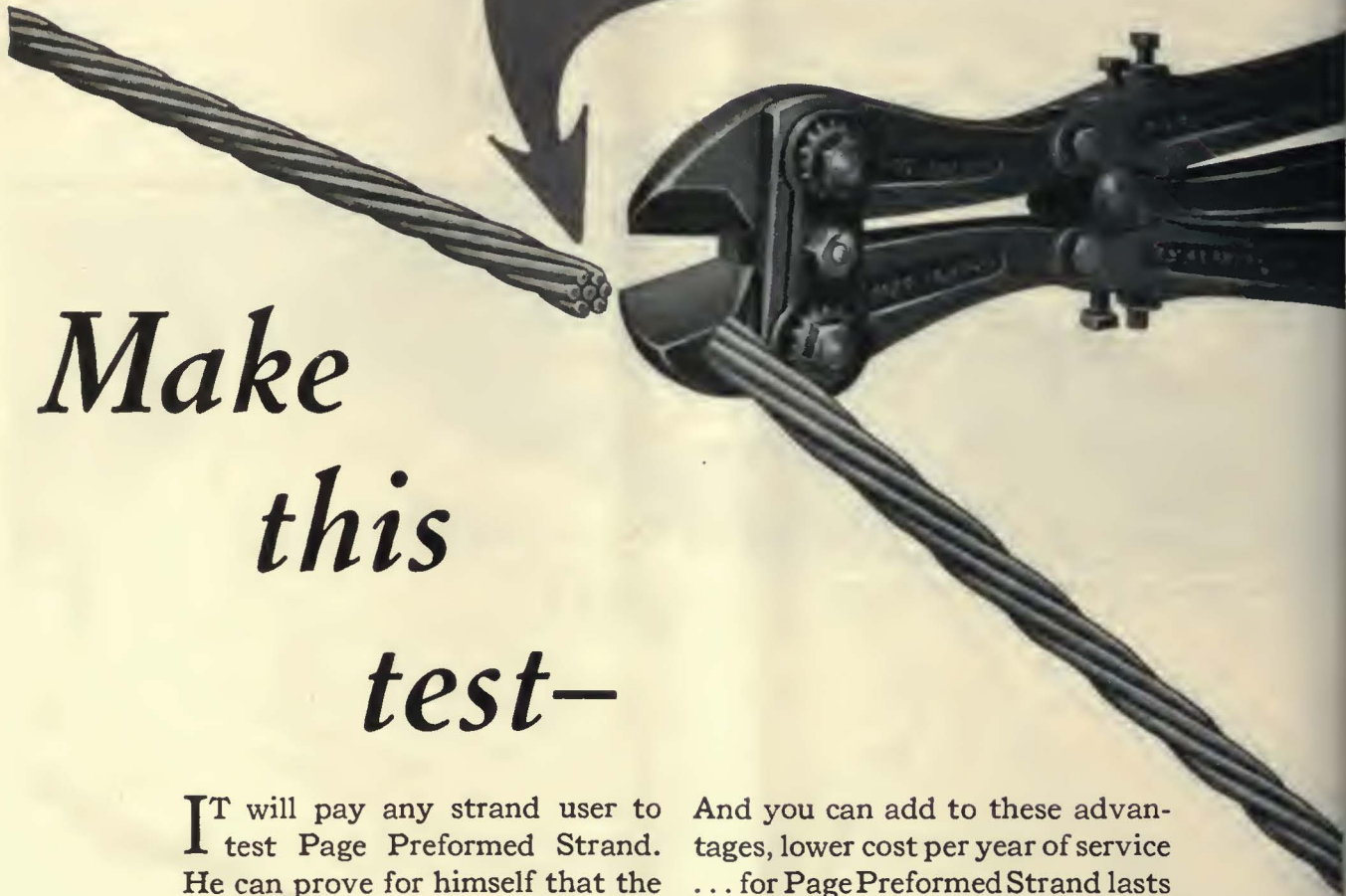
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In all seriousness—if a clerk can say “thank you” to the purchaser of a five cent cigar—why not say thank you to the buyer of a five or a ten cent ride? And more seriously still—if you make every block of every run noticeable for its comfort and convenience do you not remain consistently practical in your relation to your customers?

Do you know how important is the bearing of “Capacity with Comfort” upon increased revenue?

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**CINCINNATI**  
**BALANCED**  
**LIGHTWEIGHT** **CARS**

—still a step ahead of the modern trend

# Glass Smooth

After

## Six Years' Heavy Traffic

### *It's Dayton Tie Track*

Six years of heavy urban traffic have left no impress whatever on this Dayton Tie Track.

It is as smooth and even as the day the first car ran over it.

Not a sign of a hump or a bump—you can't even tell where the joints are.

Six years is as nothing to Dayton Tie Track—conservative engineers estimate a life 3 to 4 times as long.

But other kinds of track often show decrepitude prior to six years' heavy traffic.







It is vital that motorcoaches carrying passengers to the planes of the Detroit-Cleveland Air Line keep on schedule. These motorcoaches are equipped with U. S. Royal Cord Motorcoach Tires for dependable service.

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— which means “Plenty of precisely the *right kind* of Rubber in precisely the *right place* in *every tire*.”

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United States  Rubber Company  
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# Transportation with gas-electric buses

Of all the buses purchased in the last three years by railway operators, over twenty-two per cent have been equipped with G-E electric drive. In January, 1928, alone, 332 bus equipments were sold to railway operators.

Although this drive has been available for only three years, railway companies are realizing, more and more, the advantages of G-E equipped gas-electric buses. The 1685 buses sold to 20 railway companies are evidence of their popularity in this field.



G-E railway specialists are thoroughly familiar with the requirements of bus operation. Consult them about the size of engine, the seating capacity, and other details for your service, just as you do when ordering car equipments.



390-36

# GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

# Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review  
Published by McGraw-Hill Publishing Company, Inc.  
CHARLES GORDON, Editor

Volume 71

New York, Saturday, March 24, 1928

Number 12

## Getting Results from Employee Education

REALIZATION is growing that increased patronage for the transportation utilities is dependent in a measure on special training of employees. Street railway companies are finding themselves in an increasingly competitive business. It has been repeatedly observed in such business, other things being equal, that the greatest volume of patronage gravitates to the concern possessing the best trained employees. Consequently, the change in the transportation business from a monopoly to a competitive enterprise has emphasized the need for employees or "salesmen" so educated to an understanding of the business as to qualify them to create and maintain a cheerful contact with customers, both actual and prospective.

What, essentially, is a transportation "salesman"? Reduced to the simplest terms he would appear to be an employee who renders a class of service which pleases his customers. Training for this result consists of building up in each man's mind an understanding of the importance of three fundamentals: individual prestige, company prestige, and interest in his passengers or "customers." These are the ultimate objectives of electric railway educational work. The exact program to be followed requires a thorough understanding of the human factors involved and can only be developed from actual employee training experience. However, at the start, caution should be exercised against indulgence in too much academic instruction. The great mass of railway employees have not had much academic background; in fact it might be said that their particular aversion to it has some bearing on their present positions. Therefore, pedagogical atmosphere or academic methods of transmitting an understanding of company policies may be expected to enlist little real interest from men who have an aversion to the class room. On the other hand, it is entirely possible to establish closer contact between operating officials and the men, and through such contacts to transmit a better understanding of the relation between the platform man and the passengers with whom he comes in contact.

This is not to say that the educational or employee training work of transportation companies should not be in the hands of specialists. It seems obvious that success in such work demands the entire attention of men who can devote their whole time to the development of a technique and procedure based upon close study and analysis of experience with employee training—both on their own and other properties. But such work should be conducted as an integral part of management; not as a side issue that can be turned over to an instructor and forgotten by the operating head. In fact, the education of transportation employees must be a part of the operation of the property and to enlist real interest the em-

ployee's contact with this work should impress him as an intimate contact with the management itself.

The language of employee education should be the language of operation—not that of the class room. The manager and department heads as well, must play their part in associating the educational work with the actual operation of the property. The work of equipping himself to handle the company's patrons as they should be handled is as much a part of the man's job as is the proper handling of equipment, fares or reports. Only by creating that point of view in the employee's mind can educational work accomplish the results sought.

## Taking Time to be a Citizen

APPROXIMATELY two years ago a hard-pressed railway property changed ownership. When the new president arrived in town, a stranger, he found an unfriendly public and a fractious city government. The franchise situation was in a mess. Earnings were unsatisfactory; the company's service was condemned by public and press and the public co-operation necessary to bring about improvement was withheld.

After the short period that has elapsed since the change in management took place, this railway is giving the best service in its history. New franchises have been granted by the city and an *esprit de corps* has been built up among employees that is reflected hundreds of times a day in the contacts between platform men and car riders. The company's chief executive has been publicly thanked by the Chamber of Commerce for his service to the community. Public suspicion and antagonism have given way to confidence and friendliness.

How was this complete reversal in public relations brought about? For the answer, ask the man in the street. He reacts instantly to mention of the railway executive's name. Despite the arduous duties of running such a property, this man has found time to become one of the city's leading citizens. He belongs to five social clubs, the Rotary Club, and is a director of the Chamber of Commerce. In the latter body he serves as chairman of its river improvement committee and as a member of its advertising committee. He is a member of the city's port commission, forward movement committee, special gifts committee of the community fund, and the state higher education association. He is president of the safety council and a director of the retail merchants' association. He has toured the state with public bodies in the interest of good-will campaigns. In his own suburban community he is high in the councils of the citizens' association.

How has he found the time to give attention to all these community activities? He alone knows! But the results accomplished for his property speak for themselves. This man's activity is indeed in strange contrast

with that of the utility executive of a decade ago. It is the modern interpretation of the responsibilities of guiding the destiny of a public service enterprise. To be sure, it is a strenuous existence; but it is the price of winning and retaining public confidence. The utility executive of today must operate his property efficiently as a matter of course, but that alone does not suffice; he must take time as well to be a citizen.

### Effect of the Open Winter on Railway Earnings

**R**AILWAY managers look on the very open winter which the East has been experiencing during the last three months quite differently from how they would have done fifteen years ago. Then such a season would have been welcome because of the reduction in cost of removal of ice and snow from the tracks.

The same saving has been made by the electric railways this year, but the absence of snow has also encouraged automobile owners to keep their cars in commission throughout the winter. On most electric railways the consequent loss in gross revenues has greatly exceeded all saving possible in operating expenses by the absence of snow. This helps to explain the lower gross earnings of some companies during the present "freak" winter. They are in somewhat the same condition as the dealers in furs and other winter clothing.

It is interesting to note various corollaries of this effect of the weather on railway earnings. One is that if the storms during the early part of the winter are sufficiently severe to induce the average automobile owner to put his car in dead storage, a great many such cars are apt to remain out of active use until spring really has come. A single storm or two, however, will not drive the automobilist to cover.

Another factor is the effect when the state issues part-time automobile licenses. In some states, a lower charge is made for a nine-months' automobile license, such as one taken out in April, than for a twelve-months' license, or one taken out in January. Where this practice prevails, the automobile owner whose car has remained in dead storage during January and perhaps part of February without a license will often wait until April 1 before taking out his new plates, in order to save a few dollars. In the meantime, the electric railway company gets his patronage for six weeks or two months longer than it otherwise would. But if the automobile owner should take out his license in January, he is apt to keep his car in condition to run the rest of the winter.

### Liberalizing the New York Savings Bank Law

**G**OVERNOR SMITH of New York has before him for signature a bill legalizing the investments available to savings banks by including provisions for the purchase of certain public utility bonds and railroad equipment trust obligations. The passage of the measure represents an effort of years, culminating in recommendations made to the present session by a special joint legislative committee entrusted with the responsibility of making constructive suggestions for the revision of the archaic statutes.

Now that is just what these statutes were. They were archaic. They were well drawn, in fact better drawn

perhaps than those of any other state, except possibly Massachusetts, in the amount of protection they afforded for the funds of the small saver, but they took no account of the change of time—an element that has witnessed the great growth of electric light and power and railway industries. So far as the electric railways are concerned, their interest in the matter is only academic as the provisions of the measure, digested elsewhere in this issue, make plain, but the measure as passed does represent the advanced thinking of the day.

There is a plethora of money just now awaiting investment in substantial issues, but the changes in the law, if Governor Smith approves them, may be expected to work to the immediate advantage of the utilities, with the prospects that at some future date they may work decidedly to their advantage. The savings banks of New York are, of course, a mighty factor in their capacity to absorb investment issues of high character, but the problem of the past has been to find such investments in volume and still preserve the balance with respect to the various types of securities in which the funds were placed. The law as now amended should make the problems of the savings bank directors easier since it is estimated that \$1,402,536,000 par value of light and power bonds alone will now go on the legal list, and unless money becomes still easier the change should tend to make it possible to preserve the present liberal rate of interest, which in most cases, certainly in New York City, has been 4½ per cent in recent years as compared with 3½ and 4 per cent not so long ago.

### The Spirit of Levity in Montreal

**C**CARELESS are the ways of man in little things. If this were not so there would have been no solemn conclave in Montreal recently to decide upon the disposition of a fund of \$1,165,000 built up over a period of twelve years which represents money paid for lost or unused tramway tickets. Other companies have similar problems to deal with at times, but with them there is no occasion for comment at this time. With Montreal, however, the case is different.

When the franchise now in effect in Montreal was drawn in 1916, the fund which has grown to such proportion was negligible. If anybody thought about it then it did not make much impression. Weightier things were at hand. In consequence no clause was put into the operating agreement between the city and the Montreal Tramways providing for the disposal of sums so accrued. But the matter eventually became a poser. Even in this age of grandiose sums \$1,165,000 is not to be regarded lightly. True, under the disposition now agreed upon and still subject to sanction by the tramway commission only 20 per cent goes to the company as profit.

Since Montreal is under service at cost there are ramifications to the disposition of the fund startling and none the less interesting as a subject of speculation. Because human nature is so frail, the Council has wisely impounded \$500,000 of the fund against the possible presentation of lost or strayed tickets. It is just as well. Undoubtedly many of the tickets are not recoverable by their owners. For them they represent a dead loss. On the other hand, it is a fact that attention is being called to the more than \$1,000,000 of transportation paid for which never was used. This may result in the search of

the pockets of discarded or seldom-used suits of clothes and the unearthing of caches where tram tickets are likely to be hidden, perhaps along with unredeemed cigar coupons and other evidences of expenditure the only present tangible traces of which are printed slips whose values in the catalog are comparable with those quoted in the financial columns a few years ago for German marks.

To lay at the door of the people of Montreal the entire blame for the loss of \$100,000 in tickets each year would of course be fulsome. Montreal has many visitors, but since information is lacking in the printed account as to just how much of this sum accumulated in recent years, it is impossible to tell what proportion may be chargeable to wanderers on pleasure bent, who in an excess of spirits have overestimated their transportation needs. Anyway, the tickets stand against the railway as a liability. In the patois of the street the attitude of their holders appears to be "What the deuce do we care," but this very indifference created a problem solemn men were called upon to consider.

### There Must be Something for the Stockholders

HEARINGS have been concluded at Washington, D.C., on the proposal to consolidate the Capital Traction Company, the railway lines of the Washington Railway & Electric Company and the Washington Rapid Transit Company, which operates the local bus line. The proposal is not unlike similar ones made during the last twenty years, but it has gone farther in that a unification agreement has been drawn up.

Officers of the companies are agreed that the consolidation is advisable in the interest of greater efficiency and economy of management and for the benefit and advantage of the public and the stockholders. If it can be arranged, the consolidation would undoubtedly be all that those who subscribe to it believe it would be. But while the people in Washington insist that some such plan shall be carried out, they wonder wherein they are to profit. This is a natural human reaction, but no one can tell in advance except in terms of intangibles. The co-ordination of the three services should work to their benefit, but whether it would be possible to reduce fares is another matter. One thing is certain. The railways will have to raise fares if the consolidation is not put through. If, after the economies are realized that can be attained under the consolidation, it is not possible to reduce fares, the public of Washington would still be the gainer even if in a negative way.

As indicated in the JOURNAL for March 17 the two railways are willing to accept a valuation of \$50,000,000 with a return of 7 per cent, although the value of the properties found in accordance with the rules of procedure laid down by the court is \$62,000,000.

After all, the people of Washington must be brought to understand that any agreement for voluntary consolidation, to be feasible, must be mutually profitable. True, it must be in the interest of the public. But if stockholders are expected voluntarily to agree to a merger the plan must be not entirely against their interests. And the prospect for public benefits are much better under the plan now proposed than it would be with the companies continuing to operate separately.

### Presidential Year Pessimists

MOST anything is likely to happen in a presidential year. This is a political axiom. And several things are happening. Perhaps the most significant is the cry raised about unemployment. That unemployment has increased in recent months there can be no doubt, but the situation is not so serious as some would have us believe. On every occasion such as this the old panaceas are trotted out as if nothing had been heard about them before. If the political idealists of one stripe had their way the government—federal, state or city—would at all times stand ready to buy all surplus labor. Whether or not it should similarly be ready at all times to buy surplus farm products is for the successor to the populist to say.

To go back only 30 years, it was the late E. H. Harriman, if memory is not at fault, who propounded the idea that in prosperous times the railroads should as a matter of economy and as a civic duty pile up their earnings so as to apply them and their borrowings to the carrying out of work in slack times. This in a way is just what the utilities are doing that have come forward recently with programs for extensions and improvements to be carried out at once. Among them are the United Gas Improvement Company with its \$20,000,000 plan, the Cleveland Electric Illuminating Company with one of \$11,600,000, the Public Service Corporation of New Jersey, the Northwestern Electric Company and the Virginia Electric & Power Company, to mention just a few.

It is, of course, well for governments not to compete for labor in a crowded market. But the whole matter has been gone over before, with notable thoroughness during the 1921-1922 period. But no such situation as existed then confronts the country now. To quote just one source, information available to the National Industrial Conference Board indicates that employment conditions in the country as a whole have been improved since December, even though public attention was not focused on the unemployment situation until late in January and in February. The present status of business and industry appears to be well indicated by the fact that record automobile production was established during February by practically all automobile manufacturers with the exception of Ford, that there was record steel ingot production during February, that new building contracts in February were 18 per cent greater than in February of last year, that bank debits of individual accounts were about 1 per cent more than in February of last year and that general industrial activity based upon electrical energy consumed was about 7 per cent over February of last year. Business undoubtedly is being transacted on a lower level of profit than during the similar period a year ago, but it remains true that the volume is at about the same level as the comparable time last year, or not far below the record peak of all times.

Despite the many favorable factors, however, conditions have been considered sufficiently propitious for General James F. Coxey, of Coxey's Army fame, to reappear, for J. Eads Howe, "millionaire hobo," again to put in an appearance and for Mr. Zero to harbor a few migratory guests at his "Tub" in New York. The hitch-hikers know what they are doing. They have picked New York as the greatest show town in the world. And the trick has worked.

# Building a Better Transportation Service for Kansas City

Comfort and convenience feature modernized service. Fleet of 45 de luxe cars used to inaugurate new service on a line a month. One-man operation rapidly extended

**R**EHABILITATION of its street railway property was begun a year ago in a program launched by the Kansas City Public Service Company which has become of outstanding consequence, not alone on the score of a saving in operating costs to the property, but also because it has made possible a much improved street car service as expressed in frequency and car loading. This major rehabilitation program is regarded by the company as an investment in the city's future and as evidence of its confidence in Kansas City's continued growth and prosperity.

Involved in the work of rehabilitation has been a million dollar car rebuilding program, ultimate 100 per cent one-man operation of the modernized cars and an expenditure of another \$2,500,000 for track improvement. By the end of 1928, there will have been spent for rehabilitation a total of \$6,600,000. The decision to go to one-man operation of all of its cars was encouraged by the progress which has been made in the design of improved control and safety devices for this type of operation and likewise by the very favorable operating experiences which have obtained since the adoption of a limited number of one-man, double-truck cars in Kansas City in 1919. In the opinion of the management the gradual extension of the one-man operation since that time has made possible the financial results achieved during the period of receivership. The company operated in 1926 a total of 9,287,000 one-man car-miles, or 38 per cent of the total. Had these one-man car-miles been all two-man operated, it is estimated that the additional expense would have been in excess of \$500,000 per year.

Experience has demonstrated that there need be no material slowing up of schedules because of the one-man operation where sufficient additional service has been added to distribute the loads properly. Likewise, the accident record has proven better under one-man operation. This is attributed to improved mechanical features on the cars, and to the fact that the entire responsibility for the car operation is centered upon a single operator. As the outcome of the favorable results achieved there have been no protests from either the press or public authorities on the extension of one-man operation.

In inaugurating the new schedules, possible opposition on the part of the public to the one-man feature was avoided by the rehabilitation and improvement of equipment and by increased frequency of service with consequent relatively light loading per car. The public was given a service so superior to what had previously been

**3 big links**  
in Kansas City's  
**TRANSPORTATION CHAIN**

**GOOD TRACKS**  
One of the most important links in the chain of good transportation is the quality of the tracks. The Kansas City Public Service Company has spent over \$2,500,000 in the rehabilitation of its street railway tracks. This work has been completed and the new tracks are now in use.

**GOOD CARS**  
The new cars are built for the present and the future. They are built with the latest in mechanical equipment and are designed for one-man operation. They are built with the latest in electrical equipment and are designed for the most efficient operation.

**GOOD SERVICE**  
The new cars are built for the present and the future. They are built with the latest in mechanical equipment and are designed for one-man operation. They are built with the latest in electrical equipment and are designed for the most efficient operation.

**FREE RIDES!**  
on the  
Observation Park-31st St. Line  
Sunday, November 20th  
from 9 A. M. to 2 P. M.  
(Transfers to Other Lines Will Be Made Upon Request)

**T**he new cars are built for the present and the future. They are built with the latest in mechanical equipment and are designed for one-man operation. They are built with the latest in electrical equipment and are designed for the most efficient operation.

**P**ublic transportation is the most important link in the chain of good transportation. The Kansas City Public Service Company has spent over \$2,500,000 in the rehabilitation of its street railway tracks. This work has been completed and the new tracks are now in use.

**F**ree rides on the Observation Park-31st St. Line on Sunday, November 20th, from 9 A. M. to 2 P. M. This is a special service and is subject to change without notice.

**KANSAS CITY PUBLIC SERVICE CO.**

**Home Comfort on your way Down Town!**

**Comfort and Convenience Features the Improved Street Cars!**

Actual comfort in a street car is the most important feature of the new cars. The new cars are built with the latest in mechanical equipment and are designed for one-man operation. They are built with the latest in electrical equipment and are designed for the most efficient operation.

**A Car and Chauffeur of Your Own!**

No Original Investment  
No License or Depreciation  
No Salary to Pay

**And Yet**  
The fare at your own service.

A car waiting hours that the most important feature of the new cars.

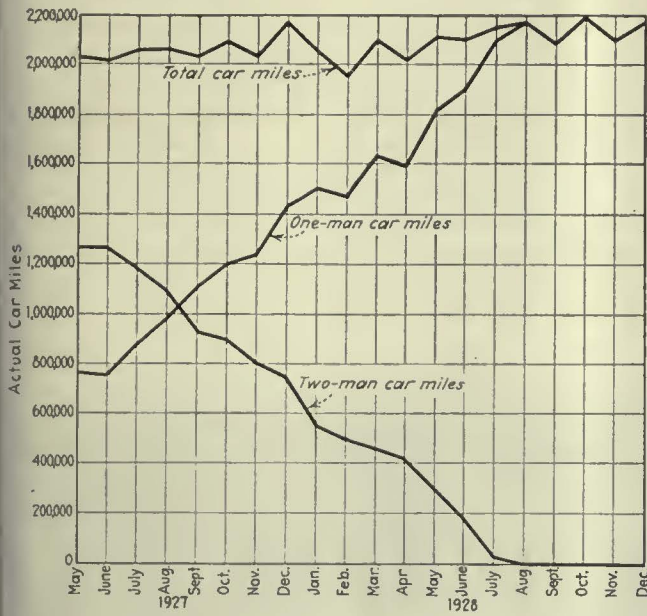
A car waiting hours that the most important feature of the new cars.

**KANSAS CITY PUBLIC SERVICE COMPANY**

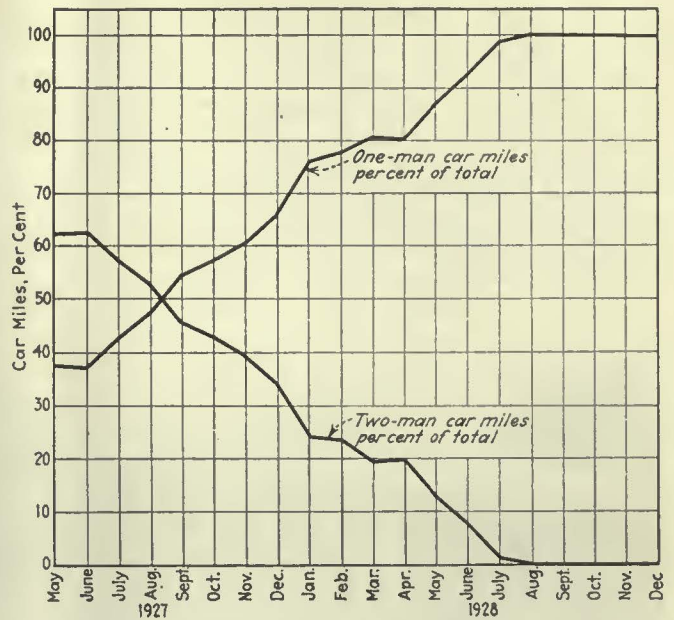
The improved service in Kansas City is being consistently advertised, using copy that calls attention to the rehabilitation of the railway property

possible that the advantages of one-man operation were quickly apparent. At the same time, an attractive differential in wage between one-man and two-man operation permitted trainmen to obtain a share in the economies effected. By stretching the period of installation of one-man cars over a sufficient length of time, the normal labor turn-over automatically compensates for the reduction in the number of men required to operate the cars. As each line is equipped with the rehabilitated equipment an increase of approximately 18 per cent is made in the non-rush hour service and 4 per cent in the rush-hour.

A newspaper advertising campaign is being run with advertisements appearing regularly four times a week in the Kansas City Star and the Kansas City Journal-Post. The copy, which is illustrated in accompanying cuts,



One-man car program in Kansas City showing actual car-miles operated one-man and two-man and progress of change



Progressive chart showing program for one-man operation in terms of percentage of car-miles operated

TABLE I—ONE-MAN OPERATION—CHANGE-OVER SCHEDULE 1927-28  
SCHEDULE OF CAR SERVICE BEFORE AND AFTER NEW SERVICE INSTITUTED

Lines	Date New Service Instituted	A. M.		Mid-day		P. M.	
		Before	After	Before	After	Before	After
1. Country Club	July 3, 1927	32	39	15	17	37	43
2. Argentine-12th Street	Aug. 7, 1927	31	37	15	18	33	39
3. Brooklyn-Sunset Hill	Sept. 4, 1927	40	49	16	18	36	42
4. Sixth Street	Sept. 4, 1927	8	8	5	5	8	8
5. Independence Avenue-Rockhill	Oct. 16, 1927	32	37	15	18	33	40
6. 31st Street-Observation Park	Nov. 20, 1927	34	42	14	16	40	48
7. 15th Street	Dec. 4, 1927	18	22	8	9	17	22
8. Central-27th Street	Jan. 1, 1928	36	44	12	14	38	46
9. Northeast-Woodland	Feb. 19, 1928	31	38	13	16	36	43
10. Troost Avenue	April 1, 1928	43	43	15	15	42	42
1. Holmes-Quindaro	April 29, 1928	24	33	12	15	26	33
2. Jackson-Roanoke	May 13, 1928	28	35	13	16	34	39
3. Prospect	June 3, 1928	29	34	13	16	33	36
4. Chelsea-Indiana	July 1, 1928	31	35	14	17	32	36
5. Independence, Mo.	July 15, 1928	20	26	10	12	21	26

under the direction of an instructor or supervisor. As shown in the accompanying table, nine lines have been changed over to the new service to date, with six remaining to follow at intervals of about a month.

As the one-man service was introduced on each line it was found advisable for the first few days to augment considerably the number of regular street fare collectors on that line. During the initial period on a new one-man line, men are placed at every important loading point during the rush hour. Their duty is to direct pas-

sengers to the proper car entrances, assist them on and off the car, and in other ways explain the new operation. These extra men are used until riders appear thoroughly conversant with the new system.

To facilitate the introduction of the new service, traffic directors are also placed on duty inside the cars. They

pass out pamphlets which detail the improvements in the modernized cars. These men assist in no way with the actual operation of the cars and as the public becomes familiar with the service, they are withdrawn. Usually, four days to a week has been found sufficient to insure smooth operation of the one-man service on a new line.

To encourage patrons to give the new service a trial and to inspect the improved cars as they are introduced the Kansas City Public Service Company carries passengers free between certain hours on the first Sunday of the new oper-



Composition rubber renovable aisle strips and upholstered seats are used in the rehabilitated Kansas City cars

gresses the mutuality of interests between the community and its transportation system, and calls attention to the greatly improved car service which is being given.

A definite schedule calls for the introduction of the modernized cars on about a line a month. In preparation for the extension of one-man operation it was necessary to give the trainmen special training. Men who had been regularly employed as conductors on the two-man cars were moved up to the front platform to work with their motormen as tutors, while men from the extra list replaced and performed the duties of the conductors. This was followed, in turn, by the transfer of the motorman to the rear platform to become acquainted with the conductor's duties. This latter training required only a very short period. Practical instruction of this type was followed by training school work and by operation of one-man cars

under the direction of an instructor or supervisor. As shown in the accompanying table, nine lines have been changed over to the new service to date, with six remaining to follow at intervals of about a month.

As the one-man service was introduced on each line it was found advisable for the first few days to augment considerably the number of regular street fare collectors on that line. During the initial period on a new one-man line, men are placed at every important loading point during the rush hour. Their duty is to direct pas-

ation on each line. To inaugurate this service a group of 45 light-weight, double-truck cars, purchased in 1916 and 1917, were completely rebuilt in the company's shops for the specific purpose of introducing the modernized car service on each of the fifteen city lines in succession. In these cars it was the object to show what can be done to make a street car not only an efficient transportation vehicle, but distinctly attractive as well. The floor is covered with a special linoleum over a base consisting of builder's felt and canvas. In the aisle are removable composition rubber runners. The

to introduce the change-over to one-man operation and are then replaced with other rehabilitated cars after the new service is operating smoothly.

Attention is being given to making all rehabilitated equipment comfortable, attractive, and modern, by using new flooring, new ventilators, seat covers and attractive painting. In addition to making some reduction in operating expenses the improved schedules are expected to check the decrease in street car riding which has been steadily apparent since 1922.

Great emphasis has been laid on safety as the out-



Above—General appearance of rehabilitated Kansas City cars. Comfort, attractiveness and safety were the objectives sought in this work

At left—Pneumatically operated folding doors and a swinging exit gate were installed at the front end to guide boarding and alighting passengers

At right—An automatic treadle door is used on the rear exits of the cars to relieve congestion at the front end



vestibule floors are covered with a metal insert rubber flooring which even in bad weather when ice and snow is carried in, can easily be kept clean. These cars are equipped with skirts on the outside—lined with Celotex. The skirts give a stream-line effect to the cars, are considered to improve the general appearance, and, together with the floor inside, tend to minimize truck noises. A visor on the front of each car protects the operator's eyes from the sun glare, and increases the visibility in case of rain or snow by protecting the upper part of the window.

The 45 cars are completely equipped with safety devices, and in addition have upholstered seats and stream line painting. They are shifted from line to line

standing consideration in the operation of the new cars. A distinct effort is being made to gain the absolute confidence of the riding public. In the rehabilitation of the cars no features have been overlooked that in the opinion of the management can contribute to safe operation. The program covers the complete overhauling of motors, trucks, car bodies, controllers, heaters, wiring, piping, and all car appliances, and the addition of many new features such as safety air, folding doors, rear treadle doors, line breakers, back-up control, Economy meters, thermostats, new ventilators, air rectifiers, exit gates, weather stripping, etc.

All cars are being repainted and refinished inside and out, the new color scheme having been worked out by the



Kansas City Art Commission. The general scheme calls for orange and apricot on the outside, trimmed in plum with gray roof. The interior finish is a light drab-green above the arm rails, with a darker shade below. The ceiling is white.

All cars are being equipped for one-man, two-man operation, similar to the earlier 1,400 type on Troost Avenue, but with additional features such as treadle exit doors that make handling the loads much easier and give the public more conveniences.

Practically all cars are to be equipped with safety air equipment. Single sliding doors are being changed to double folding doors. The advantages claimed for the folding doors are that as both halves operate at the same time, quicker operation is obtained, and a greater total door width is available for both loading and unloading. National Pneumatic door equipment and treadle operated exit doors are being installed on all cars equipped with safety devices to permit passengers to alight at the rear of one-man operated cars.

The necessity of wyeing cars has been a source of accidents on single-end equipment. In backing cars under such conditions the operator's vision is limited. Consequently, a back-up device is being installed, by which the operator can control both power and air brakes from the rear vestibule of the car at will. Control of power is obtained by a dual line breaker control circuit with a push button on the rear platform. This circuit is operative only when the normal breaker control switch in the front vestibule is thrown to the rear control position. In normal operation the circuit is open and the push button in the rear vestibule is dead. Air brake control at the rear end is obtained by a straight air valve installed there.

All cars have been equipped with Economy meters during the year 1927. These are connected so that only the energy used by the motors is measured. The energy used for lighting, heating and air compressors is not measured. This arrangement was agreed upon in order that the transportation department could institute a competitive system of energy savings among the operators and eliminate the variables due to compressor, light and heat consumption. Spring Grub weather strips are being installed on window sash to eliminate rattling and to make them easier to open and close in damp weather.

ACCIDENT RECORD IMPROVED

A comparison of accident figures for the past two years on seven divisions of the company's property is afforded in the accompanying table. It is to be noted that the total accidents now charged to the motorman-operator includes types formerly charged to the conductor. Should the present record continue, it is anticipated that one-man operation will show a decided decrease in accidents.

TABLE II—COMPARISON OF ACCIDENT RECORDS 1926 AND 1927

Year	No. operators having no accidents	No. operators having accidents for which not held responsible	Car collisions	Vehicle accidents
1926	65	210	123	5,011
1927	50	220	104	4,997

Labor turnover for 1927 was comparatively normal; in fact there was a 5 per cent decrease in comparison with the preceding year. Yet, in the face of an unexpected declining turnover in labor, it was found possible

to introduce one-man operation on one line a month of the fifteen lines on the property and at the same time to hold down to a small number, the active men transferred to the extra lists.

TABLE III—COMPARISON OF LABOR TURN-OVER 1926 AND 1927

Year	Per Cent turnover	No. men hired in Transportation Division	No. men who left service
1926	22	309	327
1927	17	59	271

Since May 10, 1927 no platform men have been hired.

Summarizing briefly the physical accomplishments to date in the establishment of the modernized street car service in Kansas City, 332 street cars have already been rebuilt up to the first of the year in the shops of the company on a production basis which is continuing to turn out two reconstructed cars a day; nine lines have already been turned over to modernized car operation, the last one of this group having been transferred Feb. 19; and 575 men in the period from June 1, 1927, to Jan. 1, 1928, have completed instruction in one-man operation.

## Holds Up Electrification

Committee appointed by the Austrian government to study the financial and technical problems involved

WHEN the present electrifications of the Austrian steam railways are completed no further work will be done for at least some time. This was announced during the latter part of last year by the Austrian government, whose railway system is owned by the state but is independently managed. The railway authorities said that they wanted to see whether the financial results on the existing system warranted further electrification. Among the routes affected by this decision is the trunk line from Vienna to Salzburg which carries the densest traffic of all Austrian lines.

The most serious handicaps to Austrian electrification are the low fares required by the country's economic condition and the high rate of interest which has to be paid on loans required to finance the change. The railway authorities estimated that owing largely to these two factors, the electric operations of the Vienna-Salzburg line would show an annual deficit of approximately \$1,200,000. Other arguments against a change are recent improvements in steam locomotive design, resulting in less fuel consumption, and the lower prices for coal in effect at the present time.

According to the European technical press, this decision has met with considerable criticism from various sources. The manufacturers of electrical machinery, expecting more orders for equipment, have considerably enlarged their production facilities and quite naturally are opposed to any decision to stop the electrification. The official figures of estimated loss have been attacked and Professor Seefehlner, a well-known expert in railroad electrification, has published an estimate that instead of a loss there would be an annual profit of \$952,000 from the Vienna-Salzburg line for electric over steam operation. The four big electrical manufacturing concerns have offered in a joint bid to take over the whole

work at a fixed price so that it would not have to be done by the railroad's own forces.

The latest development in this matter is that the Austrian Parliament has authorized the government to appoint a committee of experts to conduct an extended investigation into all the questions involved.

The Vienna-Salzburg line is a very important link in the railway system of Central Europe and connects the western countries like France and Switzerland with the Balkans and points farther east. To meet the needs of complete electric operation, from 138 to 152 locomotives for through service and from 20 to 22 motor cars for local service will be required. The plans call for five substations, each with a capacity of from 3,000 to 7,500 kva. to supply about 94,000,000 kw.-hr. annually. The electrification of this line would save the necessity for the import annually of some 300,000 tons of coal required under steam traction, since ample energy can be developed from available water power.

## Light-Weight Double-Deck Car for Scottish Tramway

BY G. F. MOLLER  
*Bothwell, Scotland*

ENGINEERS of tramways in England for some time have been endeavoring to produce a light-weight car to meet omnibus competition. The double-deck car is still in almost universal use in Great Britain, so it is not surprising to find that with the exception of the Bradford high-speed, worm-driven car developments in British cars have been with the double-deck type.

To meet present-day traffic requirements the Lanarkshire tramway system, which is a suburban line linking several large towns to the east of Glasgow has remodeled some of its existing cars to produce a new design of top-covered vehicle. The remodeled equipment was provided with extended platforms, vestibuled ends and front exits. The top-covered cars weighed but 339½ lb. per passenger seat, which is considered as the lightest for the type of any cars used in Britain.



Type of car before remodeling with open upper deck.

The underframe structure is of oak, the side sills having 6-in. x 4-in. sections, reinforced with a 5-in. x 3-in. x 1/8-in. rolled steel angle. The body framing is entirely of teak with the exception of cant rails and fence rails. In the lower saloon the pillars are secured to the underframe by special malleable iron brackets. Adjustable truss-rod brackets are used. Deep section longitudinal rails are employed, the waist rail being 5 in. deep, while the light rail is arched over the side windows and has a shoulder 7 in. deep on the pillars.

Car bodies constructed according to this design have given excellent results in service despite the poor condition of the track in several of the routes over which they are operated. Roller bearings are employed for both journal and armature bearings. The electrical equipment consists of two 35-hp. British Thomson-Houston light-weight interpole motors with B-510 controllers. The car completely equipped but without passenger load weighs slightly more than 10 tons and has a center of gravity 4 ft. 2 in. above the rail level.



Double-deck car with inclosed upper deck. End-inclosed vestibules are provided

# Terminable Permits Are Proving Their Worth

The plan is much to be preferred to the old-time franchise. This is the opinion of the author, expressed to the members of the Illinois utilities associations at their joint meeting at Springfield, March 14-15

By *E. R. Dillavou*

Assistant Professor of Business Law and Economics,  
University of Illinois, Urbana-Champaign, Ill.

**S**IMPLY defined, a local franchise is a permit to use the public streets for the purpose of rendering some public service thereon. There are those who still cling to the idea that it constitutes a gift of untold value. But subjected to effective regulation combined with a true appreciation of the purpose of a public utility on the part of the operators, utility service no longer opens an unusual opportunity for profit at public expense.

The local franchise has had a somewhat varied history. At first the tendency was to issue perpetual grants. This was followed by another period in which it became customary for the legislatures to limit the period for which a franchise might be issued. Provisions were inserted leaving for their purpose the control of rates and service during the franchise period. Because of the rapid development of the arts and various changing conditions, it soon became impossible to prophesy the future with any degree of accuracy. To meet this difficulty the tendency was to shorten materially the franchise period. This failed to remedy completely the defects in such a scheme of regulation, and from about 1907 to 1913 statutes were enacted in various states creating public service commissions, whose duty was to regulate the public utilities in accordance with the general provisions of the act. Thus, if the short-term franchise was ever a necessity as an aid to regulation it is a certainty that its usefulness expired at that date.

The short-term franchise imposed an exceedingly grave handicap upon utility financing. Investors were unwilling to place huge sums of money in an enterprise unless some provision was made for their repayment at or before the expiration of the franchise. As a result money needed for extensions and improvements often was not obtainable; the ultimate effect was reflected on service. As the franchise neared its end no investor was willing to tie up large sums of money in permanent improvements, when no assurance was given of continued life beyond the franchise period.

Furthermore, the temptation was ever present on the part of the public utility to disregard service, in order that a reserve might be accumulated to amortize the loss in the event a new franchise failed to materialize. To this extent the rate paid was higher than it should have been for the service received. In addition, numerous political upheavals and disturbances were certain to break out during new franchise years. Some of the states

amended their laws, so as to place no limit on the franchise period, others adopted terminable permits, while the balance still retain limitations for at least some, if not all, of the utilities.

## PRINCIPLE OF TERMINABLE PERMIT NOT NEW

There is nothing novel or complicated about a terminable permit. It is a franchise which continues indefinitely, unless the utility is purchased by the municipality, or unless the permit is canceled because of misconduct on the part of the company. Such a permit seems to remedy the evils of the short term franchise and, at the same time to protect the public interest, particularly since a public utility is subject to regulation by a state commission. The investor, having faith in the behavior of the management, and realizing that his money will be repaid if the city sees fit to terminate the permit, is ready to supply money from time to time as the progress of the business demands it.

Why is it that the use of the terminable permit has not become more universal? It is customary to state that there are nine terminable permit states, while as a matter of fact in only six of these can it really be said to exist, and in some of the six only certain classes of utilities are entitled to its benefits. The answer lies in a consideration of at least two important problems. Whenever the various interested parties are able to agree on the type of terminable permit law to be enacted and the kind of regulation best adapted to its use, the way will be open for their general adoption.

One of the most important problems confronting any municipal body at the time a franchise becomes necessary is: What duties shall be imposed upon the utility, or what terms shall be inserted in the permit? As the utility takes on a life of indefinite duration, the question becomes doubly important. No utility desires to burden itself, or its customers, with heavy obligations for an indefinite period. On the other hand, municipalities seem most unwilling to surrender this last vestige of control over the local utilities. As a result, wherever term franchises still exist we find various onerous conditions imposed upon the utility in favor of the municipality.

Four possible solutions of this problem have been suggested by the laws of terminable permit states. The laws of Louisiana, which limits the use of such permits to the city of New Orleans, allow the municipality to

insert any conditions which may be agreed upon at the time the permit is issued. Oklahoma provides that all new franchises must be for a definite term, but they may be surrendered, at the option of the utility, for terminable permits which embody the terms of the surrendered franchise. The Massachusetts law makes it possible for many of the utilities to have all duties commuted into an annual money payment. Wisconsin is illustrative of a group, the law of which reads that the permit shall be held "under all the terms and limitations of this act." The courts have construed this to mean that each permit is to be like every other permit, the consequence being that all burdensome provisions are eliminated and no new ones may be added.

A clear appreciation by the public of the effect of such burdens might help to solve the problem. Under our theory of regulation, it is clear that the cost of these burdens enter into the rate and become an indirect tax levied upon the consumer. This tax is one which benefits all taxpayers alike at the expense of utility users. A universal recognition of this fact would soon spell the end of such provisions.

#### WHO IS TO REGULATE?

Perhaps the greatest stumbling block in the path of universal use of the terminable permit is the dispute which continues to rage over which arm of the government is to regulate—state commission or municipality. In Louisiana municipalities are in complete charge, while the other extreme is typified by Massachusetts which has strict regulation by a state commission. The other states fall somewhere between these two extremes. In this connection Indiana and Wisconsin have hit upon a division of authority between the two bodies. In Illinois at present, the practice is the same as that in Massachusetts. All phases of the regulation problem are handled by the state commission. A brief consideration of the Wisconsin scheme of division of authority appears desirable. The following suggestions are in support of this plan.

Uniform accounting procedure, which has been established by the state commission has proven of immense value to both the public and the utilities. It has made possible intelligent and valuable comparisons, and, thus, has proved a great aid in ascertaining the relative efficiency of different companies operating under similar conditions. It has helped to clarify for utility operators some of the problems existing before a well defined procedure was adopted. Clearly the control of accounting procedure must rest in the hands of some central authority.

The same may be said for control of security issues. Security issues are sold throughout the state and often a particular issue is secured by property to be found in many distant communities. Any proposition calling for control of them by the municipalities is absurd. The credit of utility companies can only be maintained when security issues are approved by some central authority entrusted with their strict supervision.

State commissions have been criticized most severely by proponents of local control because of their attitude on rates. These proponents maintain that the foremost purpose of any regulatory system is to see that good service is rendered at the lowest possible rate which is consonant with justice to all parties concerned. They contend that this objective has not been attained by state commissions. The rates are too high, they urge, because of exorbitant valuations and excessive operating expenses. The implication is left that local control will

remedy the defects, although more often than not, definite procedure for doing so is lacking.

Occasionally the criticism has been well taken, but I believe in most instances it has been misdirected. Take, for example, the matter of valuation. Undoubtedly, many state commissions personally favor a different method of arriving at a rate base than that adopted by the Supreme Court of the United States. Yet, in the face of the decisions of the federal courts they are helpless. Occasionally the utility operators have, I believe, been guilty of making unreasonable and economically unsound demands. Particularly has this been true with certain of the intangible items. There also are those who criticize severely the use of reproduction cost as a basis for rate making. But even assuming that the majority of valuations are too high, which is still open to proof, it is not at all clear how local control proposes to relieve the situation. The companies will be subject to the jurisdiction of the same courts. The same fundamental principles for determining a return must be used by the city that the state commission has been compelled to adopt.

The second objection to rates granted by a state commission is said to arise from excessive operating expenses. It is said that this results from the lack of any special incentive or inducement offered for efficient management. That too often a utility is given a definite rate of return, without considering adequately its operating efficiency is unquestioned. Any saving resulting from increased efficiency between the rate hearings belongs to management. Therefore, particularly among the large companies, emphasis is constantly being placed on low cost of production and an extension of the utility into new fields of endeavor, in order that added return may be obtained. Furthermore, many of these companies, evincing a realization of their public calling, are voluntarily dividing these profits with the consumers through reduction of rates. It is in such cases that management truly realizes the function which the government permits it to perform. Because some managements do not entertain a high regard for this public trust there is some strength to the criticism. Much could be done by state commissions in working out definite plans to encourage decreased operating expenses by offering a reward for reduced rates. Although municipalities are prone to criticize existing conditions, no definite improvement has been suggested by them.

Two additional reasons are suggested why state regulation of rates is desirable. First, many of the municipalities are financially unable to engage the trained technical help required to solve the rate problem in an intelligent manner; second, the municipality is an interested party in at least two respects. It is itself a user of utility service; and, in addition, the municipal officials represent directly the consumers and form a part of that body. Sound reasoning certainly demands the establishment of rates by some unbiased third party. The state commission seems to fill most acceptably this need.

#### SERVICE REGULATIONS DIFFER

It is in the matter of service that we may be inclined to disagree and where Indiana, Minnesota and Wisconsin have departed from Illinois. The State of Illinois has gone to extremes in holding that all matters which in any possible way affect service fall within the purview of the Commerce Commission. The Supreme Court in the Atwood and Northern Trust Company cases held that the municipality had been robbed of its power to regulate

at grade crossings and to control such matters as headlights, speed of cars, and the like within the city.

It seems quite evident that matters of police regulation, which affect primarily the physical comfort and safety of its citizens, should rest absolutely with the municipality, even though such ordinances relate to public utilities. Unless some general order of the commission is contravened, the ordinance should be respected.

It is, however, in the matter of the more general control of service that these states depart so radically from others and to which more detailed consideration must be given. There are two distinct phases of service. One relates to the establishment of standards, while the other concerns itself with extension of service. In the matter of standards, these states have granted to the municipality original control, with the possibility of an appeal to the state commission if the utility deems the orders unreasonable. The municipality rules supreme where the problems of extension are involved. Only intervention by some court can interfere with municipal orders issued therefore.

#### TWO REASONS FOR LOCAL SERVICE CONTROL

There are two rather pungent reasons favoring local control of service; first, the consumer, taken as a group, is entitled to the service his taste calls for, if he is willing to pay the price; second, the extension of service is essentially a local problem and is inextricably interwoven with municipal development. In support of the first contention, I feel that municipal officials are more attuned to the needs and desires of their constituents than is true of an outside body. A busy state commission should not be forced to familiarize itself with an already well-known local demand. Limited only by a willingness on the part of consumers to pay an adequate rate for the service requested, municipal control of service standards appears desirable. Certain difficulties may arise where one operating company serves numerous communities. In an absence of an agreement among them, where different standards are not available because of the uniform nature of the service, some provision for an appeal must be made.

Regarding the second point, it is common knowledge that the orderly development of any city is dependent on the extension of various classes of utility service. A city planning commission cannot function, zoning ordinances cannot be enforced, and paving of city streets must be delayed unless the utilities co-operate. Definite programs relating to municipal development can only be formulated with any degree of assurance of execution when public utility service can be relied upon. By placing the control over extensions in the hands of the body which is directly responsible for the progress of the community, the difficulty is solved. Development of any section of the city is certain to be accompanied by the needed utility service.

In addition, I believe that by placing control over service in the hands of municipal officials, there will evolve a more pleasant and wholesome co-operation. Many problems must of necessity be worked out in harmony with city officials. By delegating to them regulation over service, I feel that a friendlier spirit of co-operation would be certain to prevail. Certainly the replies received from both cities and utilities indicated that municipal and utility relations had greatly improved with the advent of the terminable permit into Indiana and Wisconsin.

There are other matters of importance, such as the

surrender of existing franchises, who is to issue the permit, provisions for termination and others, which deserve consideration. In conclusion, merely allow me to make one additional observation. The advantages of a terminable permit apply with equal force to all utilities. At present the street railway industry in Illinois is particularly handicapped by twenty-year franchises. Nevertheless, other utilities are in many instances compelled periodically to bargain for continued existence. A terminable permit law should apply alike to all utilities. The benefits are certain. Neither the investors nor the consumers should be deprived of the advantages which are to be derived from the use of terminable permits.

### \$200,000 to Improve Philadelphia Cab Maintenance Facilities

**I**N LINE with its policy to supply the cleanest and safest cab equipment possible, the Yellow Cab Company, affiliated with the Philadelphia Rapid Transit Company, is constructing what is believed to be the largest cab maintenance shop in the world, at 812 Schuylkill Avenue. This shop will have a capacity for handling the entire mechanical maintenance of a fleet of 1,500 cabs.

The Schuylkill-Catharine, or K-T garage, as it is called, is located at Schuylkill Avenue and Catharine Street. A P.R.T. way department shop formerly occupied the adjacent premises at 812 Schuylkill Avenue, and this building is being thoroughly remodeled to meet the needs of the cab maintenance organization. It is planned to have the mechanical equipment ready in 1928.

All cabs on the system will be cleaned, inspected and repaired at this new shop. At regular two-week intervals each cab will be sent to 812 Schuylkill Avenue for a 24-hour stay. The salesman who is driving the cab on the particular day of its appointment with the laundry and dispensary will drive his cab to the Schuylkill shop rather than to its home garage at the end of the day. The cab will first be thoroughly cleaned and washed. It will then be carefully inspected to insure first-class mechanical condition. Any repairs and adjustments will be made at once. A force of shop drivers will return the cabs each night to their home garages. "Trouble shooters" in each garage will, however, make minor repairs necessary between the times of regular inspection.

The cab washing and repair apparatus will be the last word in cab maintenance equipment. A lacquering machine will be installed to add the finishing touch of polish and shine. With the completion of this work and the centralizing of the garage mechanical departments it is expected that the number of street disablements will be materially reduced, and that the cost of keeping the cabs in good operating condition will be considerably lowered.

The operating offices of Yellow Cab, now located at 1734 North Broad Street, will be moved to the second floor of the new shop the latter part of November or the early part of December. In addition, the stores department for all garages will be located at 812 Schuylkill Avenue. The instruction department for new salesmen, their classrooms and the uniform room will also occupy a section of the second floor. In fact, the whole Yellow Cab organization, with the exception of the executive offices, the traffic department and the four garages, which then will do little more than house the cabs, will be combined in the new quarters.

This new project will cost approximately \$200,000.



One of the stretches of track that was rehabilitated. In this view the temporary track is being laid alongside preparatory to tearing out the old track so that the service will not be interrupted



This view was taken 37 days after the previous one, with the new track completed and in service. The sign at the left of the street indicates one of the publicity methods adopted by the company



Curing the concrete on one of the stretches of new track constructed by the Altoona & Logan Valley Electric Railway in its 1927 program



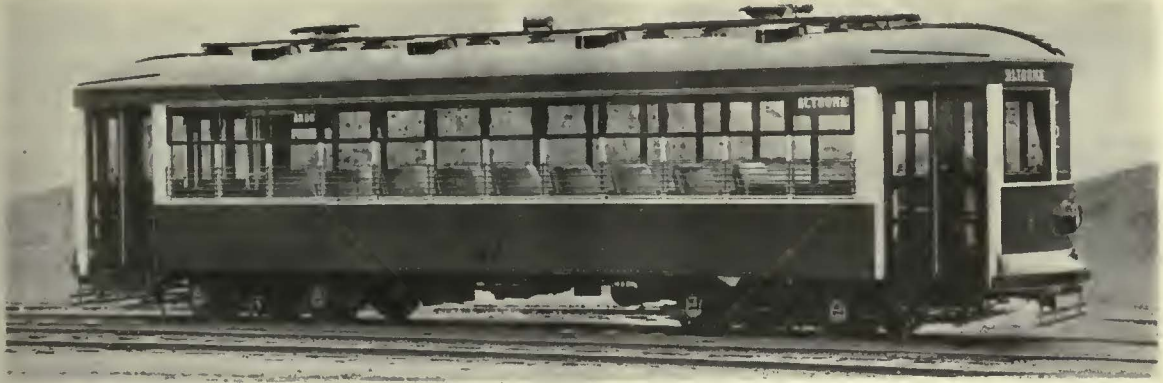
On some of the suburban lines the company has placed the track in paving in preparation for a later paving program of the city which may be carried out this year



On account of the marshy soil in Altoona tile drains were laid under all of the tracks. This view shows a standard type of drain under the center of the track



Where compromise joints were necessary in changing from one section of rail to another steel sole plates were welded to the rails, with filler plates to give a firm footing to the low rail



One of the double-truck safety cars purchased by the Altoona & Logan Valley Railway in its modernization program

# Altoona Modernizes on a Three-Year Program

Expenditures made after careful analysis to put Altoona & Logan Valley Electric Railway and Logan Valley Bus Company properties on substantial basis

**D**URING the past three years the Altoona & Logan Valley Electric Railway and the Logan Valley Bus Company have spent more than \$1,000,000 on new track and equipment and an additional \$650,000 on maintenance of track and equipment.

The extensive program of improvements has been carried out by the railway and its bus operating subsidiary, serving Altoona, Tyrone and Hollidaysburg, Pa., and vicinity. There are 56 miles of rail lines, 26 miles of which are in paved streets, and 40 miles of bus routes. More than \$500,000 was spent for new track, paving and under drains, more than \$270,000 for safety cars and safety equipment for remodeled cars, and more

than \$93,000 for buses, a new garage and garage equipment. This paper has carried the news of these various projects from time to time as the work has been announced. The total amounts are given in accompanying tables.

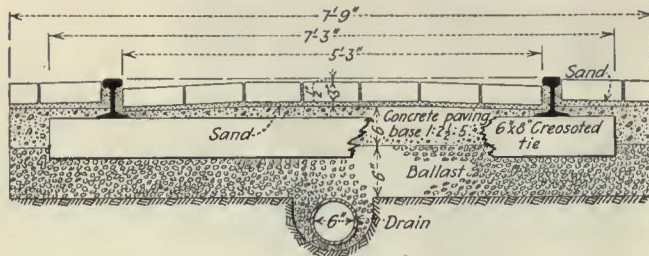
In the paved streets two types of track construction were used, depending on whether it was possible to reroute the traffic. Where the traffic could be diverted to another route during the reconstruction steel ties were used. Both Dayton and International ties were laid. Several of the pictures illustrate the progress of track laying. Track drains of 6-in. to 8-in. diameter, with catch basins or manholes every 350 ft., were in-



Where it was possible to reroute traffic steel ties were used in the reconstruction work. This view, taken on Allegheny Street, Hollidaysburg, shows the use of Dayton mechanical ties



Another stretch of reconstruction work where traffic could be rerouted shows progress of the work. International steel ties were used on this job



Standard type of track with wood ties. This is used where it is necessary to lay the track under traffic

stalled under all new track in paved streets on account of the marshy condition of the soil.

Where it was impossible to divert the traffic the track was laid with treated pine ties. The form of construction is shown in the line illustration. The ties are 6 in. by 8 in. by 7 ft. 3 in. long. First 6 in. of 3/4-in. clean stone ballast was tamped and flat rrammed by air under and around the ties. Then a layer of 1:2 1/2:5 concrete 6 in. to 7 in. thick was laid for a paving base. On this a 1/2-in. sand cushion was spread to carry the 3-in. wire-cut lug paving brick. All the rail used for track in paving was of 100-lb. ARA-A section, except in a few special locations where Lorain section LS-122-491 girder rail was used. All the joints were fitted with sole plates and were seam welded.

During the three years in which this modernization program was in progress the company expended \$201,596 for street paving or \$67,199 annually. With an average daily service of 48 cars this would amount to \$1,400 per car per annum paving tax, the company states.

To do the rehabilitation work there were purchased and placed in service one resistance type welder and

IMPROVEMENTS CHARGED TO CAPITAL ACCOUNT

New track, paving and under-drains.....	\$533,436
Thirteen double-truck safety cars.....	212,065
Three Birney safety cars (transferred).....	13,464
Safety equipment for cars.....	45,376
Substations, feeders, etc.....	74,867
New bridges.....	42,795
Construction equipment—conveyances, welders, signals, etc.....	32,095
Seven Yellow 21-passenger buses.....	43,906
Two White buses (transferred).....	11,000
New bus garage and equipment.....	38,943

Total ..... \$1,047,947

MAINTENANCE EXPENDITURES FOR THE THREE YEARS

Track and roadway.....	\$343,870
Equipment.....	244,915
Buses.....	67,482

Total ..... \$656,267

one motor-generator type welder; two air compressors, one of which is electric driven and one gasoline driven, the latter being mounted on a Ford truck chassis; a set of tie tampers, flat rammers, concrete breakers and other track tools.

All the track in paved streets in which low joints and broken rails had developed was gone over and repaired. Joint repairs were made by installing sole plates, seam welding, surface grinding and relaying paving on the concrete base. Where the ties were cut or rotted under the joints they were cut out and joint boosters installed. Compromise joints are all being built up with plates and welded as shown in one of the illustrations.

In the open track all the joints were gone over, the broken plates were replaced, the bolts were tightened and the broken bonds renewed. The track was surfaced and lined. In the 25 miles of open track 25,000 ties were renewed.

During the past year particular attention was given to the overhead lines. An inspection was made of all the poles and trolley wire. The pole lines were renovated, the crossarms renewed and the wires rearranged. Bad stretches of trolley wire and heavy-duty curves were renewed. Worn splicers and ears were replaced. In doing the work 11 miles of trolley wire and 600 poles were installed. Since the work has been completed interruptions from line breaks and broken poles have been reduced about 70 per cent.

Fifteen sets of two-wire Nachod automatic car-counting signals were installed for city service and fourteen miles of telephone line were built for despatching cars in interurban service.

Thirteen steel-body, light-weight, double-truck safety cars of the latest type and three Birney safety cars have been purchased to give better service and to stimulate new business. One of the double-truck cars is shown in an accompanying illustration.

All of the cars already on the property have been equipped with safety appliances and adapted for one-man operation.

Power distribution has been improved by the installation of substations at various locations on the system. All of the feeders have been rearranged and redistributed, eliminating a large amount of copper, and all of the track bonding has been gone over and brought up to 100 per cent condition. These changes have speeded up the car service.

By agreement with the city of Altoona and the Pennsylvania Railroad the company has constructed a new bridge over the main line of the Pennsylvania. All the track and paving on the bridge approaches has been renewed. All the other bridges, which are owned outright, were sand blasted and given two coats of red lead.

The bus service has also been improved. The company purchased seven 21-passenger Yellow type X buses and two White buses. These have been installed on the 40 miles of bus routes to give better service and to improve the operating conditions. A new bus garage has been built and fully equipped.



Buses have been used to advantage in extending the routes of the Altoona lines. Some 40 miles of bus routes are in service



# High-Speed Road for Germany

Engineers discuss engineering and financial features of proposed high-speed electric railway in Germany's industrial district. With few stops on grades and easy curves, a schedule speed of 71 m.p.h. is expected

By Walter Breslauer, Ph.D.

New York, N. Y.

**D**URING the past two years considerable space has been given in the German technical press to discussions of plans for a proposed high speed railway in the Ruhr industrial area in Western Germany. The latest extended contribution to the subject is a very comprehensive study of the engineering and financial possibilities of such a line by Dr. G. Kemmann of Berlin. In this report, besides making definite recommendations, the author reviews and answers adverse opinions to the plan, which came chiefly from another outstanding specialist in the field of city transportation, Prof. Giese, also of Berlin. Dr. Kemmann's report was made at the request of a company organized by the cities interested to study the entire subject of transportation in the district.

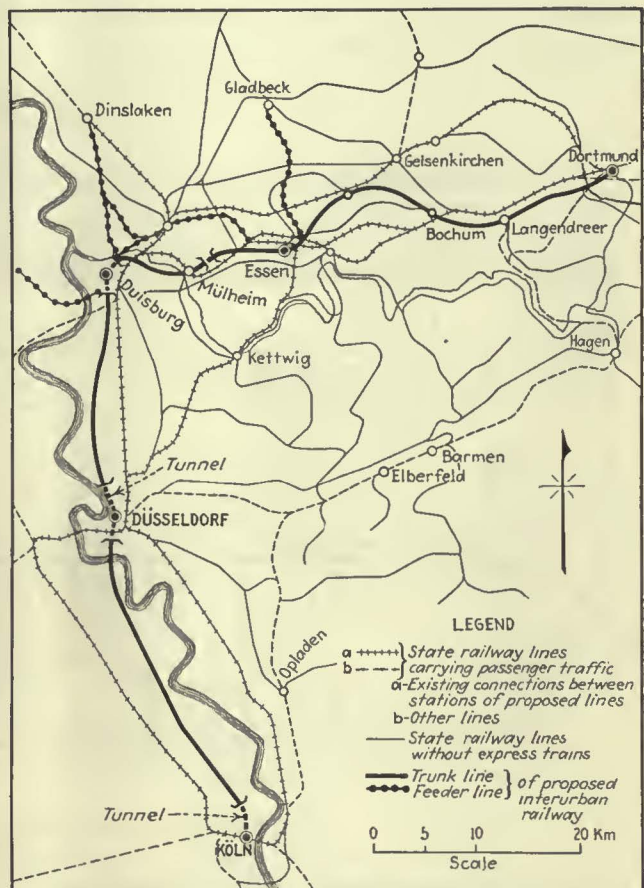
The first engraving shows a map of the area and the route of the high-speed railway, as proposed by the company mentioned. The district shown is one of the most thickly populated in Europe and contains the majority of the coal mines and steel mills of Germany, together with a large number of factories of all kinds. On the line of the proposed route there are ten cities with more than 100,000 inhabitants each, and six cities with from 25,000 to 100,000 population. In addition, there are ten other cities of from 25,000 to 100,000 inhabitants with contributory population. Altogether these 26 cities have about 4,000,000 inhabitants.

## PHYSICAL CHARACTERISTICS OF PROPOSED LINE

The main features of the line, as proposed by the company organized by the cities to study the project and Dr. Kemmann, are as follows:

There will be only nine stations, one each in Cologne (Köln) and Dortmund, the terminal cities, and the others at intermediate points. These stations are to be as near the traffic center of each city as possible. Through each city the road is to be built in subways or open cuts or on an elevated structure. Outside of the cities the road is on its own private right-of-way. There are to be no highway or railroad grade crossings and the grades at all curves are to be so designed as to interfere with high speed as little as possible. Besides the main line there are to be several branch lines with shorter distances between stops and lighter construction.

The maximum speed on part of the line, that between Cologne and Duisburg, is to be 81 m.p.h. On the section between Duisburg and Dortmund, the maximum speed is to be 62 m.p.h., partly because there are several grades of as much as 1.66 per cent and partly because the right-of-way passes over many mines, with danger of ground subsidences. On the branch lines the maximum speed is 50 m.p.h.



The proposed line traverses Germany's most developed industrial area

Trains are to be made up of combinations of two motor cars permanently coupled, each car being equipped with four motors. Electric power will be supplied at 1,500 volts d.c. and the motors are to develop 170 hp. (hourly rating). Multiple unit control will be used, with possibility of field reduction of 67 and 50 per cent for greater speed. Characteristic curves of the proposed motors are shown in the left-hand illustration on page 503.

Research has been undertaken by the Aero-Dynamic Institute of Göttingen University to obtain a shape of car body that presents the least resistance to the air, particularly in subways. A feature of the design, as shown in the accompanying engraving, is a cover for the trucks on the front end of each car.

According to European custom, two classes of passenger accommodations will be provided, corresponding to the second and third classes on the state railways on

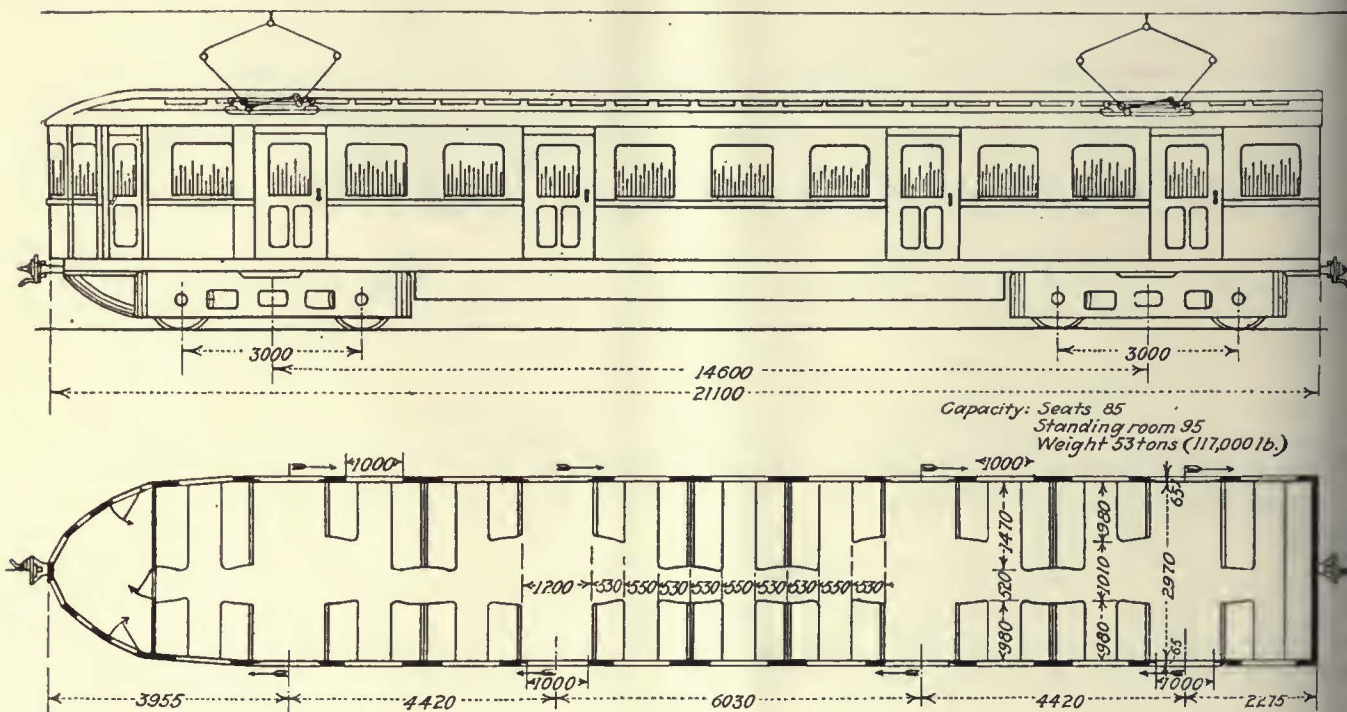
ESTIMATE OF INVESTMENT REQUIRED AND BUSINESS TO BE DONE BY PROPOSED COLOGNE-DORTMUND HIGH-SPEED RAILWAY DURING THIRD YEAR OF OPERATION

	Kemmann	Giese
Total number of fares per year.....	36,000,000	20,000,000
Average length of passenger trip.....	15.3 miles	15 miles
Number of passenger-miles.....	551,000,000	300,000,000
Utilization of seating capacity.....	33½ per cent	25 per cent
Number of car-miles.....	9,250,000	8,000,000
Capital to be invested.....	\$85,000,000	\$100,000,000
Average receipts per passenger-mile.....	1.8 cents	1.94 cents
Operating ratio.....	47.6 per cent	72.6 per cent
Profit.....	\$1,675,000	
Loss.....		\$2,750,000

which, incidentally, about 60 per cent of the commuter traffic rides fourth class. As the average estimated time per passenger trip is not more than twenty minutes, a ratio of 85 seats to room for 95 standing passengers was assumed. Platforms at the stations will be arranged to accommodate trains of six cars. On the branch line, a lighter car operated in single units is suggested.

miles (177 km.) in 140 to 150 minutes, all stops included. On the proposed line the running time will be only 77 minutes between the two cities, the distance being reduced about 2½ miles (4 km.). The schedule speed during this trip, including the periods for acceleration and braking, but not including stops of one minute in each station, will average 71 miles (113.5 km.) per hour between Cologne and Duisburg and 51 miles (83.3 km.) per hour between Duisburg and Dortmund. To obtain these remarkably short running times, the train has to be kept at maximum speed, with motors running with reduced field, for as long as possible, and the coasting time has to be cut down to the utmost limits.

In the speed figures just quoted, Dr. Kemmann and his associate engineers have allowed only a small reserve in speed in the coasting period mentioned, because they believe this is warranted by the peculiarly favorable operating conditions such as uninterrupted right-of-way,



The proposed car is designed to reduce its air resistance

Power will be distributed at 25,000 volts to five substations equipped with mercury-arc rectifiers.

The automatic signal system is designed for a minimum headway of five minutes. It is expected that on the main line the headway will be 30 minutes, but between Duisburg and Dortmund a fifteen minute headway will obtain at certain times of the day. It is believed that if necessary a five minute headway can be maintained without delay even at the expected speed.

SPEED-TIME CURVES

The upper-right chart on page 503 shows a group of speed-time curves of runs, based on the proposed maximum speed of 81 miles (130 km.) per hour. It is obvious from these that such speeds would not be economical in frequent stop service as the trains would have to cover at least 3.75 miles (6 km.) before the maximum speed is reached and, to provide adequate coasting the stops must be at least 15.6 miles apart.

The express trains on the existing steam railroads cover the distance between Cologne and Dortmund, 73

etc. This action is criticised by some other experts who argue that the few seconds which might be gained if the motors are run at full capacity until braking is begun is not sufficient to allow opportunity to make up for lost time.

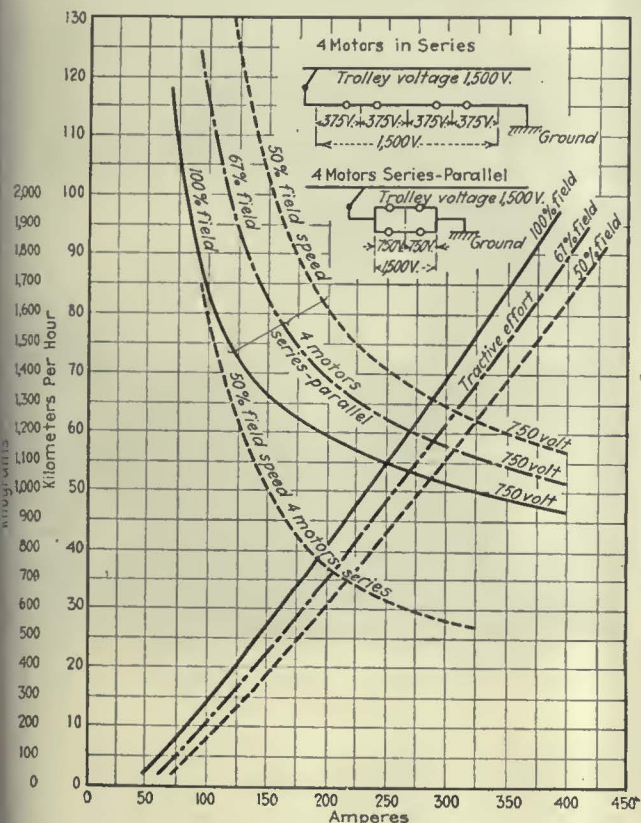
The rate of acceleration selected is 1.1 m.p.h. per second (0.5 meters per sec.<sup>2</sup>). This corresponds to the input of 1,400 kw. for each two-car unit when starting. When running on level tangent track at constant speed with a 50 per cent field, each two-car unit will have a continuous input of about 750 kw.

The third chart on page 503 gives the consumption of energy by trains at different maximum speeds and distances between stops. The point A on this chart represents the conditions on the main line between Duisburg and Dortmund, B those on the branch line and C those on the Berlin subway. On the basis of this chart Dr. Kemmann claims that the watthours per ton-mile, even on the short distance section between Duisburg and Dortmund, will be less than on the branch line and that, in turn, less than on the Berlin subways.

The main line of the proposed railway runs approximately parallel to the main line of the state railroad system, with which it would be in direct competition. Nevertheless, its advocates believe, it has a distinct economic field.

In the first place, the capacity of the existing transportation facilities is now overloaded, complicated as they are because of the necessity of giving service to many scattered factories and mines. Besides this freight traffic, the existing steam railroad lines would still have to care for the through passenger express trains, a

district might better be obtained by an expansion of the existing facilities. Dr. Kemmann's report, however, outlines the difficulty of such a development, especially the costly widening of right-of-way required in the cities, the complications at junctions with numerous branch lines and the difficulties of increasing the speeds of the steam operated trains, especially in the hilly districts around Essen. While the adoption of electric power for the local express tracks would improve conditions, the routes in use are not so well adapted to high speeds as on an independent system of the type consid-



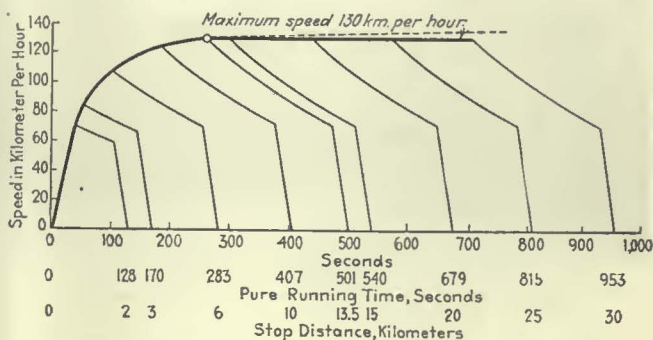
Characteristic curves of motor selected. The motors will be designed to develop 170 hp.

large number of which pass through this district. It could still also have to care for the local traffic, which is not being carried by the present interurban electric railways or buses.

The new line would be primarily for the high-speed interurban business between the nine cities mentioned. Dr. Kemmann estimates that in the third year of operation (1933), 60 per cent of the passengers carried will be present those who otherwise would have used the parallel steam railroad, electric railways or buses, and 40 per cent will be newly created business, resulting from a closer connection of the city centers. It is also believed that the hourly distribution of the traffic will be realized better than on the existing railways, which chiefly serve commuters. Both terminals of the main line are in very large cities, so it is expected that the through traffic on the line will be a large and constant percentage of the business done.

There is considerable difference of opinion between Dr. Kemmann and Prof. Giese as to the financial results to be expected during the third year. The figures of each are given in the accompanying table.

Certain critics of the proposed line have claimed that the needed increased transportation facilities in this



Speed-time-distance diagram for different lengths of run

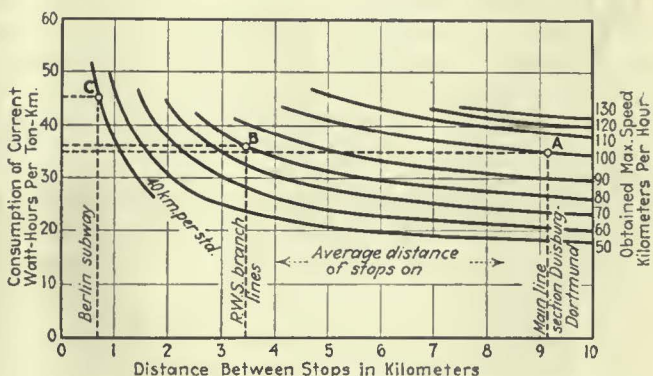


Chart showing energy consumption in relation to distances between stops and maximum speed

ered. Moreover, the cost of the necessary trackage rearrangement would be equal to that of wholly new construction.

As against these claims, it can be argued that the present economic conditions in Germany may make preferable a plan which permits the distribution of the expense over a longer period. The latest reports from Germany are that the directors of the state railway system have approved the expenditure of 300,000,000 marks during a period not yet fixed for improvements of the existing systems in the Ruhr. This decision was reached on the theory that even if the new road is built, the existing system must still handle the through business, the local commuters, and all freight traffic, for which new facilities are badly needed.

The latest contribution to the subject is a pamphlet recently issued by Dr. Kemmann. It contains the principal criticisms of the report which have been published in the German technical press, together with Dr. Kemmann's replies. The criticisms relate particularly to the feasibility of the short running times allowed in the report, to the volume of traffic to be expected and to the economic outcome of the entire high-speed plant as proposed.

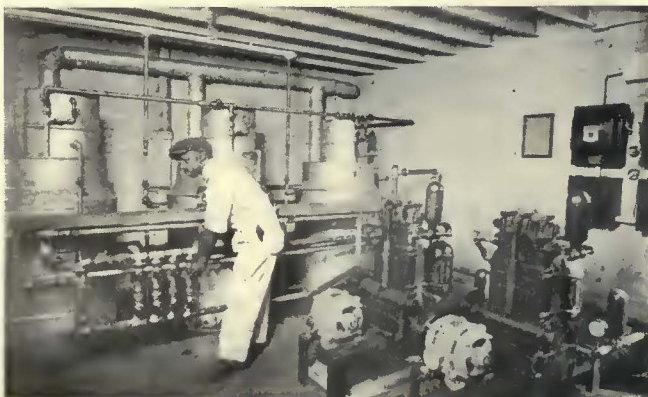


Seven bays are devoted to washing motor coaches

## Bus Wash Rack

WASHING of buses is facilitated by a new wash rack just completed in the garage for the motor coach division of the Los Angeles Railway, Los Angeles, Cal. It is built of steel and brick, 37 ft. 1 in. wide by 123 ft. 6 in. long. There are seven bays for washing motor coaches and automobiles, one-half bay for cleaning parts, an equipment room and a locker room above this for the car washers. The locker room contains a full-length steel locker for each car washer. It also has benches for the workmen and a lavatory with hot and cold water.

The equipment room, which is on the ground floor, contains two high-pressure U. S. compressor pumps, hot water heaters, and solution tanks. The hot water heaters are controlled thermostatically. Five lines run into the intake manifold of each pump. They are (1) cold water, (2) hot water, (3) soap, (4) Oakite and (5) distillate. The valves and piping are arranged so that any one of these liquids or any combination of them may be turned into the intake manifold of either pump. The head car washer decides the liquid or mixture of liquids that is to go through each pump and turns the right combination into the pump manifold by adjusting the valves.



The equipment room contains high-pressure pumps, hot water heaters and solution tanks



Cleaning a bus in Los Angeles by means of the new high-pressure system

Each pump is capable of delivering continuously 4 gal. per minute at a pressure of 300 lb. to any four outlet nozzles of the high-pressure pumping system. Each pump is connected to a 1½-in. high-pressure pipe line that runs the entire length of the wash rack. A ¾-in. line is tapped off each of the pump lines at intervals and runs to the four corners of each washing bay. The ¾-in. lines from each of the two pumps are joined to a common high-pressure hose outlet. Each line is arranged with a globe valve and a check valve. The globe valve regulates the flow of liquid and the check valve is intended to prevent the entrance of liquid from the other pump line.

With this arrangement a washer may use the liquid of either high-pressure line or any combination of liquid contained in the two lines. There is a remote-control system with a push button located at each high-pressure hose outlet, so that from his station a washer may cut off the pump. However, these buttons are arranged in parallel so that all stations must have their circuits open before the pump stops operating.

Each bay is arranged with high-pressure air hose for blowing off the water after the bus has been washed. The room for cleaning parts has two high-pressure hose outlets and high-pressure air outlets similar to those in the washing bay. City water outlets are in all washing bays and in the room for cleaning parts. One of the washing bays is arranged with a pit, so that the chassis and underneath parts of motor coaches and automobiles may be washed more readily.

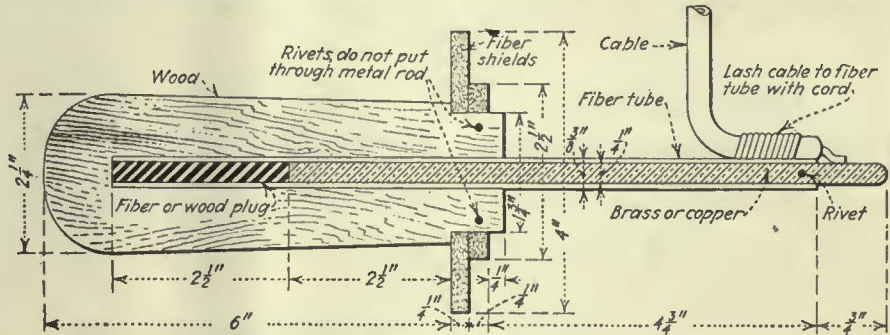
# Maintenance Methods *and* Devices

## Simple, High-Potential Testing Outfit

By R. S. BEERS

Railway Engineering Department General Electric Company, Schenectady, N. Y.

MOST of us visualize a high-potential testing outfit as an elaborate and expensive piece of apparatus. Actually, any repair shop can have one at a low cost by purchasing a standard 1½-kw. lighting transformer that has a primary winding for 2,200 volts and a secondary winding with taps for both 110 and 20 volts. By connecting this secondary to the usual 110-volt a.c. lighting circuit, a potential of either 110 or 2,200 volts may be obtained. The former is recommended for testing overhauled or repaired motors, armatures, fields, etc., while the 2,200 volts should be used for rewind



Handle for high potential testing

to the apparatus. For safety it is customary to surround the device being tested with a simple barrier such as a cord or white tape. The other method is to attach insulated handles to the ends of the high-tension leads and touch these while alive to the apparatus. A barrier around the apparatus under test is not ordinarily used, as the tester is near by and gives sufficient indication of danger.

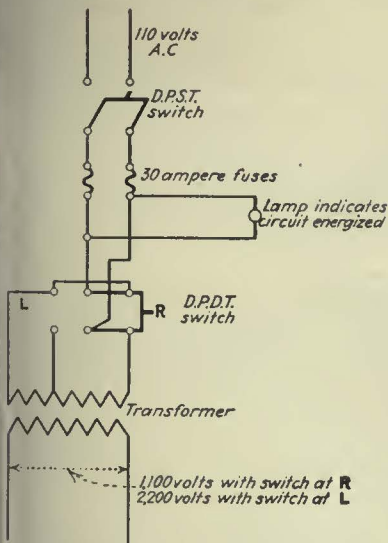
An insulated handle that is easy to make and that has been used with success is shown in the accompanying illustration. The insulating properties of the wood from which these handles are made can be greatly increased by drying the wood out in the armature oven and then soaking in linseed oil for a day or so. This will fill the pores of the wood with oil and prevent moisture from entering.

The sketch shows the metal core about 2½ in. shorter than the fiber tube, the idea being to give ample creepage distance from the live metal along the surface of the fiber tube.

A simple indicator to show when the transformer is energized may be made by using a colored lamp connected across the 110-volt side of the transformer. If a sign flasher is used, this light can be made to blink.

## To Check Alignment of Brush-Holder Parts

MANY of the troubles with railway motors can be traced to improper location of the brush-holder in the motor frame. To make certain that all parts of the brush-holder itself are in proper alignment before installation the Third Avenue Railway, New York City, uses in its 65th Street shop, the special fixture illustrated. It is shown with a Westinghouse type 310 brush-holder in position. The brush-holder itself is held firmly at the carbon box end by a clamp which has a metal block that fits inside the carbon box. This insures that the brush-holder frame is lined up carefully with respect to the finished inside of the carbon box. The upright studs are checked for alignment by a gage on the opposite end of the fixture. The two upright

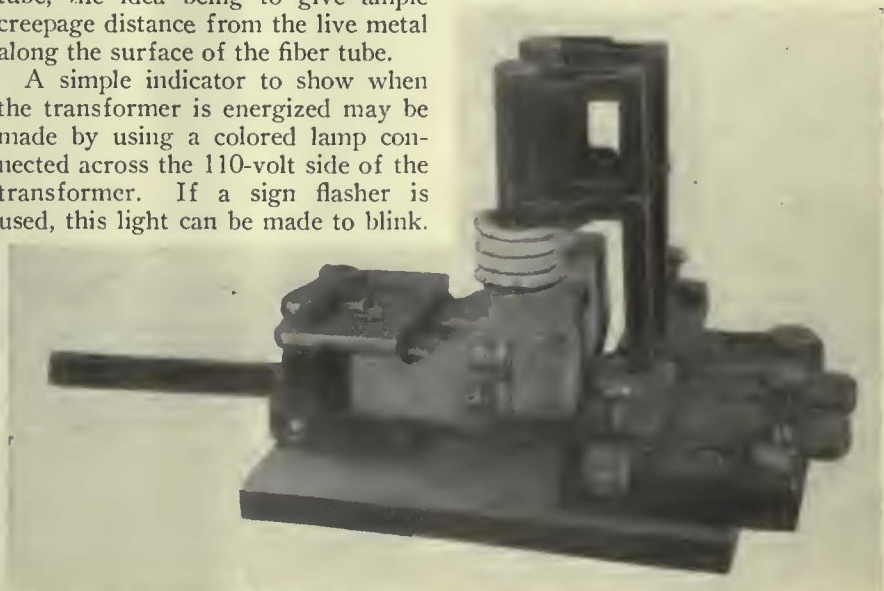


Connections for high potential test

armatures and any other essentially new parts.

The other parts for the complete outfit are two 110-volt knife switches, fuses and high-tension leads which can most easily be made of automobile ignition cable. The high-tension leads should be in uncut lengths without breaks in the rubber covering.

There are two divergent methods of testing a piece of apparatus with high potential. One is to terminate the high-tension cable in a bare wire or hook and always be sure the leads are dead when they are attached



Fixture for checking brush-holders for alignment of various parts

arms are arranged so that they will slide sidewise or back and forth and when in correct position they are clamped by setscrews. With this arrangement the upright studs can be checked quickly and accurate alignment with respect to the finished inside of the carbon box is assured.

### Hydraulic Press

**I**N THE shop of the Binghamton Railway, Binghamton, N. Y., work accumulated due to the absence of a suitable press. This became quite serious at times and finally it was found necessary to design and construct a hydraulic press. The press



Simple hydraulic press

constructed is shown in the accompanying cut.

The foundation consists of three pieces of 80-lb. tee rails resting upon the floor. The base of the press is made of two pieces of the same rail with the space between filled with metal. They are tied together with  $\frac{3}{4}$ -in. bolts and welded. The post is made of two pieces of 1 in. x 6 in. steel spaced 1 in. apart by fillers, bolted to each other and to the base rails. This post is drilled with seven  $1\frac{1}{2}$ -in. holes at the top to permit raising or lowering the rams to take care of various kinds of work.

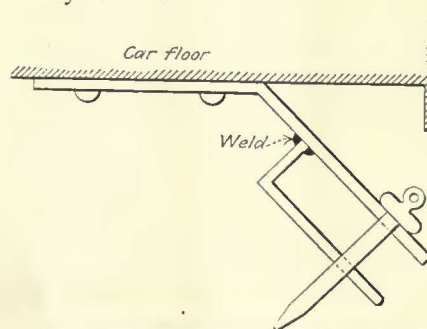
There are two press rams, one for light work and the other for heavy work. The light ram is made from 1-in. x 4-in. material whereas the heavy ram is made from 80-lb. tee rail. These rails are bolted together and filled in the same as are the base rails. Two heavy clamps give additional strength. When the heavy ram is to be used the light ram is removed, but the light ram can be used with

the heavy ram in position. Additional rigidity of the post and ram is obtained by 1-in. x 4-in. braces fastened to the foundation and base rails. The leverage of the rams is two to one and the hydraulic power is obtained by a 15-ton hydraulic hand jack mounted on the base directly under the ram extension. The bed which is shown in the illustration resting upon the base under the ram is made of a piece of  $3\frac{1}{2}$ -in. pipe welded to a  $9\frac{1}{2}$ -in. x 16-in. x 1-in. plate. Four ribs  $\frac{3}{4}$  in. thick are welded to this pipe and to the base. This press has afforded a means for increasing production.

### Coupling Bar Holders

**C**ONSIDERABLE trouble has been experienced by the Cincinnati Street Railway, Cincinnati, Ohio, in pushing disabled cars around sharp curves with the ordinary coupling bar. In an effort to solve this difficulty satisfactorily a bar has been developed with which a car may be moved around any curve on the property with ease.

This bar is 8 ft. 3 in. long and is made out of  $2\frac{1}{2}$ -in. heavy pipe. A feature of the arrangement is the method employed for suspending the bar when not in use under the side of the car. The jaws of the hanger open downward and the bar, once inserted, is held securely in place with coupling pins. The bar is so long that it must be carried in the brackets and the position of the hanger jaws insures having two coupling pins handy for use.



Arrangement of coupling bar holders under floor of street car

### Rack for Soldering Irons

**S**YSTEMATIC arrangement and accessibility of tools in a shop usually reflects the quality of work being performed. Foreman armature winder Max Siebner of the New York



Rack used for soldering irons in the Woodside shops of the New York & Queens County Railway

& Queens County Railway, Jackson Heights, N. Y., believes that this is very important and has arranged all tools in his section of the Woodside shops in this manner. The accompanying cut shows one of the heating furnaces with its soldering iron rack. These irons are in clear view and a minimum of time is required to select the proper one for the job on hand. All irons must be in place on the rack when not in use. A careful check is made every night to see that all have been returned and are in place. The rack consists of a piece of  $\frac{1}{2}$ -in. flat steel bar drilled on either end for mounting and notched to permit of suspending the various irons. It has improved the appearance of the shop and eliminated loss of time in looking for a certain iron.

# New Equipment Available

## Feed Valve Adjustment Made Easier

IMPROVEMENTS have been incorporated in a feed valve, called the C-8, developed by the West-house Traction Brake Company, Wilmerding, Pa., and now available for use with air-brake equipments.



Increased maintenance is made possible by the use of this new feed valve

The new design facilitates maintenance of correct adjustment at low cost.

A larger ring-fitted supply piston, with definite size by-pass choke, replaces the loose fitting piston of former designs, assuring more positive and reliable performance. The piston stem guide is larger, which reduces wear and insures correct alignment of the piston, while the helical shaped periphery of the guide tends

to keep the bush scraped free of dirt.

All wearing parts can be removed readily without special tools. Slip bushings are used throughout, while the slide valve bushing and piston bushing are in one piece.

## Three New Welding Outfits

MEETING the demand for low-price assemblies, three new welding outfits have been placed on the market by the Oxweld Acetylene Company, New York, N. Y. These outfits are made possible by the addition to the Prest-O-Weld line of two small two-gage regulators, and two special blowpipe tips, one for heating and brazing, and the other for soldering.

The type W-101-A outfit is for use where only an occasional welding job needs a large size blowpipe for straightening operations. For this purpose a No. 10 tip is included which is also suitable for reasonably heavy welding operations. A No. 6 tip is also provided for the usual type of welding job. A special heating tip and soldering tip which consume acetylene only, are designed for light brazing and for soldering.

The type W-102-A general purpose outfit, is for shops that wish to employ the oxy-acetylene process in all of its many applications, welding, de-

carbonizing, heating, soldering, brazing, lead burning and other repairs. Five welding tips and a decarbonizing blowpipe as well as the heating and soldering tips are included in this outfit.

The type W-102-B welding outfit is recommended for welding light and medium castings. It is also suitable for sheet metal work and for light production welding such as is used in tanks, steel window frames and similar work. This outfit includes five welding tips.

## New Arc Welding Process Developed

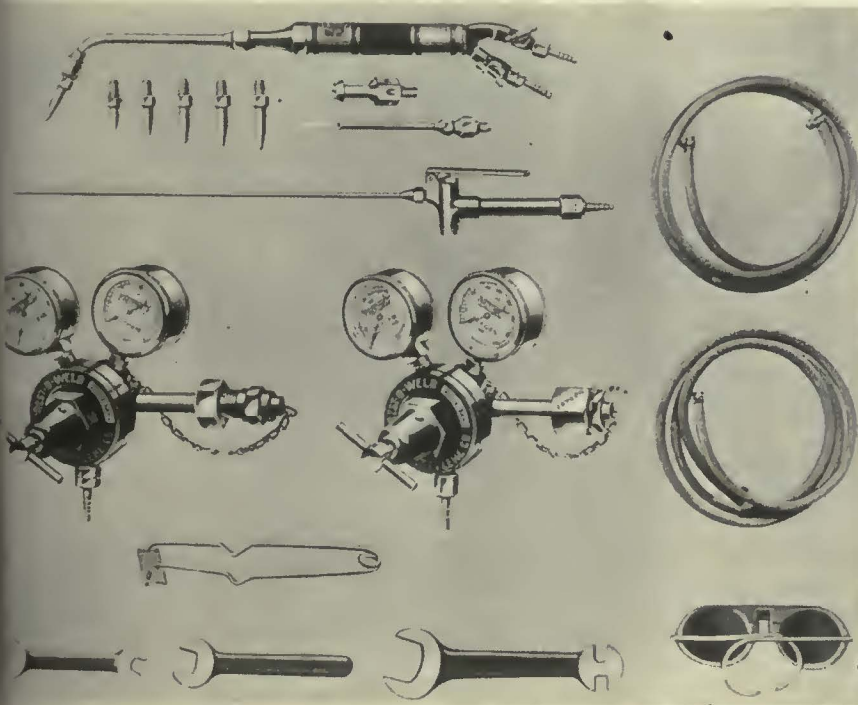
DEVELOPMENT of a new arc-welding process termed by the manufacturers the "Electronic Tornado" is announced by the Lincoln Electric Company, Cleveland, Ohio. In it a specially induced magnetic



At left is shown a metallic arc weld; at right is one made by the "Electronic Tornado"

field alters the ordinary characteristics and effects of the welding arc.

The company predicts its adoption for automatic welding in the fabrication of cars, tanks, pipe lines, box girders, etc., but it is not expected to find immediate use in hand-welding operations. The metal deposited in the weld by the ordinary electric arc process has characteristics like those of cast steel, while that deposited by the new process is said to have equal or better physical characteristics than the metal of the plates joined by welding, due to the purifying effects. The smooth finish obtained with the process is said to be due in part to the high speed of travel of the welding heads and in part to its inherent characteristics.



One of three new welding outfits, the Type W-102-A for general purpose work

# Association Activities

## The Santa Claus Idea of Government\*

BY HENRY SWIFT IVES

Vice-President Casualty Information Clearing House, Chicago

GOVERNMENT ownership is an attempt to transform the state into a benevolent Santa Claus doing everything for everybody at no cost to anybody. Presumably, the old feudal doctrine that the government should support the people has long since been discarded in favor of the theory of democracy that the people should support the government. The continuing agitation for government ownership and control of industry, however, belies that assumption.

There is, of course, a very potent lure in this Santa Claus idea of government, and that is why it has survived through so many centuries. Gift-government

*THERE is nothing particularly new in the idea of transmuting profits into gratuities through the alchemy of socialism, but the headway it has made in a country dedicated to liberty and resting on the sound foundation of private enterprise is rather surprising.*

always has been popular among certain classes. Getting something for nothing never loses its appeal. Pilfering politicians thrive on such schemes, professional uplifters count on them to provide sustenance not only for their hobbies but for themselves, and socialists advocate them deliberately as a curb to prosperity, for prosperity spells the doom of socialism. Those who are subsidized seldom complain of the subsidy or investigate its source.

### HAS NO PLACE IN DEMOCRACY

It seems illogical, however, and almost tragic, that in a country which has prospered and grown great because of its espousal of democracy in its most virile form, the greatest threat against continuing prosperity is the rejuvenation of the long outlawed theory of government of which Santa Claus is the patron saint. The political Christmas tree, indeed, is now being trimmed and festooned with such gewgaws and

\*Abstract of address delivered at the joint convention of the Illinois Gas Association, the Illinois State Electric Association and the Illinois Electric Railway Association, at Springfield, Ill., March 14, 1928.

baubles as railroads, insurance companies, electric light and power plants, coal mines, gas plants, street railways, grain elevators, oil wells and the like awaiting the glad day when the red-clad Kris Kringle will appear and pass them about among the faithful. He promises a golden age of luxury, idleness and wastefulness in which government deficits will be substituted for private profits and in which politics instead of business and work will become the national dividend producer.

There is nothing particularly new in the idea of transmuting profits into gratuities through the alchemy of socialism, but the headway it has made in a country dedicated to liberty and resting on the sound foundation of private enterprise is rather surprising. Government ownership and the imperious regulation and control of industrial processes by the politically minded take away the very fundamental rights of man which the American commonwealth was designed to foster and protect, and their inevitable consequence is despotism. It is about time that property owners and business men take stock of this situation and appraise the growing tendency towards confiscatory legislation more fully.

### ARDENT CAPITALISTS BECOME SOCIALISTS

There would appear to be altogether too many business men in this country who are ardent capitalists when their own business is concerned, but who are apt to be just as ardent socialists when the other fellow's business is concerned. This class has had more to do with the headway made by the socialization movement than have all of the socialists and ordinary mine-run of pink agitators combined. One has only to examine the background of any government ownership scheme to discover the support given to it by substantial business men not engaged in the business affected. When government competition, regulation and control, however, touches them these same business men are loud in their protests and cry to high heaven to save them from the socialists.

The community of interest between all of the jeopardized industries to a large degree seems to be ignored. Each is fighting its own battles with little or no thought of the common menace. Often those most in danger are arrayed against each other and do not seem to care what becomes of the others "in the same boat," provided they themselves can keep a few feet ahead of the socialist sheriff with his writ of ejectment.

This unfortunate division should be speedily remedied if an ultimate surrender to socialism is to be avoided.

The business man and property owner who secretly feels that he may gain some privilege or make a saving if somebody else is repressed by the strong arm of the state is an economic illiterate.

### INSURANCE COMPANIES AND UTILITIES HAVE COMMON INTEREST

A large number of the leading stock casualty insurance companies of this country are face to face with this government ownership problem. In sixteen states workmen's compensation insurance is now being written in so-called state funds in competition with or to the exclusion of private companies. Despite the fact that this type of govern-

*It ought to be an axiomatic political principle that no single industry or business can be lifted out of the mass of privately conducted enterprise, endowed with the attributes of sovereignty, subsidized by taxation and operated by a political bureaucracy without every other privately conducted business feeling the baneful and depressing effects of such a procedure.*

ment ownership has proved a striking economic and social failure—evidenced by the fact that in the nine states where competition is permitted the private companies write 85 per cent of the business and the state funds only 15 per cent, notwithstanding a substantial saving in rates—attempts are being made to extend it to other lines, such as automobile liability insurance and the like.

Two states, Wisconsin and Massachusetts, also have life insurance funds, and in several states and municipalities the government ownership idea has been expanded to include funds for insuring public buildings against fire and, for the bonding of public officials. The disastrous experience of several of the Western states with hail insurance is well known. This brief survey of the situation in the business which I represent ought to lead to the conclusion that all insurance men are bitterly opposed to all kinds of government ownership because of their own afflictions. But that isn't necessarily true. I do not doubt that there are many insurance men who at some time or other, have advocated state or municipal ownership for elec-



tric light and power plants, street railways and gas companies. I do doubt, however, if there is an active insurance man who ever has advocated government ownership of insurance.

In the same way I do not doubt that there are public utility executives and owners who, at some time or other, may have advocated and supported state insurance. I doubt, however, if there is a public utility executive or owner who ever has advocated government ownership of his particular business.

To both of these groups I wish to say that they ought to be just as much opposed to government ownership of any other industrial enterprise as they are opposed to government ownership of the enterprise in which they are engaged. It ought to be an axiomatic political principle that no single industry or business can be lifted out of the mass of privately conducted enterprise, endowed with the attributes of sovereignty, subsidized by taxation and operated by a political bureaucracy without every other privately conducted business feeling the baneful and depressing effects of such a procedure.

As long as this condition of chaotic political and economic thinking continues among the avowed supporters of democratic institutions—and these constitute more than 90 per cent of our population—the socialization movement, with its gift-government decoy for the unsophisticated always in the foreground, will continue to make progress.

There are many pitfalls which must be avoided if legitimate private enterprise is to be preserved in this country, and if individual initiative is to remain unfettered. The chief of these are the gradually growing American tendency to look upon capital with suspicion, to denounce large profits as immoral if earned by others than the denouncer, to yield to the delusion that wealth which is confiscated will continue to be created, to believe that the public can add to its possessions by taking property from individuals, to hold that compulsory equality of condition is more to be desired than unrestricted equality of opportunity, and to think that the leveling process can be accomplished by subsidizing mediocrity at the expense of genius. All of these are fundamental economic distortions.

#### PROGRESS DEPENDENT ON PRIVATE ENTERPRISE

After all, no material benefit has ever reached mankind except through the agency of private enterprise. To deny its potency is a confession that democracy is a failure. To shackle it with the chains of state slavery is equivalent to affirming that men can conduct governments better than they can conduct their own business affairs, a statement which history has denied from the dawn of recorded time until the dawn of today. In my opinion, the leading industrial enterprises of this generation—"big business," if you please so to designate them—are being conducted with a higher degree of fairness and justice to

*THE business man and property owner who secretly feels that he may gain some privilege or make a saving if somebody else is repressed by the strong arm of the state is an economic illiterate.*

those engaged in them, with a more sympathetic regard for human aspirations and ambitions, with a keener sense

of their responsibility to the people and to the nation, and with a more searching appreciation of the more lofty ideals of service, than any similar or comparable government enterprises on the face of the earth. I say that industry can run itself and is today running itself better than any government is being run. There is no "if" about it. The only effect of radical state interference is to supplant order with confusion. Industry today is for the most part two jumps ahead of the requirements of the people; most governmental organizations are two jumps behind.

## Railway Engineering Association Holds Meeting in Chicago

ATTENDANCE at the convention of the American Railway Engineering Association, held on March 6-8 in Chicago, was larger than at any previous meeting. The registration, through March 8 was 968 members and 348 guests, or a combined total of 1,316. Last year the total was 1,251, and in 1926 it was 1,030. An exhibit was held, as usual, in the Coliseum building. There was a concurrent exhibit of signal apparatus, and the American Railway Association, signal section, held a two-day meeting on March 5-6.

At the railway signaling meeting, the recommended code on colors and forms for traffic signals for highway vehicles, as approved by the American Engineering Standards Committee on Nov. 15, 1927, was submitted by the committee on highway crossing protection. Later, highway crossing signals were again considered in the report of the committee on grade crossings of the A.R.E.A., when a standard highway crossing sign, carrying the words "Railroad Crossing" was recommended by the committee.

Brief abstracts of some other reports presented at the convention of the A.R.E.A., selected as of especial interest to electric railway operators, follow:

#### TIES

Among the subjects investigated during the year were anti-splitting devices for wooden ties, of which a number were tested at the Altoona laboratory of the Pennsylvania Railroad. The tests were made on 14-in. tie sections in which a  $\frac{1}{4}$ -in. slot was cut from one end of the block to within 3 in. of the other end. The anti-splitting irons were then pressed into the ends of the block so that they extended across the slot, and a wedge was driven into the slot. The conclusions, in brief, were: (1) An anti-splitting device should be straight where it crosses the split or check, rather than curved; (2) it should cross the split at right angles; (3) "S"-irons with a small perpendicular lug at the end have more holding power than the standard "S"-irons; (4) the holding power of a device with a right-angle bend supported by an end lug is slightly

in excess of the standard "S"-iron with end lug.

Another subject studied was the holding power and thrust resistance of spikes in various kinds of wooden ties. Five thousand tests on this subject were made in the test department of the Santa Fe Railroad. More damage to the wood fiber was found when no holes were bored, or where the holes were too small. The recommendations were: (1) that holes for cut spikes in hard wood be  $\frac{1}{8}$  in. smaller than the diameter of the spike; (2) that holes for cut spikes in soft wood be  $\frac{1}{4}$  in. smaller than the diameter of the spike. Tests so far indicated that the chisel edge of the spike should be slightly less than the diameter of the hole.

#### ELECTRICITY

The report of this committee also comprised the report of the electrical section of the American Railway Association. Reference will be made to the longest sections of the report. One of these was a preliminary draft of specifications for catenary construction, though the committee points out that these specifications are subject to further revision, particularly such parts as relate to loading, unit pressures, and clearances. Further consideration of these features, it says, should be deferred until sub-committee No. 5, jointly with the N.E.L.A., concludes the preparation of wire crossing specifications satisfactory to the railroads. Another extended section in the report related to standardization of insulators, on which the sub-committee has been working with the American Engineering Standards Committee and the Bureau of Standards, for the purpose of reducing the number of varieties of one-piece porcelain insulators. Another extended section related to specifications for track and third-rail bonds. Formulas and charts giving the resistances of different types of bonds are given, with recommended methods of installation, testing, etc. For manganese track rails, the committee reports that the manufacturers advise against the use of heat-applied bonds and recommend mechanically applied bonds. On this point, the

committee studied the possibility of field drilling of bond holes in such rails, and found it could be done with a machine that will give a heavy rigid feed and low speed. Another extended report related to the design of indoor and outdoor substations. Other subjects were treated, but less extensively, than those mentioned.

#### ECONOMICS OF RAILWAY OPERATION

The most extended division of this report was on the effect of motor truck and bus lines on branch or feeder steam railroad lines. It was shown that as compared with ten or twelve years ago, steam railroads have been losing their short-haul passenger traffic to the buses. The number of passengers carried, passenger-miles run, passenger revenue and revenue per passenger-mile have all decreased on Class I railroads, as compared with 1920 or 1921. The reasons for public preference for travel by motor coach are given as lower fares, frequency of service, and "store-door" principle of passenger service. The committee believes that the railroads should give serious consideration to the use of highway motor coaches and rail motor cars, when their use as a substitute for steam service will result in larger net income or reduction in operating loss. The committee believes that recent decisions of state courts are favorable to the right of the existing rail carrier to furnishing such highway transportation as is needed.

#### TRACK

The most extended section in this report related to track construction in paved streets, where the committee presented for adoption and recommended practice a series of plans of ironbound manganese center frogs for 7-in. and 9-in. girder rails. The committee has under consideration plans for grooved tongue switch and mate for industrial track and connected tongue switch for main line use, as well as plans for ironbound manganese insert crossing, all for presentation in a report at a later date. A short section in the report referred to methods of reducing rail wear on curves with particular reference to oiling the rail or wheel flanges. The statement was made that quite a number of railroads are oiling rail and flanges both by hand and with devices made for this purpose and that desirable economies can be effected thereby. Wear on the high rail of the curve is greatly reduced, the life of ties is lengthened due to less regaging, less tread wear occurs on the low rail, curve resistance is lessened, and there is reduced wear on flanges. It is essential that the proper oil be used. The viscosity of the oil is important as it must be sticky enough to adhere to the flanges for application to the rail ahead and must function through a considerable temperature range. It is also essential that the oil be continuously applied, either to the wheels of every train using the track or to the rail ahead of every train, as less frequent applications of oil are not satisfactory.

### Purchasing Agents Select Kansas City for Next Convention

MAY 28-31 has been selected as the time for the thirteenth international convention and exhibit of the National Association of Purchasing Agents. It will be held in the American Royal Building, Kansas City, Mo.

The convention program this year is being prepared to cover purchasing of commodities. There are also functional groups, such as the public utility group, composed of purchasers for the utilities. In this division purchase policy, association under particular connections with vendors, contacts with engineers in their own departments, standardization of particular problems, and similar topics will be covered.

### Weekly Engineering Index Service

WEEKLY publication of an engineering index service is announced by the American Society of Mechanical Engineers. This is an extension of the old *Engineering Index*. By this service valuable material in 1,700 publications received by the United Engineering Societies Library is reviewed by a staff of editors qualified by practical field experience. Each article is then described in a carefully prepared note, and these notes are classified under one of the thirteen subject headings in which the different phases of the engineering interest are listed. They are then printed on index cards, convenient for filing, and sent each week to subscribers.

The classification "Railroads and Railways" is subdivided as follows:

12. Railroads and Railways:
  - A. Accessories—Signals, train control devices, etc.
  - B. Construction—Right-of-way, tracks, ties, stations, yards, etc.
  - C. Locomotives—Design, construction, operating, etc.
  - D. Railroads—Operation, management, etc., of trunk and main-line railroads.
  - E. Railways—Operation, management, etc., of street, and interurban railroads, subways, elevated railways, etc.
  - F. Rolling Stock—Car building, lighting, heating, etc.
  - G. Shop and Shop Equipment—Repair shops, roundhouses, equipment, etc.
  - M. Miscellaneous—Other subjects relating to railroads not otherwise classified.

For information concerning this service, together with sample index cards, address Major Carlos de Zafra, director, the Engineering Index Service, 29 West 39th Street, New York, N. Y.

### City Planners To Meet in Texas

FORT WORTH and Dallas, Tex., will be hosts to the twentieth meeting of the National Conference on City Planning, which will be held in those cities May 7-10. The session of May 7 will be held at Fort Worth, after which the party will take buses to Dallas, where the meetings will be held.

Among other things a number of

papers on street traffic planning and other topics of interest to transportation men are included. Those intending to attend are urged to communicate with Flavel Shurtless, secretary of the National Conference on City Planning, 130 East 22nd Street, New York City.

### New York Alumni to Discuss Transportation

"SOME Interesting Steps in Transportation, Past, Present and Future," will be discussed by the New York Alumni Association of Tau Beta Pi, co-operating with the New York sections of the Founder Engineering Societies, at a meeting to be held in the main auditorium of the Engineering Societies Building, 29 West 39th Street, New York City, Thursday, March 29, at 8:15 p.m.

The speakers will be Daniel Willard, president Baltimore & Ohio Railroad; Major-General John F. O'Ryan, president Colonial Air Transport Company, Inc.; and Colonial Western Airways, Inc.; Edward Hungerford, director Baltimore & Ohio Centenary, who will present a film, "The Fair of the Iron Horse," depicting the main events of the B. & O. centenary; and Lieutenant-Commander Charles E. Rosendahl, U.S.N., commanding officer of the airship *Los Angeles*, who will describe with motion pictures the landing of the *Los Angeles* on the deck of the U.S.S. *Saratoga*, and also tell about his recent trip to Panama.

### Detroit Selected by Central Accountants

MEMBERS of the Central Electric Railway Accountants Association have decided to hold the next meeting in Detroit on July 27 and 28, according to an announcement from Secretary L. E. Earlywine.

### World Engineering Congress at Tokio in 1929

PRELIMINARY announcement has been made through the United States Department of State of a World Engineering Congress to be held in Tokio, Japan, for two weeks toward the end of October, 1929. The congress will be held under the auspices of the Kogakkai (Engineering Society of Japan), of which Baron K. Furuichi is president. An American committee has been organized, with Hon. Herbert Hoover, Secretary of Commerce, as honorary chairman, Elmer A. Sperry, active chairman, and Maurice Holland secretary. The committee members are engineers who are nationally prominent.

The congress proposes to discuss various engineering subjects in anticipation eventually to initiate and promote international co-operation in the study of engineering science and problems in all its branches and to cultivate a feeling of brotherhood among engineers of the world.

# Joint Interests of Utilities Emphasized at Springfield Meeting

Major speeches at joint sessions of Illinois Electric, Gas and Electric Railway Associations last week in Springfield, Ill., show that interests common to all utilities are increasing

NEED for a greater measure of co-operation between all utilities in furthering their common interests and promoting better service to their customers, the evils inherent in government ownership of business, the opportunity offered the public service company to assume an active, helpful part in community affairs as a good citizen, and an explanation of the construction and functioning of terminable permits constitute the outstanding features of the joint sessions of the Illinois Electric, Gas, and Electric Railway Associations which assembled in Springfield, Illinois, March 14, for a two-day convention. Approximately 100 delegates listened to messages from such authorities in their respective fields as R. P. Stevens, president of the American Electric Railway Association, Oscar H. Fogg, president of the American Gas Association, Henry Ives, vice-president of the Casualty Information Clearing House, Chicago; Charles N. Wheeler, assistant to the president Illinois Power & Light Corporation, and E. R. Dillavou, assistant professor of business law and economics, University of Illinois. A report of the first day's sessions appeared in this paper, issue of March 17, page 478.

Thursday morning's joint session of the three associations was featured by the address of Professor E. R. Dillavou of the University of Illinois on the subject of the terminable permit. Pointing out that there was nothing novel or complicated about a terminable permit, Professor Dillavou defined one as a franchise which continues indefinitely unless the utility is purchased by the municipality, or unless the permit is cancelled because of misconduct on the part of the company. Continuing, he said, "Such a permit seems to remedy the evils of the short term franchise and at the same time protects the public interest, particularly since public utility operation is subject to regulation by a state commission. The investor, having faith in the behavior of the management, and realizing that his money will be repaid if the city sees fit to terminate the permit, is ready to supply funds from time to time as the progress of the business demands."

Commenting on the unwillingness of municipalities to surrender control over the local utilities and where possible to continue to impose onerous conditions on them in favor of the municipality, Professor Dillavou outlined the four possible solutions of this problem which have been suggested by the laws of terminable permit states. He detailed

that "the laws of Louisiana, which limit the use of such permits to the city of New Orleans, allow the municipality to insert any conditions which may be agreed upon at the time the permit is issued. Oklahoma provides that all new franchises must be for a

definite term, but they may be surrendered at the option of the utility for terminable permits which embody the terms of the surrendered franchise. Massachusetts has a law which makes it possible for many of the utilities to have all duties commuted into an annual money payment. Wisconsin is illustrative of a group, the law of which reads that the permit shall be "held under all the terms and limitations of this act." Professor Dillavou added that in this latter instance the courts have construed the law to mean that each permit is to be like every other permit, the consequence being that all burdensome provisions are eliminated and no new ones may be added.

## COMING MEETINGS OF

### Electric Railway and Allied Associations

March 30—Executive Committee American Electric Railway Association, 292 Madison Avenue, New York, N. Y.

April 6—Metropolitan Section, A.E.R.A., 39 W. 39th Street, New York, N. Y.

April 25-27—American Welding Society, annual meeting, 33 West 39th Street, New York, N. Y.

April 26-28—Missouri Association of Public Utilities, Jefferson City, Mo.

May 2-5—Southwestern Public Service Association, Dallas, Texas.

May 6-12—Union Internationale de Tramways, de Chemins de Fer d'Interet Local et de Transports Publics Automobiles, biennial meeting, Rome, Italy.

May 9-10—Central Electric Railway Master Mechanics' Association, Erie, Pa.

June 6-8—Canadian Electric Railway Association, annual convention and exhibits, Toronto, Canada.

June 20-27—American Railway Association, Div. 5—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association), annual convention and exhibit, Atlantic City, N. J.

June 21-22—American Railway Association, Motor Transport Division, Atlantic City, N. J.

June 28-29—Central Electric Railway Association, Cedar Point, Ohio.

July 8-12—Public Utilities Advertising Association and International Advertising Exposition, Detroit, Mich.

July 25-27—Electric Railway Association of Equipment Men, Southern Properties, Cincinnati, Ohio.

July 27-28—Central Electric Railway Accountants' Association, Detroit, Mich.

SEPT. 22-28, 1928

American Electric Railway Association, 47th annual convention and exhibit, Cleveland, Ohio.

## FAST SCHEDULES RESULT OF TRAINING

In his paper on the advantages of fast schedules, presented at the afternoon electric railway session, E. J. McIlraith, staff engineer Chicago Surface Lines, urged that a company need not wait to secure new equipment, or to widen the car doors, or to change the motors, or in fact undertake any other major and expensive alteration in order to improve operating conditions. "Usually," according to Mr. McIlraith, "remarkable improvement in speed may be obtained with no other change than training and supervision of the operating force. This means training of the entire organization from the manager down, so as to have each one working actively to discover ways and means of eliminating waste of time, and carelessness in the operation." An abstract of Mr. McIlraith's paper will appear in an early issue.

The subject of noise reduction and car heating was treated in a paper presented by H. H. Adams, superintendent of shops and equipment, Chicago Surface Lines. Concluding a summary of improvements in car equipment in which the substitution of aluminum alloys for heavier metals was discussed, Mr. Adams opined that while these improvements have all had their individual effects, collectively they have exerted an equally important influence on the problem of noise reduction. "Reduction of unsprung weight, gears that run in an oil bath, the elimination of the usual brake rigging and insulation from vibration," Mr. Adams added, "are all important factors in securing quiet operation."

F. L. Reardon, assistant treasurer, East St. Louis & Suburban Railway, in outlining certain short cuts in accounting practices with special reference to motor coach accounting, described in some detail the mechanical handling of fares, the savings which had accrued from the use of ticket issuing cash registers, and the methods employed in supplying itemized pay cards to the trainmen, and bus employees.

R. F. Palmblade, division manager Illinois Power & Light Corporation, Peoria, was elected president of the Illinois Electric Railways Association for the ensuing year.

# News of the Industry

## Relief Measure Voted Down in St. Paul

For the third time the voters of St. Paul, Minn., on March 13, turned down an enabling act amendment to authorize the Council to grant the St. Paul City Railway relief from certain costs which would have brought the return on the company valuation nearer to the 7½ per cent figure fixed by the Minnesota Railroad and Warehouse Commission as reasonable. It is expected the railway will now press a hearing before the commission on its application for an increased fare over its present 8-cent cash rate.

At two previous elections the proposed amendment was not put strongly before the voters, but the rejection on March 13 was in the face of a determined agitation by citizens to prevent a higher rate of fare in St. Paul than in Minneapolis. The relief intended to be afforded covered paving between tracks, cleaning, sprinkling and snow removal, etc. The saving to the company was estimated at \$200,000 a year. On the other hand, it was estimated by the committee that an increase of 1 cent in the fare will cost the patrons of the cars \$638,000 a year.

The net return at present to the St. Paul City Railway is estimated at 4.75 per cent as against 6.1 per cent in Minneapolis with the same rate of fare.

To pass the amendment needed 60 per cent of the vote cast at the election. The final figures were 28,077 to 29,836.

## Franchise Suggestions Sought from Jacksonville Company

After lengthy discussion as to the factors that should enter into a franchise for the Jacksonville Traction Company, Jacksonville, Fla., the City Council voted unanimously to invite Peter O. Knight, Tampa, general counsel for the Stone & Webster interests in Florida, to prepare drafts of a franchise that would be acceptable by the company for comparison with the proposed franchise drawn by the local citizens' committee. Mr. Knight maintained that several of the provisions of the franchise draft that has been advanced for acceptance were restrictive and illegal. He said all that the Jacksonville Traction Company wants is "the right to live, a fair valuation set and a fair return on the investment."

Mr. Knight stated that Jacksonville alone presented opposition to his terminable permit bill in the last legislature and he distributed copies of a letter explaining the measure to every councilman. The letter states that the bill aims to eliminate the 30-year period of limitations for the granting of franchises by

municipalities and would give the municipalities the right to acquire the property of a utility at the termination of a franchise.

The simplicity of the franchise under which the Tampa Electric Company is operating was stressed by Mr. Knight. It allows the company to operate for 99 years and exempts the concern from payment of corporation or franchise tax on equipment. This agreement has proved satisfactory to the people of Tampa, he said.

## Paving Bill Lost in New York

Admitting that he could not muster the votes in his senate public-service committee to report his bill to relieve electric railways in New York State of a substantial portion of their present paving obligation, Senator Warren T. Thayer, father of the so-called compromise proposal, indicated on March 18 that he had abandoned all hope for the legislation. The Thayer bill was the result of conferences between representatives of the cities of the state and spokesmen for the organized railway interests.

The companion bill by Assemblyman D. Mallory Stephens of Putnam County now lies in rules committee of the lower house, where it bids fair to remain.

## Appreciation of Toronto Service

THERE can be no doubt that D. W. Harvey, general manager of the Toronto Transportation Commission, and those associated with him have given to Toronto one of the finest street car services in the world. . . . Most of the complaints today arise from overcrowding in cars during rush hours. The remedy for this lies more with employers of labor than with the Transportation Commission. If office hours were "staggered," as has been suggested, much of the congestion on the street cars would be eliminated. It needs to be remembered by those who complain that the "rush-hour" problem is not peculiar to Toronto. It has taxed the best brains of transportation experts in every city, and has never yet been adequately solved. That the system under Mr. Harvey's management is giving an infinitely superior service to that in the majority of other cities there can be no doubt. With one or two difficulties ironed out, it will rank with the best in the world.—*Toronto Globe*.

## Old Matters in Toledo Must Be Cleared Up

Mayor W. T. Jackson of Toledo, Ohio, recently insisted that all "unfinished matters" in connection with the Community Traction Company situation be cleared up under the Milner ordinance before there is talk of a new plan of operation. Company officials have agreed to this.

The power rate is one matter that has never been agreed upon definitely due largely to the fact that it is a contract between the Community Traction Company, and the Toledo Edison Company, identical in ownership and control to all practical purposes. Court action was tried at one time but the courts held that the Public Utilities Commission of Ohio alone had jurisdiction and no conclusion has ever been reached before that body. Whatever settlement is reached on power will be retroactive to July, 1924.

Another matter to be cleared up is the paving obligation of \$187,500 with interest which was acknowledged due the city when the ordinance was adopted and accepted.

The Mayor has indicated that with these two matters arranged some new plan may be worked out which will give the company substantially what it desires—regulation of independent bus operation so that it may co-ordinate public transit in Toledo and put the financial structure of the company on a sound basis. Company officials contend that no change can be made in the valuation agreed upon at the time the Milner ordinance was adopted.

City representatives believe that the management should bring in new capital to bolster up the property and restore the value back of securities outstanding. A plan of this kind was tentatively agreed upon in the basis of agreement reached last summer before the so-called Dotson ordinance was drawn. That effort has now been laid aside apparently because it did not meet the ideas of the board of control.

## Framing Wage Demands in Scranton

Employees of the Scranton Railway, Scranton, Pa., voted recently to ask for an increase of approximately 5 cents an hour and modification of several clauses in the present working agreement. The present one-year agreement expires on March 31. Last April the men were granted an increase of 1 cent an hour in all departments. This provided for a scale in cents per hour as follows: first three months, 57; next nine months, 62; after one year, 65, with an 8-cent differential for one-man operation.

### Suit in Madison Settled

The suit in the Superior Court against the officers of the Madison Railways, Madison, Wis., has been settled by the payment of a fine. This suit arose out of an item of \$73,000 which F. W. Montgomery, president, loaned to the company and subsequently forgave in 1921. In 1924 the board of directors by a resolution, immediately typewritten in the minute book of the company where it was open to inspection by the auditors of the Railroad Commission, offered to repay this amount as and when Mr. Montgomery might ask for it. This resolution was not regarded as creating an obligation of the company in the sense that it should be entered on the account books. Payments were made in 1925 and 1926, and these payments were duly entered on the account books of the company and reported to the Railroad Commission. An official statement says:

There was no attempt at concealment of the action of the board of directors, and no attempt to mislead anybody. Everything was open and aboveboard. The failure to report the item was at most a technical violation, and even that is subject to a difference of opinion.

The litigation in the Superior Court was, however, affecting the credit of the company, and the associates of F. W. Montgomery on the board of directors, and other friends, felt that the preferred stockholders and other investors in the securities of the company might suffer damage and loss unless this litigation was settled at once. For this reason alone the suits were settled and the fine paid.

During all of the time that the present management has had control of the Madison Railways it has been honestly and efficiently conducted. The credit of street railways has not been good for many years, and F. W. Montgomery has had to produce most of the money needed by the company. He has carried the burden. The city has received better railway service than any other city of its size in the United States. We shall continue to render this service in the knowledge that we have done no intentional wrong.

### Short Extension of Eastern District Subway

The Transit Commission has informed the New York Rapid Transit Corporation (B.-M.T.) by letter that it had determined upon an extension of the Fourteenth Street-Eastern District Subway from its present terminus in Manhattan to a point between Eighth and Ninth Avenues, Manhattan, where a connection may be made for exchange of passengers with the existing Seventh Avenue subway, and with the Eighth Avenue subway now being constructed.

The extension will constitute a two-track underground railroad, beginning at a point in West Fourteenth Street, Manhattan, between Sixth and Seventh Avenues, where a connection can be made with the Fourteenth Street-Eastern line now in operation, and extending thence westerly under and along

West Fourteenth Street to a point therein between Eighth and Ninth Avenues, including a station, to be centered approximately at Eighth Avenue. The extension is a very short one, not more than several blocks, but it would be of inestimable benefit in providing access to the transit lines on the west side.

W. S. Menden, president, in a letter to the commission on June 23, 1926, indicated that the railroad would acquiesce in the extension.

### Homer Loring Helps Employees

Homer Loring, chairman of the board of the Boston & Maine Railroad, accepted no compensation from the Boston & Maine Railroad during the four years in which he directed the work of the road's rehabilitation. In accepting his resignation recently the board of directors voted him \$100,000, which Mr. Loring has accepted only in order to establish a fund, "to be administered by trustees for the general good of all employees of the Boston & Maine."

Mr. Loring is best known to electric railway men as the former chairman of the trustees of the Eastern Massachusetts Street Railway. As a restorer and re-organizer of faltering enterprises Mr. Loring has had many conspicuous successes. He brought the Des Moines, Fort Dodge & Southern Railroad back to solvency and did some notable work in the revival of the Saginaw Traction Company in Michigan.

### Trial of Higher Fare on Ohio Line

The right to charge a 10-cent fare between Dover and New Philadelphia beginning April 11 has been granted the Northern Ohio Power & Light Company. This rate of fare authorized by the City Council of Dover, Ohio, is to continue until the expiration of the company's franchise between the two towns Nov. 9, 1928. The change is made to enable the company to determine whether the increase would justify the company's continuing service between the two towns after that date. Heretofore the fare has been 5 cents between the cities. The company formerly had two lines operating between Dover and New Philadelphia. One of the lines was abandoned several months ago and bus service installed.

### Wage Conferences in St. Louis

Conferences are being held by the Amalgamated Association at St. Louis, Mo., on the wage demands of the 4,500 union employees of the St. Louis Public Service Company. The union has asked for a sixteen-months contract and an increase of 5 cents an hour for the 3,500 motormen and conductors and increases of from 5 to 10 cents an hour for shopmen, mechanics and maintenance-of-way workers.

### Would Sell Three Tokens in Omaha

The Omaha & Council Bluffs Street Railway, Omaha, Neb., has asked the Nebraska Railway Commission for authority to sell three tokens for 20 cents. The present requirement is that no smaller number than six tokens may be sold, and the commission fixed the rate at 40 cents. This is the equivalent of three tokens for 20 cents. However, the commission's finding, made two years ago, stated that the company needed every cent of revenue possible, and that to offer three tokens for 20 cents would result in a large decrease in the cash fares. Patrons are understood to have suggested that more persons would ride if they could invest only 20 cents at a time.

### Increase on Warren & Jamestown

The Public Service Commission on March 19 authorized the Warren & Jamestown Street Railway, operating between Jamestown and Warren, Pa., to file a new schedule effective on one day's notice, increasing its mileage rate in New York from 2½ to 3 cents a mile and providing for fourteen zones, instead of eleven, with a fare rate of 5 cents in each zone. Seven of the fourteen zones are in New York State and the remaining seven in Pennsylvania. A single ticket-book rate of 56 coupons for \$2.50 good for use by a purchaser and the members of his family without time limit and certain special one-way tickets and school commutation ticket rates have been authorized.

Present fares are based on a rate of 2½ cents a mile. The company asked the right to establish a basic rate of 3 cents. There are now eleven 5-cent fare zones covering the 22-mile distance between Jamestown and Warren which it asked permission to increase to fourteen.

Evidence submitted before the commission showed a decline in operating revenues during the past six years. Commissioner Pooley in a memorandum says the revenues of the company have steadily declined since the construction of the Jamestown-Warren highway. There were 753,505 passengers carried in 1920 and 419,987 in 1927. The revenue from passengers dropped from \$150,701 in 1920 to \$87,112 in 1927, or approximately 40 per cent. Freight revenues declined from \$23,693 in 1920 to \$4,529 in 1927.

The evidence showed that under the proposed new rates, and based on no further decline in traffic, there will be approximately a 20 per cent increase in passenger revenue. The commission further found that under the new rates and provided the company carried the same number of passengers in 1928 that it did in 1927, there would be an estimated increased operating income of \$25,146, or a return of about 5 per cent on about \$500,000 invested in giving service.

## Senate Fails to Reappoint J. J. Esch

John J. Esch of Wisconsin, who had served on the Interstate Commerce Commission for six years prior to his renomination by President Coolidge last December, lost his fight for confirmation on March 16 when the Senate, after five hours of debate behind closed doors, rejected the appointment by 39 to 29.

The opposition was led by Senators from the Southern coal states. It was based almost entirely on the commissioner's change of attitude in the long pending contest between the mines of Pennsylvania and Ohio and those of West Virginia, Kentucky, Tennessee and Virginia, for the lake cargo trade.

The commission recently rejected a petition of Southern railroads for a reduction of 20 cents a ton in lake cargo coal transportation charges.

After the executive session Senator Neely, Democrat, West Virginia, said the vote "is a very emphatic warning that the Senate will not tolerate the packing of these important commissions by President Coolidge in favor of Pennsylvania or any other section or in favor of any particular interests of the country."

In a minority report from the Interstate Commerce Committee Senator Fess declared that from the standpoint of ability and experience Mr. Esch was "eminently fitted for the position and from the basis of honesty and integrity he is equal to the best in public life."

The minority report called attention that in between his two votes Mr. Esch, like all other members of the commission, had the benefit of "extended further hearings, a mass of further evidence which embraced some 2,000 pages, and two days of oral argument before the full commission."

## Fare Hearing in New York Postponed

Because of the illness of Samuel Untermyer, special counsel for the New York Transit Commission, the sitting of the federal statutory court, scheduled for March 22 to hear further argument on the application of the Interborough Rapid Transit Company for a 7-cent fare was postponed on March 21 to March 29. The city's argument will then be presented by former Controller Charles L. Craig. George L. Ransom, special counsel for the Interborough, will make a reply argument.

Both Mr. Untermyer and Mr. Craig have declared that there is no conflict between them regarding the policy to be pursued in combating the Interborough's increased fare suit. It was pointed out that Mr. Untermyer had upheld from the outset the validity of the 5-cent fare contract between the city and the Interborough and that Mr. Craig was merely concentrating upon that phase of the entire case.

The intricate questions of valuation and fair return upon capital invested, it was indicated, would be handled by Mr. Untermyer.

## Franchise Talk in Kansas City, Kan.

Tentative plans of the City Commission of Kansas City, Kan., for the creation of a board of control to have jurisdiction over all transportation have virtually been abandoned following discouraging investigations of the cost of engaging technical experts as advisors.

It was suggested at the recent meeting of the City Commission that the body wait until the Wyandotte Railway requests a franchise as a solution to the problem of satisfying riders. The franchise of the predecessor company expired in 1922.

## Interchanging System Between Illinois and Indiana

The Illinois Traction System is considering plans for a hook-up of its lines with the Terre Haute, Indianapolis & Eastern interurban lines between Danville, Ill., and Crawfordsville, Ind., utilizing either electric lines or buses. While the connecting link is intended primarily for convenience of shippers the line will be available to passenger traffic and give Illinois and Indiana an interchanging freight and passenger system.

## Safety Rewarded at Little Rock

Twenty-five of the 110 operators regularly employed in the railway service of the Arkansas Power & Light Company at Little Rock, Ark., completed 1927 without a chargeable accident. This was announced at a recent safety meeting at which cash prizes were distributed to the successful competitors in the accident prevention campaign. Thirty-three men participated in the prize money.

The first team of eleven operators received \$150. The second received \$100, and the third \$50. Seven teams failed to place.

The system of prizes, which was used last year as an experiment, is not being followed this year. In 1927 the men were grouped into teams in the accident prevention work, and the team worked as a unit. The purpose of this was to stimulate co-operation and emulation in accident prevention records. For this year the plan specified an advisory council consisting of various department heads.

## Car on Exhibition in Macon

Residents of Macon, Ga., were invited in a newspaper advertisement to inspect the first of twelve new cars for the Macon Railway & Light Company on March 4 and meet a representative on duty to explain the safety devices.

## Right of Hartford Under Tucker Grant Upheld

Chief Justice George W. Wheeler in the Supreme Court at Hartford, Conn., has handed down a decision against the Connecticut Company and upheld the city of Hartford and its right to collect 2 per cent of the gross fares paid to the railway within the city limits, as established by the Tucker Grant in 1894 through an agreement between the Connecticut Company and the city. This was for the privilege of electrifying and extending its railway lines in Hartford.

The Connecticut Company paid the tax from 1894 until 1922. It is not expected the company will appeal to the United States Supreme Court as no constitutional question is involved.

In the lower court last year Judge Jennings held the tax of 2 per cent was illegal. The Supreme Court in answer to this says:

The payment provided for was not a charge levied by government upon the Connecticut Company's property for governmental purposes, but its payment of an obligation created by its voluntary action. The provision for payment of a percentage of the gross receipts does not fall within any known definition of a tax; it is neither proportional nor compulsory in character, but voluntary and individual, and its very attribute is antagonistic to the normal attributes of a tax.

The tax originated in 1893 when the Connecticut Company's predecessors sought to electrify and extend the Hartford lines. In 1894 the Tucker grant extended the right to the company with the understanding 2 per cent of the gross fares would be paid into the city treasury yearly. The railway agreed to the plan.

The Supreme Court in reviewing the case found that the city had the right to make such an agreement under its charter, and that the Connecticut Company could not by its long payment of the tax, challenge the validity of that agreement. The court also said the Connecticut Company could not have extended its lines without the consent of the Common Council at that time. The agreement then was made so that it could. The court said:

The payment provided for was not a charge levied by government upon the company's property for government purposes, but the payment of an obligation created by its voluntary action.

## Power Contracts to Boston Edison

Charles L. Edgar, president of the Edison Company, Boston, Mass., says that since the close of the fiscal year, contracts have been entered into with the Boston & Maine Railroad for its entire electric service and steam heating requirements for a long term of years, and for about 75 per cent of the electricity needed for the Boston, Revere Beach & Lynn Railroad, now being equipped for electric operation under plans outlined previously in these pages.

## \$10,000 in Prizes Offered for Traffic Solutions

With the view of determining the best means of solving the constantly growing traffic problem, *Nation's Traffic*, a monthly publication issued in St. Louis and devoted to street and highway traffic, is conducting a contest in which a \$10,000 is offered for ideas on the subject.

How to divert traffic into its most useful channels as well as how to administer properly the various functions of traffic control are among the purposes of the nation-wide quest for ideas. Fifteen cash awards are offered. First prize will be \$2,500 and second \$1,500. The next three will be awards of \$1,000 each, with the sixth prize of \$750 and the other nine ranging in amounts from \$100 to \$500.

The subjects are as follows: Text for uniform traffic ordinance, plan for regulating movement of traffic with signals and signs, plan for the solution of municipal parking problems, typical city plan to better traffic conditions, curriculum for adult education, plan for handling traffic violators, plan for regulation of pedestrians, curriculum for juvenile education, plan for reducing railroad crossing hazards, plan for traffic police organization, street lighting plan to aid traffic, plan for motor vehicle registration and identification, and plan for handling tourists.

There is to be a bonus of \$100 for the greatest and most carefully prepared manuscript and another of the same amount for the most helpful suggestion or idea.

## Another Boston "L" Program of Legislation

The death-knell of Governor Fuller's program for the extension of public control of the Boston Elevated Railway has been sounded on Beacon Hill. All possibility of the return of the road to private operation also seems to have vanished. There apparently remains now only the public ownership legislation, or a policy of letting the entire problem go over for another year.

In this connection the defection of Charles C. Warren of Arlington, up to his time foremost exponent of extending public control to the camp of those advocating public ownership, is regarded as significant. He first tried unsuccessfully to have a resolve recommended which would provide for the appointment of a special legislative committee by the governor, consisting of the president of the Senate and two Senators and the speaker of the House and four representatives, to prepare a public ownership bill.

Senator Warren then declared that after four years of constant effort to provide for an extension of public control he was convinced that no such bill could ever be passed which would be accepted by the stockholders. He said he opposed a return of the road to private ownership as the State would be giving up its option right of the 1918

public control act, which was of tremendous value to the district and to the state.

After considerable discussion a motion was made that the two committees, acting jointly, vote to report the public ownership bill.

## Southern Ohio Company Granted Franchise

A fifteen-year franchise has been granted the Southern Ohio Public Service Company, Zanesville, Ohio, through the village of Bexley, Ohio. The company is permitted to abandon its Mound Street tracks through Columbus.

Provisions of the franchise include a 10-cent fare into Columbus from Bexley. The company is to use the same tracks as the Columbus Railway, Power & Light Company as far as Drexel Avenue, where it will continue to Pleasant Ridge Avenue and from there use its own tracks. Bexley is just outside the eastern boundary of Columbus.

## Franchise Sought for Improvements in East St. Louis

The East St. Louis Railway is seeking a franchise to take over part of the tracks of the East St. Louis & Suburban Railway so that it may be able to cooperate in the construction of a subway to carry State Street under the tracks of the Terminal Railroad belt line at 21st Street in East St. Louis, Ill. The tracks of the East St. Louis Railway now end on State Street near Nineteenth Street. The franchise from that point eastward is held by the East St. Louis & Suburban Company.

If the bill, presented to the East St. Louis City Council, is passed it must be submitted to the people for ratification at the general city elections to be held on April 3. Convenience and safety to patrons are the considerations in this project.

The East St. Louis City Council is also considering a proposed franchise for the East St. Louis, Columbia & Waterloo Railroad to build new tracks in order to enter East St. Louis by a circuitous route instead of coming direct down Broadway on the tracks divisions of the East St. Louis Railway used by the Broadway and Alta Site Company. If passed this bill will also go to a vote of the people on April 3.

## A Radio Treat by Railway Men

THE Cleveland Railway chorus and the Pittsburgh Railways' band will broadcast over KDKA Saturday night, March 31, at 10 o'clock p.m. There are 150 in the chorus and 50 men in the band. The arrangements were made by the Westinghouse Electric & Manufacturing Company.

## Transit Legislation for New York City Defeated

As the special correspondent of the New York *World* at Albany expressed the matter in a dispatch to that paper dated March 22, the 151st session of the New York State Legislature performed that day what many people consider the most notable act of its career. It adjourned sine die at 5:56. In a session in which many bills went down there was defeat for all New York City transit legislation, except two bills sponsored by Assemblyman Moran, under which it is hoped to add somewhat to the speed of subway construction by making more prompt payment for property which may be condemned.

The manner in which some of these measures was handled had all the aspects of a political gesture. Thus Minority Leader Maurice Bloch made a motion on March 22 to discharge the rules committee from consideration of the transit bill to enable the city of New York to acquire and unite into one system all rapid transit lines in the greater city. The motion was defeated. This bill, presumably prepared by Samuel Untermyer, was not introduced until a very late date, almost on the eve of adjournment. It has never been supported by any statement from Mayor Walker of New York asking for its passage. In the Senate the bill was amended on March 19 to take care of a few technical errors which could have been corrected by the committee on revision.

The bill provided for a 5-cent fare so long as the city of New York wished to make up by appropriation any operating deficit that might ensue from management by a board which would be practically the city government of New York. In reality the measure would have allowed the city of New York to go into the rapid transit business.

## Employees Charged With Neglect in Key System Accident

Two Key System Transit Company employees, Edward Dyson, chief engineer, and Harry E. Hill, both of the ferryboat Peralta, have been cited for neglect by steamboat inspectors who conducted an inquiry into the accident of Feb. 17 when the bow of the craft suddenly dipped and spilled 30 passengers into San Francisco Bay. Five were drowned. The two accused men face trial on March 28 before the steamboat inspection board. No criminal action is implied in the citation, but the two men will lose their licenses if found guilty.

The specific charge is that the two officers failed to notify Capt. W. H. Melsome of the Peralta that the forward ballast tank was filled at the time of the accident. Both men told inquisitors at the hearing that the tank was not filled. They deny the negligence charges.

The company's suggestion that the accident was caused by an uncharted declivity in the bottom of the bay has been discounted by soundings, United States investigators declare.

## Recent Bus Developments

### Buses Proposed for Use in Alameda

William J. Locke, City Attorney of Alameda, Cal., has announced that the Key System has notified Alameda that it has no intention of putting tracks through the tube or repaving its right-of-way along Webster Street. The company also, according to Mr. Locke, will apply within the next few days to the Railroad Commission to abandon its railway franchises in Alameda. Alameda county officials said recently that it is understood the Key System intends to substitute bus lines for its Alameda railway.

At a straw vote held early in February the citizens of Alameda registered their desire in favor of the railway system. A representative of the railway said the company has not filed an application with the state commission and that officials are not ready to make a statement.

### Federal Court Has Jurisdiction in Muncie Case

A mandate from the circuit court of appeals at Chicago has been handed to the clerk of the federal court in Indianapolis reversing the decision of Judge Robert C. Baltzell in a suit of the Equitable Trust Company of New York, which sought to enjoin Sumner Denny and others from operating bus lines in Muncie, Ind. Judge Baltzell, who first heard the case, decided the federal court had no jurisdiction.

The complaint set out that the trust company held a mortgage as security for \$5,000,000 in bonds issued to the Union Traction Company of Indiana in 1899. This mortgage, the plaintiff said, established the right of the trust company to jurisdiction over railway company franchises for bus operation in Muncie. The suit alleged that the defendants in establishing a competitive line in Muncie failed to obtain a certificate from the Indiana Public Service Commission. According to the circuit court decision the Indianapolis federal court has the right to hear the case.

### Detroit-Pittsburgh Bus Permit Sought

Application has been made to the Ohio Public Utilities Commission for permission to establish the first interstate bus line from Detroit, through Toledo and Akron, to Pittsburgh by the Northern Interstate Transit Company, a subsidiary of the Northern Ohio Power & Light Company. Hearing on the petition has been set for April 5. The new bus line as proposed would make three trips daily each way between Detroit and Pittsburgh and

would offer fare at rates below railroad transportation between those points. The proposed running time between Detroit and Pittsburgh is eleven hours and the proposed route extends from Detroit through Toledo, Elmore, Fremont, Norwalk, Medina, Akron, Alliance, Salem and East Liverpool to Pittsburgh. It is planned to use six coaches each carrying 24 passengers. Permission has been secured in Michigan to get out of Detroit to Toledo. Permission has also been secured for entrance into Pittsburgh. All that remains is authority from the Ohio commission and apparently there is no objection to this.

### Extension of Bus Line in Los Angeles

The Los Angeles Railway has been authorized by the California Railroad Commission to extend its Melrose Avenue bus line in Los Angeles County from the intersection of Melrose and Western Avenues to the highway known as La Cienega Boulevard.

### Bus Service Increased Following Ohio Abandonment

The Ohio Public Utilities Commission has granted the Northern Ohio Power & Light Company permission to discontinue interurban passenger service between Canton and Akron and to abandon its tracks between Canton and North Canton. Freight service between North Canton and Akron and passenger service between Akron and Springfield Lake will be continued. Bus service between Akron and Canton supplied by the Cleveland-Akron-Canton Bus Company, a subsidiary of Northern Ohio Power & Light Company, which has been operating for several years, will be increased. The commission's permit is to take effect not later than May 1, 1928. The line was built a little more than a quarter of a century ago. During all that period the company has maintained hourly schedules between the two cities.

Freight from Canton will be routed over the Stark Electric to Alliance which it will be switched to the Northern Ohio tracks and taken into Akron via Ravenna. Passengers will be transported from Canton to Akron by bus.

To handle the increased business, the Stark Electric plans to close its substation at Louisville, between Alliance and Canton, and have two substations one just east of Canton and one just west of Alliance. Traffic between Canton and Louisville, a distance of 5 miles, will require twice the number of interurban passenger cars. Extra track is being laid to accommodate the additional carriers.

### Opposition to South Bend Feeder Bus Project

The recent application of the Chicago, South Bend & Northern Indiana Railway for a permit to operate feeder bus service in west South Bend, mentioned in the *ELECTRIC RAILWAY JOURNAL* previously, was opposed in a petition filed with the Indiana Public Service Commission by the South Bend Motor Bus Company. In the intervening petition the commission was asked to dismiss a petition filed by R. R. Smith, receiver for the railroad, on the ground that the commission has no legal authority to nullify an agreement with the South Bend board of public works, which allows the South Bend Motor Bus Company to operate in this section of the city.

### Buses Withdrawn from Woodward Avenue, Detroit

Motor coach service on Woodward Avenue, Detroit, was ordered abandoned by the Detroit Street Railway Commission at a meeting in Mayor John Lodge's office on March 7. This action was taken as a result of the failure to make money and the monthly increasing deficit from its operation.

Del A. Smith, general manager of the system, stated that he would immediately place additional street cars in service to take care of the traffic previously handled by the buses. The number of cars operating to all points on Woodward Avenue will be increased. More cars are to run to the carhouse at the Ford factory, to the Palmer Park run and to the Fair Grounds run, all on the Woodward line.

Woodward Avenue is one of the main thoroughfares over which jitneys are operating in competition with the municipal transportation system. The buses released from this service will enable the department to extend its lines in other sections of the city.

### Substitution in Indiana

On petition of William A. Carson, receiver for the Evansville & Ohio Valley Railway, operating electric railway lines from Evansville, Ind., to Henderson, Ky., Mt. Vernon and Grandview, Ind., Judge Elmer Q. Lockyear, of the Vanderburgh County Probate Court at Evansville, on March 16 ordered the suspension of service between Evansville and Henderson and the substitution of bus service by the company. The receiver filed a petition, setting out that suspension of the railway service between Evansville and Henderson was to the best interests of the company and the creditors because the company was losing money daily on the Henderson line.

The court granted the petition and authorized the receiver to borrow \$21,000 for the purchase of three buses.

Mr. Carson said the bus route would be through Howell, down the Henderson public highway on the Indiana



side of the Ohio River to the ferry at the Louisville & Nashville Railroad bridge and across the river. Fares and schedules will be the same as on the railway lines.

The Henderson line of the Evansville & Ohio Valley Railway at present uses a transfer boat on the Ohio River 6 miles above Evansville to take its cars across the Ohio River.

Some time ago the Evansville & Ohio Valley Railway petitioned the Indiana Public Service Commission to permit it to use buses on the Evansville-Mt. Vernon line of the company and this change is expected to be made in the near future.

### Priority Rights Questioned in Los Angeles

A petition for re-hearing of the commission's recent order granting the Pickwick Stages System a permit to operate its service between Los Angeles and Venice was filed by the Pacific Electric Railway Los Angeles, Cal., with the California Railroad Commission on March 13. The Pacific Electric protests the finding of the commission that it is not financially so well able to maintain the bus service as is the Pickwick Company, denies that Pickwick is better qualified by experience to operate the line, and contests the priority of the application upon which the permit was granted.

The United Stages, Inc., filed the original application in the matter and subsequently withdrew in favor of the Pickwick Stages. The withdrawal is cited by the Pacific Electric as a reason why its application has priority over that of Pickwick.

### Bus Authorization in Massachusetts

The Massachusetts Public Utilities Commission has authorized the Point Shirley Street Railway to operate a bus line in the city of Winthrop, Mass. As planned, the line will run between the Winthrop Beach Station and Point Shirley. The commission has also authorized the railway to acquire, own and operate buses for the transportation of passengers.

### Needed Bus Line in St. Louis Under Consideration

The St. Louis Public Service Company is making a survey to determine whether a bus line should be established between Jefferson barracks and Koch Hospital, the St. Louis, Mo., tuberculosis sanatorium south of the barracks. Arthur Stochr, secretary of the St. Louis bond issue supervisory committee, pointed out to the railway officials that the tuberculosis sanatorium had hundreds of visitors weekly and that the only conveyance was a private bus which was furnishing unsatisfactory service.

## Financial and Corporate

### New Board for West Chester Street Railway

At the annual meeting of the West Chester Street Railway, West Chester, Pa., the following were elected directors for the ensuing year: Eric H. Biddle, John T. Collins, Jr., Franklin P. Jones, Lawrence J. Morris, Edmond W. Palmer, J. V. Pennegar and O. Howard Wolfe.

O. Howard Wolfe, cashier of the Philadelphia Girard National Bank, was elected president and Eric H. Biddle, formerly secretary and treasurer of the company, was elected vice-president and general manager. T. O. Roberts was elected assistant secretary and treasurer.

The West Chester Street Railway is undergoing a financial re-organization, a plan and agreement for the readjustment of the securities of the company having been issued by a security holders protective committee. Up to the present time a large part of all classes of the company's securities has been deposited under the plan and agreement.

### \$4,400,000 Kansas City Public Service Issue Offered

Improvements to the properties of the Kansas City Public Service Company, Kansas City, Mo., will be partially financed with a portion of the proceeds of \$4,400,000 first mortgage 6 per cent bonds offered on March 21 by Halsey, Stuart & Company, Chase Securities Corporation and Newman, Saunders & Company. The bonds were priced at 95 and interest, yielding more than 6.40 per cent. They are dated July 1, 1926, and are due July 1, 1951.

It is explained that of these bonds, \$2,534,800 are new bonds, and the proceeds therefrom will be used for capital additions and improvements to the company's property. The balance of the bonds being offered have been previously issued and do not increase the company's funded debt or its interest charges.

The company, with a wholly owned subsidiary, owns and operates the entire railway system in Kansas City and Independence, Mo., and Kansas City, Kans., and a motor bus system in Kansas City, Mo.

### Debt in Seattle Diminished

Seattle, Wash., now owes on its municipal railway purchase debt to the Puget Sound Power & Light Company \$436,296, not including interest. The debt was diminished \$172,966 on March 13 when City Comptroller Harry W. Carroll paid that amount as first installment, with interest included. The remainder will be paid in four equal

installments, annually. The payment was made in railway department warrants drawn on a fund that had been enlarged by loans of \$550,000 from the light department. Part of the loan was used some time ago to enable the railway to pay operating costs while it accrued funds sufficient to meet the bonded purchase debt installment.

The railway was assessed \$401,017 for 1919 by the county assessor but litigation costs and accrued interest have increased the total the railway must pay by nearly \$300,000. There was pending a long time in federal court a suit in which the city contested a contract with the Puget Sound company stipulating that the city was to pay three-fourths of the 1919 tax. The company won.

### Liberalizing Savings Bank Investments in New York

Without opposition the Assembly of New York has passed and sent to the Governor two of the bills permitting wider latitude in savings banks investments. The first bill permits savings banks to purchase equipment bonds of railroads and the second legalizes investment in the bonds of electric, gas and telephone companies. The provision for investment in utility bonds and telephone issues under stipulated restrictions is made in two subdivisions added to section 239 of chapter 369 of the laws of 1914. Most important provisions in the law follow:

The company must be duly incorporated under laws of the United States for business of supplying electrical energy or gas, and at least 75 per cent of the gross operating revenues of such company must be derived from such business, not more than 15 per cent of such revenues being derived from any other one business; the company must operate under the duly established public service commission or other regulatory body; the company must have the necessary franchises for operation in territory from which 75 per cent of its gross income is derived.

The outstanding full paid capital stock shall be equal to at least two-thirds of the total debt secured by mortgage lien on any part or all of its property; such corporation must have been in successful operation for at least eight fiscal years and must have a satisfactory record for payment of debt service; for a period of five fiscal years earnings must have averaged not less than twice annual interest charges on funded debt; applicable to the period such bonds must be part of an issue of not less than \$1,000,000 and must be secured by either a first or a refunding mortgage secured by property owned and operated by the issuing corporation.

Not more than 10 per cent of the assets of any savings bank shall be invested in electric and gas bonds, and not more than 2 per cent of such assets shall be invested in bonds of any one such corporation.

The bill to amend the law on invest-

ments in bonds and obligations of railroad corporations recognizes the importance of earnings on capital stock, apart from whether such earnings have been paid out in dividends. In the old law it was provided investment might be made in bonds of railroads which, with other requirements, met the obligation that "at no time within five years next preceding the date of any such investment such railroad corporation shall have failed regularly and punctually to have paid in dividends to its stockholders during each of said five years an amount at least equal to 4 per cent upon all its outstanding capital stock."

The new law contains this provision, with the alternative that the road shall have earned net income of at least 4 per cent during each year of the five. Net income is defined to mean net income as set forth by the accounting regulations of the Interstate Commerce Commission.

Another departure is adding to the legal list bonds issued or assumed by a

terminal depot or tunnel corporation, provided they meet the requirements applied to other railroad bonds, and provided the bonds are guaranteed by endorsement, principal and interest, by one or more railroads meeting the provisions of the savings bank law.

Bonds secured by pledge of other railroad bonds as collateral under a trust agreement become legal provided the pledged bonds are themselves legal for such investment; do not mature earlier than the bonds so secured; are not less in par value than the amount of the bonds they secure, and that no substitution or withdrawal of collateral may be permitted.

Equipment trust obligations, maximum amount of which do not exceed 80 per cent of cost of rolling stock purchased, provided the latter is owned by or leased to a road, any of whose bonds are legal, or to a company controlled through majority stock ownership, or a subsidiary whose controlling company guarantees the equipment bonds, provided its own bonds are legal.

Lines' system at the end of the first year of unified operation (Jan. 31, 1915) and at the close of the fourteenth year (Jan. 31, 1928).

A total of \$113,741,583 has been paid for public benefits by the companies since the adoption of the 1907 ordinances, divided as follows: For cleaning right of way, including sprinkling and removal of snow and ice, \$11,166,425; street paving, \$16,671,621; maintenance paving, \$6,578,339; general taxes, \$35,839,359 (year 1927 estimated); track and overhead removal and replacement on account of sewer installation, etc., \$1,890,744; city's 55 per cent proportion of net earnings, \$41,595,095.

A new world's record in service was made during the 1927 Christmas shopping season when every car and bus owned by the company was operated in peak load periods on Wednesday, Thursday and Friday, Dec. 21, 22 and 23. This is the second time 100 per cent operation has been attained on a large street car system and the previous record was made also by the Chicago Surface Lines on Dec. 20, 1926.

This use of all equipment in the Christmas peak saved the investment necessary for 200 additional cars, the number usually being overhauled. The cost for each car and car storage would average about \$20,000, making a total saved in capital investment of approximately \$4,000,000.

The report refers to the supplemental arbitration agreement entered into Dec. 12, under which an award was made on Jan. 21, signed by two new arbitrators following the agreement for arbitration signed July 18, 1927, under which no award was made because of the inability of the two arbitrators to select a third man.

This award covers the period from June 1, 1927, to May 31, 1930. It provides for life insurance effective Feb. 1, 1928, in the amount of \$1,000 and \$20 a week for sick and accident insurance—also a 1 cent per hour increase in wages starting June 1, 1928, and an additional 1 cent June 1, 1929. It also provides for the payment of \$35 to all members of Division 241 in service Feb. 1, 1928, who were in service prior to June 1, 1927, and \$12 to those in service Feb. 1, 1928, who went into service between June 1, 1927, and Nov. 1, 1927. The award was approved by the Hon. James H. Wilkerson, Judge, United States District Court, in accordance with the terms of the agreement under which the award was made. The board of operation authorized extension of the life insurance and sick and accident benefits to all other employees, effective Feb. 1, 1928.

Team work on the part of employees directed by the department of accident prevention was largely responsible for a reduction of 12.5 per cent in number of reported accidents. Fatal accidents were reduced more than 14 per cent.

The best record during any fiscal year since 1921 was made in number of car riders and car-miles per accident.

The second annual accident preven-

## Increase in Revenue and Riding

Chicago Surface Lines report increase in gross and residue receipts in 1927. Total rides, including transfers, were 1,585,441,127, while revenue passengers totaled 882,458,647

THE Chicago Surface Lines, operating under temporary municipal permits during the fiscal year Feb. 1, 1927, to Jan. 31, 1928, made further progress in its record of service, traffic and earnings. Gross earnings were \$61,624,752, an increase of \$451,151 compared with the previous year. This total was the highest in the history of the companies. Operating expenses, including taxes and renewals, were \$48,231,496, an increase of \$360,006. Residue receipts were \$13,393,256, an increase of \$91,145. The city of Chicago's share of divisible receipts was \$2,500,225 and purchase price of the properties as of Feb. 1, 1928, was \$163,917,765. These facts were contained in the fourteenth annual report of the president of the board of operation.

Increase in traffic, which had been maintained for 24 consecutive months, was interrupted in June when there was a decrease, and like conditions prevailed during four later months of the year. Notwithstanding this, the total rides for the year reached 1,585,441,127, an increase of 10,471,225, while the revenue passengers totaled 882,458,647, an increase of 6,208,984 over the previous year. Service was increased during the year to the extent of 3,200,000 passenger car and bus miles. The largest day's

business of the year and the second greatest in the history of the companies both in earnings and traffic was Saturday, Dec. 17, when passenger receipts were \$199,099, revenue passengers 2,901,195 and total rides 5,090,097. Revenue passengers on an average weekday numbered 2,548,443, which set a new high mark. Average Saturday passengers during the year numbered 2,660,278, and for an average Sunday or holiday, 1,625,365.

The first Chicago Surface Lines bus route was started on Aug. 11, on Diversey Avenue from Crawford Avenue to Laramie Avenue. A new type twin-motor bus seating 40 passengers and equipped with pneumatic tires and air brakes was adopted for this purpose. Public approval was promptly evidenced by requests from various sections of the city for extension of this type of bus service.

The properties have been operated practically on a day-to-day city permit since Jan. 31, 1927, when the franchises expired. The first permit after that date was for six months to July 31, the next four months to Nov. 30, and after that date for one month at a time.

Accompanying this recital of the affairs of the company are some comparisons of the extent of the Surface

Items	1915	1928	Per Cent Increase
Gross earnings	\$31,966,049	\$61,624,752	92.78
Operating expenses	19,889,276	48,231,496	142.50
Taxes	1,439,279	2,900,000	101.49
Operating wages paid	10,560,039	30,280,959	186.75
Total wages paid	12,379,615	32,989,360	166.48
Revenue passengers carried	627,731,550	882,458,647	40.58
Total rides	1,115,312,129	1,585,441,127	42.15
Average fare per revenue passenger	4.99 cents	6.90 cents	38.28
Average fare per ride	2.81 cents	2.84 cents	36.65

on contest among the various divisions trainmen closed on Jan. 31, with Lincoln Avenue depot the winner.

Car mileage per pull-in due to equipment failures reached a new high average of 25,884, an increase of about 80 per cent. Compared with the showing for the fiscal year 1924, this is an increase of 424 per cent.

In the past year, 1,624 cars, or 45 per cent of the 3,639 cars owned, were overhauled and painted.

Each motor car on the system traveled an average of 37,593 miles during the year—establishing a new record for passenger equipment.

In spite of an increase of more than 3,100,000 passenger car miles during the year, there was a decrease of more than 8,300,000 kw.-hr. in power used. There was also a reduction of about \$28,000 in cost of energy output.

The bus operation installed in August, 1927, as an extension of the railway

facilities on Diversey Avenue, both with respect to character of service and type of buses employed, has given great satisfaction to the public. By an order entered Jan. 26, 1928, the Illinois Commerce Commission authorized and directed extension of this service east to Milwaukee Avenue and west to Narragansett Avenue, and by the same order authorized and directed bus service as an extension of the Belmont Avenue line between Central and Narragansett

**EARNINGS, EXPENSES AND DIVISION OF RESIDUE RECEIPTS OF CHICAGO SURFACE LINES FOR YEAR ENDED JAN. 31, 1928, COMPARED WITH PREVIOUS YEAR**

	1928	1927
<b>Earnings:</b>		
Passenger cars.....	\$60,892,995	\$60,436,705
Chartered cars.....	4,837	5,347
Newspaper cars.....	16,608	16,276
Light earnings.....	888	5,039
Capital car service.....	2,088	3,742
Advertising.....	290,263	281,837
Rents of buildings.....	174,753	160,885
Costs of power.....	98,041	108,210
Interest on deposits.....	134,438	132,366
Miscellaneous.....	9,838	23,188
<b>Gross earnings.....</b>	<b>\$61,624,752</b>	<b>\$61,173,601</b>
<b>Expenses:</b>		
Buildings and structures.....	\$3,006,276	\$2,984,484
Equipment.....	4,247,920	4,188,633
Repairs.....	4,929,980	4,893,888
Power—maintenance.....	387,445	386,086
Power—operation.....	3,683,540	3,638,283
Conducting transportation—trainmen.....	21,789,269	21,485,750
Conducting transportation—other.....	3,246,443	3,214,031
Office.....	120,177	123,433
General and miscellaneous—damages.....	1,848,742	1,936,202
General and miscellaneous—other.....	2,071,698	1,620,696
Taxes.....	2,900,000	3,400,000
<b>Total expenses.....</b>	<b>\$48,231,495</b>	<b>\$47,871,489</b>
<b>Residue receipts.....</b>	<b>*\$13,393,256</b>	<b>*\$13,302,111</b>
<b>Divided:</b>		
Chicago Railways—60 per cent.....	\$8,035,953	\$7,981,267
South Side Lines—40 per cent.....	\$5,357,302	\$5,320,844
Includes city's 55 per cent of net divisible receipts, as defined by ordinances.		

**STATEMENT OF TRACK MILEAGE OF COMPANIES INCLUDED IN CHICAGO SURFACE LINES SYSTEM**

	Total Miles		Abandoned	Net Extensions		Total Miles	*Reconstructed
	Single Track	Extensions		1927	1927		
Chicago Railways.....	594.80	2.30	0.01	2.29	597.09	23.35	
Chicago City Railway.....	339.60	0.10	0.69	†0.59	339.01	14.86	
Claret and South Chicago Railway.....	127.97	0.08	.....	0.08	128.05	2.47	
Southern Street Railway.....	17.45	.....	.....	.....	17.45	.....	
<b>Total.....</b>	<b>1,079.82</b>	<b>2.48</b>	<b>0.70</b>	<b>1.78</b>	<b>1,081.60</b>	<b>40.68</b>	
Includes track taken up and replaced account of sewers and special straight track renewals. † Decrease.							

**TABLE OF INCREASE IN RIDING ON CHICAGO SURFACE LINES DURING PAST SEVEN YEARS**

Year Ended	Weekday Average	Saturday Average	Sunday Average*	Total for Year
Jan. 31, 1928.....	2,548,443	2,660,278	1,625,365	882,458,647
Jan. 31, 1927.....	2,521,897	2,668,342	1,632,844	876,249,663
Jan. 31, 1926.....	2,424,194	2,507,004	1,631,484	842,201,453
Jan. 31, 1925.....	2,373,114	2,512,121	1,614,823	830,151,540
Jan. 31, 1924.....	2,354,139	2,521,487	1,623,414	824,850,103
Jan. 31, 1923†.....	2,204,425	2,356,385	1,563,911	762,629,211
Jan. 31, 1922.....	2,129,217	2,251,293	1,560,310	750,515,622
Includes holidays. † Trainmen's strike, Aug. 1 to 6, 1922, inclusive.				

**RESERVE FOR RENEWALS AND SPECIAL RESERVE FOR RENEWALS AND EQUIPMENT CHICAGO SURFACE LINES COMPANIES FOR FISCAL YEAR ENDED JAN. 31, 1928**

	Chicago Railways	Chicago City Ry.	C. & S.C. Ry.	Total
<b>Reserve for Renewals:</b>				
Balance in reserve at Feb. 1, '27.....	\$9,568,220	\$5,278,957	\$348,592	\$15,195,770
Sale of unnecessary property and salvage.....	83,840	49,478	4,677	137,996
Interest earned.....	292,105	161,168	10,630	463,904
<b>Balance in reserve at Feb. 1, 1928.....</b>	<b>\$9,944,166</b>	<b>\$5,489,603</b>	<b>\$363,900</b>	<b>\$15,797,671</b>
<b>Special Reserve for Renewals and Equipment:</b>				
Balance in special reserve at Feb. 1, 1927.....	\$113,270	\$235,613	\$52	\$348,936
8 per cent of gross earnings.....	2,958,308	1,671,697	300,294	4,930,300
Interest earned.....	9,479	11,603	940	22,023
<b>Total.....</b>	<b>\$3,081,058</b>	<b>\$1,918,913</b>	<b>\$301,288</b>	<b>\$5,301,260</b>
<b>Less: Expended for renewals.....</b>	<b>\$2,448,500</b>	<b>\$1,457,134</b>	<b>\$267,981</b>	<b>\$4,173,615</b>
Expended for special equipment:				
New passenger cars.....	145,081	7,325	.....	152,407
New buses.....	57,616	.....	.....	57,616
Expended for track extensions.....	213,376	17,720	.....	231,097
Expended for track reconstruction.....	.....	142,847	.....	142,847
<b>Total expended.....</b>	<b>\$2,864,575</b>	<b>\$1,625,028</b>	<b>\$267,981</b>	<b>\$4,757,584</b>
<b>Balance in special reserve at Feb. 1, 1928.....</b>	<b>\$216,483</b>	<b>\$293,885</b>	<b>\$33,307</b>	<b>\$543,675</b>
<b>Total of balances at Feb. 1, 1928.....</b>	<b>\$10,160,649</b>	<b>\$5,783,489</b>	<b>\$397,207</b>	<b>\$16,341,347</b>

Under orders of the Public Utilities Commission of Illinois and of its successor, the Illinois Commerce Commission, \$8,337,705 has been expended since July, 1920, out of the "Special Renewal and Equipment Fund" for new equipment and for track extensions and reconstruction.

Although the property acquired by these expenditures is functioning as part of the operating plant, it does not appear in the Capital Accounts of the companies inasmuch as the Commission orders provide that such expenditures shall not be carried to capital account "unless and until the sum or sums thus expended have been paid into the renewal and depreciation fund."

The balance, \$16,341,347, in "Reserve for Renewals" and "Special Reserve for Renewals and Equipment" is a cash balance and is on deposit in various banks.

**CAPITAL EXPENDITURES BY CHICAGO SURFACE LINES FOR THE FISCAL YEAR ENDED JAN. 31, 1928.**

	Chicago Railways	C. C. Ry.	So. St. Ry.	C. & S.C. Ry.	Total
Purchase price at Feb. 1, 1927.....	\$94,438,640	\$55,776,788	\$1,801,278	\$11,729,148	\$163,745,856
Capital expenditures during year.....	110,192	31,308	1,117	33,102	175,720
15 per cent on same.....	16,528	4,696	167	4,965	26,358
Increase in fluctuating assets.....	*17,239	*11,492	.....	.....	*28,732
5 per cent on same.....	*861	*574	.....	.....	*1,436
<b>Purchase price at Feb. 1, 1928.....</b>	<b>\$94,547,260</b>	<b>\$55,800,725</b>	<b>\$1,802,563</b>	<b>\$11,767,216</b>	<b>\$163,917,765</b>
*Decrease.					

**STATISTICAL DATA OF CHICAGO SURFACE LINES FOR THE FISCAL YEARS ENDED JAN. 31**

	1923	1924	1925	1926	1927	1928
<b>Rate of fare.....</b>	<b>8 cents</b>	<b>7c-6½ cents</b>	<b>7c-6½ cents</b>	<b>7c-6½ cents</b>	<b>7c-6½ cents</b>	<b>7c-6½ cents</b>
Revenue passengers.....	762,629,211	824,850,103	830,151,540	842,201,453	876,249,663	882,458,647
Passenger receipts.....	\$55,495,310	\$56,986,687	\$57,284,602	\$58,076,487	\$60,436,705	\$60,892,995
Light earnings.....	56,102,061	57,655,169	58,081,678	58,785,880	61,173,601	61,624,752
Operating wages.....	27,163,996	27,458,736	29,246,390	29,012,641	29,812,518	30,280,959
Operating expenses and taxes.....	17,252,072	17,381,016	17,328,569	17,615,564	18,058,971	17,950,536
Revenue receipts.....	11,686,992	12,815,416	11,506,717	12,157,674	13,302,111	13,393,256
Joint account expenses.....	620,000	885,000	450,000	130,297	363,934	657,338
<b>Revenue per passenger.....</b>	<b>\$11,066,992</b>	<b>\$11,930,416</b>	<b>\$11,056,717</b>	<b>\$12,027,376</b>	<b>\$12,938,176</b>	<b>\$12,736,217</b>
55 per cent to city.....	8,039,343	8,076,569	8,127,158	8,169,099	8,173,948	8,190,354
45 per cent to companies.....	1,665,206	2,119,615	1,611,257	2,122,052	2,620,325	2,500,224
<b>Total.....</b>	<b>1,362,442</b>	<b>1,734,231</b>	<b>1,318,301</b>	<b>1,736,224</b>	<b>2,143,902</b>	<b>2,045,638</b>

Avenues. The Chicago Motor Coach Company is seeking to have the commission set aside this order.

Newspaper advertisements, frequent articles in the news columns and in trade papers and magazines, liberal use of car cards and public meetings at which talks have been made and motion pictures shown were the principal mediums of publicity.

The three motion pictures that were previously produced have proved so popular that it was decided to prepare another. "Safe Highways," a two-reel picture on the subject of safety, was completed the latter part of January. Through the speakers' bureau, consisting of employees of the company, 258 organizations with audiences totaling 59,800 were reached during the year. A route and sightseeing guide was distributed to 500,000 persons during the year and a new guide was issued Jan. 1.

**BUILDING UP A SALES FORCE**

Every uniformed employee was impressed with the fact that his own interests were identical with those of his employers in securing and retaining the good will of his daily customers. More than usual care was exercised in the selection and training of new employees.

In conclusion President Henry A. Blair said:

Notwithstanding the handicaps of expired franchises and operation under temporary municipal permits, the Chicago Surface Lines continued with all the vigor and enterprise of an efficient industrial organization, to give the people of this city the highest type of street car service. Although borrowing power was curtailed by the franchise situation, more track, new and rebuilt, was constructed by this system than by any other street railway in the country. Service was increased materially and a beginning was made in the establishment of feeder bus routes with buses of improved design.

**INCREASE IN RIDING SIGNIFICANT**

Perhaps the most significant fact, however, is the continued and consistent increase in riding. In a year when decrease in business was the rule in street railway operation, this system showed a substantial gain over the previous fiscal period. This has been true of every year for the past six years.

The Chicago Surface Lines alone of the street railways in the eight American cities with a population exceeding 700,000 had a greater number of revenue rides in 1927 than in 1923.

Undoubtedly so outstanding an example of successful operation is not a mere chance occurrence. It is due to the consistent policy of improvement in service, effective maintenance of property and the constant effort to encourage riding by fitting transportation to the needs of the community to as great a degree as legal and financial restrictions would permit.

It is to be hoped that these restrictions may be removed in the near future by the enactment of enabling legislation by the State and agreement between the city and the companies on a plan adequate for present and future needs of Chicago, including unification of the elevated and surface properties with subways and feeder bus lines organized under a terminable permit from the city affording the necessary basis for ample financing.

**Hearing on Accounting for Railroads Adjourns**

The hearing before Commissioner Eastman and Examiner Buntten of the Interstate Commerce Commission on a system of depreciation accounting for steam railroads proposed by the commission in docket No. 15,100, was temporarily adjourned on March 15 after a brief session, to March 19, when testimony on a proposed system of depreciation accounting for telephone companies was to be taken up.

It is expected that in the case of the electric railways similar consideration will be shown at the conclusion of the steam railroad inquiry.

**Santa Barbara Property Offered to City**

The Santa Barbara & Suburban Railway, Santa Barbara, Cal., a subsidiary of the Southern California Edison Company, is willing to give its property to the city of Santa Barbara, if the city is willing to take it according to F. B. Lewis, assistant general manager of the Edison company. He made this announcement during the course of a hearing before a State Railroad Commission examiner on the abandonment of a bus line on March 9. Earle Ovington, real-estate operator, had appeared to protest against the discontinuing of the bus service, on which excessive losses were claimed.

Mr. Lewis explained that the railway property could be turned over to the city subject only to the assumption

by it of certain mortgage obligations now outstanding.

The system in Santa Barbara consists of about 9 miles of railway line and 5 of bus routes.

**Indianapolis and Cincinnati Bond Case Complicated**

Hearings were conducted recently in the Federal Court in Indianapolis, Ind., on the application of Fred H. Kelley, a stockholder of Mattoon, Ill., for appointment of a receiver for the Indianapolis & Cincinnati Car Trust Equipment Company, on the ground that no dividends or principal maturity payments had been made since November, 1926.

The trust equipment company was formed in 1923 to finance the construction of ten substations along the lines of the Indianapolis & Cincinnati Traction Company, now in receivership.

Proceeds of the bond sales were used to build the ten substations required when the railway adopted direct current and for the purchase of twelve new cars.

The case recalls recent action by bondholders' committees which approved the sale of the railway to Charles T. DeHore, Toledo, and others. The total par value of bonds which were acquired by the DeHore group was \$2,600,000.

In buying the railway bonds, however, the DeHore group stood to come into possession only of the tracks, poles, right-of-way and station equipment, since all rolling stock, substations and

**Conspectus of Indexes for March, 1928**

Compiled for Publication in This Paper by

**ALBERT S. RICHEY**

Electric Railway Engineer, Worcester, Mass.

	Latest	Month Ago	Year Ago	Since War	
				High	Low
<b>Street Railway Fares*</b> 1913 = 4.84	March 1928 7.61	Feb. 1928 7.59	March 1927 7.43	March 1928 <sup>1</sup> 7.61	May 1923 6.88
<b>Electric Railway Materials*</b> 1913 = 100	March 1928 140.1	Feb. 1928 139.5	March 1927 152.1	Sept. 1920 247.5	Feb. 1928 139.5
<b>Electric Railway Wages*</b> 1913 = 100	March 1928 228.8	Feb. 1928 228.7	March 1927 226.7	Sept. 1920 232	March 1923 206.8
<b>Am. Elec. Ry. Assn. Construction Cost (Elec. Ry.) 1913 = 100</b>	March 1928 200.5	Feb. 1928 200.9	March 1927 203.0	July 1920 256.4	May 1922 167.4
<b>Eng. News-Record Construction Cost (General) 1913 = 100</b>	March 1928 204.6	Feb. 1928 204.6	March 1927 208.8	June 1920 273.8	March 1922 162.0
<b>U. S. Bur. Lab. Stat. Wholesale Commodities † 1926 = 100</b>	Feb. 1928 96.4	Jan. 1928 96.3	Feb. 1927 95.9		
<b>Bradstreet Wholesale Commodities 1913 = 9.21</b>	Mar. 1 1928 13.34	Feb. 1 1928 13.53	March 1 1927 12.55	Feb. 1 1920 20.87	June 1 1921 10.62
<b>U. S. Bur. Lab. Stat. Retail Food 1913 = 100</b>	Feb. 1928 151.6	Jan. 1928 155.1	Feb. 1927 156.0	July 1920 219.2	March 1922 138.7
<b>Nat. Ind. Conf. Bd. Cost of Living 1914 = 100</b>	Feb. 1928 161.5	Jan. 1928 163.1	Feb. 1927 165.2	July 1920 204.5	Aug. 1922 154.5
<b>Steel Unfilled Orders (Million Tons) 1913 = 5.91</b>	Feb. 29 1928 4.398	Jan. 31 1928 4.276	Feb. 28 1927 3.597	July 31 1920 11.118	May 31 1927 3.051
<b>Bank Clearings Outside N. Y. City (Billions)</b>	Feb. 1928 16.99	Jan. 1928 19.73	Feb. 1927 16.72	Oct. 1925 20.47	Feb. 1921 10.43
<b>Business Failures Number</b>	Feb. 1928 1885	Jan. 1928 2178	Feb. 1927 1855	Aug. 1924 2231	Aug. 1925 1353
<b>Liabilities (Millions)</b>	Feb. 1928 50.62	Jan. 1928 54.03	Feb. 1927 66.34	Aug. 1924 122.95	Feb. 1925 27.22

\*The three index numbers marked with an asterisk are computed by Mr. Richey, as follows: Fares index is average street railway fare in a United States city with a population of 50,000 or over except New York City, and weighted according to population. Street Railway Materials index is relative average price of materials (including fuel) used in street railway operation and maintenance, weighted according to average use of such materials. Wages index is relative average maximum hourly wage of motormen, conductors and operators on 131 of the largest street and interurban railways operated in the United States, weighted according to the number of such men employed on these roads.

†This index is changed to a base of "1926 = 100." The notation replaces the former basis of "1913 = 100." Inasmuch as the bureau has not calculated the index on this new base any further back than January, 1923, no figures are shown in this tabulation for the high and low point since the war. It is planned to compute the index on the new basis as far back as January, 1913. Until such time as the bureau make public these figures for the earlier years this information will be lacking.

copper wire were obtained on conditional sales contract by the railway from the trust equipment company.

Soon after the bond sale had been approved, Mr. DeHore and his associates started negotiations for control of the Indianapolis & Cincinnati Car Trust Equipment Company. They are said to have been successful in buying the \$140,000 of Series B stock and 25 per cent of the \$600,000 Series A, or only about \$190,000 of the total of \$740,000 stock outstanding. Recently it has been reported an organized group of stockholders of the Car Trust Equipment Company had resisted the offer made by the DeHore faction, and that in consequence a situation had been created which threatened practical dismantlement of the line of the Indianapolis & Cincinnati Traction Company.

### Stockholders at Washington Approve Merger Idea

Stockholders of the Capital Traction Company, Washington, D. C., at a special meeting on March 15 ratified the transit merger agreement by a margin of approximately 8,000 votes. The day before the Washington Railway & Electric Company stockholders took similar action. Chairman Childress of the Public Utilities Commission declared he was going to do everything possible to bring about a merger now. He said:

We must strike while the iron is hot. Any postponements of the merger for an indefinite period perhaps would jeopardize efforts to bring about the long-desired unification of the transit lines, which would indicate that the commission has no intention of holding any public hearings.

### Move in Foreclosure Proceedings Against Long Island Line

A further step to conserve the interests of bondholders of the New York Long Island Traction Company, which ceased operation at midnight on April 5, 1926, was taken recently when judgment was entered in the Nassau county clerk's office in Hempstead for \$1,163,449, in foreclosure proceedings by the Union Trust Company as trustee of the mortgage which guaranteed the bonds. The railway has been in receivership since Dec. 21, 1923.

### Abandonment of Interurban Lines in Lincoln Sought

Abandonment of its trackage from 1st and Y Streets to the downtown business district terminal at 4th and O Streets is planned by the Omaha, Lincoln & Beatrice Railway, Lincoln, Neb. The City Council and the State Railway Commission are being asked to approve the removal of the tracks and the stopping of service. President Harvey Musser of Akron takes the position that the company cannot afford the assessment for paving

that will be placed upon it by reason of the authorization of a new district which includes a considerable portion of its trackage. Considerable of its interurban traffic has been diverted to the railway company's buses.

### Baltimore to Reclassify Unissued Stock—February Gross Gains

Stockholders of the United Railways & Electric Company, Baltimore, Md., at their annual meeting to be held on April 11, will be asked to approve of an amendment to the charter of the company to empower the board of directors to classify or reclassify any unissued stock of the company in the form of preferred stocks, and to issue and sell convertible securities. The initial step in this direction was taken by the board at its monthly meeting on March 20, a resolution recommending such action having been adopted. President C. D. Emmons said:

The company, in order to avoid the annoyance and expense of a special meeting, has included in the notice for the annual meeting a resolution giving power to the company, through its directors, to file an amendment to the company's charter authorizing the issue and sale, subject to the approval of the Public Service Commission of Maryland, of any part of the present authorized but unissued common stock in the form of preferred stocks, and to issue and sell convertible securities.

This authorization has no immediate significance from the standpoint of financing the company, as the company's position does not at present justify the use of such securities, but it was thought well to give the company the power, through its directors, to take either or both of these steps, if later they seem to be advantageous.

The total amount of the authorized capital stock of the company is \$35,000,000 par value, divided into 700,000 shares of the par value of \$50 each, all of which are common stock. Of the authorized stock 409,224 shares are outstanding.

Earnings from Jan. 1 to Feb. 29 (60 days), 1928, compared with 1927 (59 days), were as follows:

	1928	Increase	
Passenger rev.....	\$2,617,513	x\$22,670	
Other revenue.....	33,595	x2,211	
<b>Totals .....</b>	<b>\$2,651,108</b>	<b>x\$24,882</b>	
Oper. expenses.....	\$1,676,907	\$46,600	
Depreciation .....	132,555	x1,244	
<b>Totals .....</b>	<b>\$1,809,462</b>	<b>\$45,355</b>	
Net oper. rev.....	\$841,645	x\$70,238	
Taxes .....	258,237	x14,313	
Oper. income.....	\$583,408	x\$55,924	
Non-op. income.....	21,933	398	
Gross income.....	\$605,342	x\$55,526	
Fixed charges.....	474,872	7,055	
Remainder .....	\$130,470	x\$62,582	
Interest on income bonds .....	93,333	.....	
Net income.....	\$47,136	x\$62,582	
xDecrease.			
Net income by months was:			
	1928	1927	Increase
January .....	\$18,366	\$72,128	x\$53,761
February .....	18,769	27,590	x8,820
	\$37,136	\$99,718	x\$62,582
xDecrease.			

Fares were changed at midnight, Feb. 12, 1928, from 8-7½ cents for adults and 4 cents for children to 9-8½ cents for adults and 5 cents for children. There was no change in commutation or school ticket rates. For the month of February revenues and expenses are for 29 days in 1928, as compared with 28 days in 1927. Expenses for 1928 are at increased wage over 1927—2 per cent effective Jan. 1 and additional 2 per cent effective Feb. 12.

### Protest Voiced Against California Tax System

Before an open forum meeting held recently by the California Tax Commission, attorneys for the electric railways in southern California protested against the present system of state taxation. The present state tax was declared to be a serious burden which increases yearly. It was declared that no electric railway in California is making an equitable return on its investment.

A substantial reduction in the present gross receipts tax of 5½ per cent was advocated by W. D. Hill, representing the Electric Railways Association. He suggested that relief should come from stringent paving requirements imposed on the railways, and expressed the belief that municipally owned public utilities should be taxed in proportion to assessments levied on privately owned utilities. In his opinion no state electric railway was making in excess of 5 per cent of its investment and most of them were making only 1 per cent.

### Council Approves Increase in Philadelphia Capital

Increase of the capital stock of the Philadelphia Rapid Transit Company, Philadelphia, Pa., from \$60,000,000 to \$65,000,000 has been approved by the transportation committee of the City Council.

Of the \$5,000,000 increase, \$1,500,000 will be used for relocating the Market Street subway-elevated tracks under City Hall and for necessary changes in the underground stations. Another \$1,500,000 is to be used in the construction of a garage for 500 motor cars, company buses and taxicabs beside the Fern Rock terminal yards of the Broad Street subway. The balance of \$2,000,000 will be used in acquiring real estate for another garage in Locust Street, on the site of the old Hollingsworth school, at the rear of the Academy of Music.

In reply to a question about provision in the ordinance that any of the money not spent on the projects named could be used for other capital purposes Coleman J. Joyce, counsel for the company said:

That is right, but we do not expect to change the purposes enumerated in this ordinance. These figures are estimated, and sometimes such figures are under or over final costs. In case there is an underestimate, we must have a free hand to meet the costs out of the capital.

## Personal Items

### A. A. Mitten Succeeds T. E. Mitten as Chairman

At the annual meeting of the stockholders of the Philadelphia Rapid Transit Company, held on March 21, the following directors were elected to serve for a period of one year: A. A. Mitten, W. K. Myers, J. A. Queeney, R. T. Senter, R. F. Tyson, L. W. Hackett, J. McCartney and J. C. Haungs.

Mayor Harry A. Mackey, by virtue of his office, also serves as a director. E. T. Trigg and J. S. McCulloch are the other directors representing the city under the 1907 city-company agreement. T. E. Mitten resigned as chairman of the board so that the employees might have three representatives instead of two.

The employee representatives on the board are L. W. Hackett and J. McCartney, president and vice-president of the Employees' Co-operative Association, and J. C. Haungs, chairman of the general committee for employees under the Mitten plan. Mr. Hackett is a general repairman in the rolling stock and building department, Mr. McCartney is a driver in the bus department and Mr. Haungs is a paper cutter in the printing department. The board of directors thus consists of five men who are directly concerned in the management of the property, three who are representatives of the employees and three who represent the city.

The meeting of the new board of directors was held directly following the stockholders' meeting. A. A. Mitten was elected chairman of the board of directors and W. K. Myers vice-chairman. Mr. Myers becomes chairman of the executive committee, the membership of which also includes A. A. Mitten, J. A. Queeney and R. T. Senter.

The board of directors elected the following officers of P.R.T.: President, R. T. Senter; general counsel, E. A. Ballard; vice-president, R. F. Tyson; comptroller, W. M. Campbell; secretary of board, A. N. Hinkel; auditor, R. C. Williams; treasurer, G. W. Davis; secretary, F. B. Ellis.

### G. D. Rushing Promoted at Shreveport

G. D. Rushing, formerly master mechanic of the Shreveport Railways, Shreveport, La., has been promoted to the post of, superintendent of power and equipment. Mr. Rushing entered the service of the company in 1903, when it was known as the Shreveport Traction Company, as a motorman and conductor. He continued in this work for about a year and a half, meanwhile directing his energies to work in the shop. He acquired a good deal of practical experience and as a result was made master mechanic in 1907.

This position he held until he was made superintendent of power and equipment.

Mr. Rushing was born in 1878 in Wood County, Tex. He lived on a farm until he was sixteen years of age when he became a clerk in a store. Here he remained for two years. Then he returned to school for a few years.

### R. F. Palmblade President of Illinois Association

R. F. Palmblade was elected president of the Illinois Electric Railway Association at the convention held in Springfield, Ill., March 14-15. The new president entered the utility business in 1910 as foreman in the construction depart-



R. F. Palmblade

ment of the Illinois Traction System. From the latter part of that year until 1912 he served as draftsman in the engineering department. During the next four years his headquarters were in Peoria, as operating engineer with the Peoria Railway. From this work he went to Jefferson City, Mo., serving in the capacity of general superintendent of the Jefferson City Light, Heat & Power Company and the Jefferson City Bridge & Transit Company. This work covered a period of three years from 1917 to 1920. Then he returned to the Peoria property taking on the duties of general superintendent until 1924. Since that time he has been manager of the Peoria Division of the Illinois Power & Light Corporation.

M. O. BENEDICT has succeeded G. D. Rushing with the title of active master mechanic of the Shreveport Railways, Shreveport, La. He began his career in the electric railway industry in 1906 and located in Shreveport in 1920, becoming chief electrician for the Shreveport Railways. This position he has held until his recent appointment. Mr. Benedict was born in New Madrid County, Mo., in 1889. He was educated in the public schools.

### Messrs. Cooke, Bosserman and Ross Promoted in Pittsburgh

M. W. Cooke has succeeded A. J. Fink as superintendent of traffic and schedules of the Pittsburgh Railways, Pittsburgh, Pa. As was mentioned in the *ELECTRIC RAILWAY JOURNAL*, issue of March 10, Mr. Fink is now transportation engineer of the St. Louis Public Service Company, St. Louis, Mo.

Mr. Cooke entered the employ of the Philadelphia Company (the holding company of the Pittsburgh Railways) in 1911 as superintendent of the telephone department. In July, 1924, he was made superintendent of the overhead lines department of the railways, and in December of the same year was appointed chief of the current control department. He remained in this capacity until September, 1926, when he assumed charge of power and inclines. He was serving as superintendent of power and inclines at the time of his recent appointment.

Mr. Cooke was educated at Baltimore City College and John Hopkins University.

Assisting him in his new work is Traffic Engineer P. R. Bosserman, who has been associated with Mr. Cooke since 1925. Mr. Bosserman started with the railway company in 1915 in the substation department, but in 1925 was appointed by Mr. Cooke supervisor of maintenance and construction in the overhead lines department. In 1927 he was promoted to the office of superintendent of substations and inclines. This latter position he held until his recent appointment as traffic engineer.

The vacancy caused by the resignation of Mr. Cooke as superintendent of power and inclines has been filled by John L. Ross, until recently, engineer of power and inclines. Mr. Ross, a graduate of Carnegie Tech in electrical engineering, has been with the Pittsburgh Railways since 1917, when he entered the services of the company in the load dispatcher's office. He was later made chief load dispatcher, and then inspecting engineer of the technical division until his appointment as power and incline engineer in 1926.

### H. M. Gould Editorial Consultant

Harold M. Gould, formerly electrical engineer and assistant general manager of the Department of Street Railways at Detroit, Mich., and previously student engineer in all departments of the metropolitan street railways in New York, has been added to the staff of *Nation's Traffic* as engineer adviser. The magazine, published monthly in St. Louis, is devoted to solving street and highway traffic problems.

Mr. Gould was graduated from the Sheffield Scientific School, Yale University, in 1907. Subsequently he served two years in the electrical department of the Long Island Railroad, and later joined the Metropolitan Street Railway in New York. He was with the city engineering department of

Bridgeport for eight years following, and thence went to New Haven to join the electrical department of the Connecticut Company. He left this company to become electrical engineer and assistant general manager of the Department of Street Railways in Detroit.

For the last two years Mr. Gould has been transportation engineer with Dodge Brothers, Inc., meanwhile acting as consulting engineer with the Detroit Police Department. In this capacity he recently completed a comprehensive survey of traffic in Detroit in which he recommended measures to be taken to remedy that city's traffic ills.

OSCAR A. BENNETT has assumed the position of assistant comptroller of the Puget Sound Power & Light Company, Seattle, Wash. Mr. Bennett for the past four years has been assistant treasurer of the Blackstone Valley Gas & Electric Company. John W. Kelly has succeeded him. Mr. Kelly had been assistant treasurer of the Baton Rouge Electric Company, Baton Rouge, La.

### H. V. Wenger on Indiana Commission

Earl L. Carter has resigned as chief engineer of the Indiana Public Service Commission effective on April 1, to enter private consulting work. In his position as engineer for the commission, one of his principal duties was to fix valuations of utilities for rate-making purposes. He entered the service of the commission in 1917 as assistant engineer and succeeded Harry O. Garman as chief six years ago. He was graduated from Purdue University in 1914.

Harry V. Wenger, former member of the engineering staff of the commission, has been selected as Mr. Carter's successor. Mr. Wenger took a position with the commission in 1917. He served on the commission engineering staff more than three years. He left in 1923 after having been elected chief engineer of the Railroad Commission of South Dakota. Later he returned to Indianapolis and has been in private engineering work since that time.

### The Story of Sam Greenland

Another railway official regarded as good diet for popular consumption is Sam Greenland, who was featured in the Sunday, Jan. 22, issue of the *St. Louis Globe Democrat*. All JOURNAL readers know by this time the work-loving, 48-year old general manager of the St. Louis Public Service Company, and residents of his city look to him to supply them with the best car service. The writer of this article says that long before he became an expert in the operation of electric railways he was a tool dresser in the oil fields, a lumberman, a clerk by day, a bill collector at night and a telephone lineman. How he happened into the railway business and what he made of it are now history, recorded from time to time in these pages.



Thomas H. David

### Messrs. David and Tretton Advanced in Indianapolis

Promotion of two veteran employees of the Indianapolis Street Railway, Indianapolis, Ind., was announced recently by Robert I. Todd, president. They are Thomas H. David and James P. Tretton.

Mr. David, principal assistant engineer, has been promoted to chief engineer. He succeeds T. B. McMath, who has retired from active service because of ill health but retains the position of consulting engineer. Mr. David has had a long career in railroad work. After he was graduated from Purdue University in 1901, he spent the next six years on steam railroads in bridge, maintenance and construction work, being identified with some of the early elevation work in Indianapolis. In 1905 he received the advanced degree of civil engineer from Purdue University. Since 1907 he has been assistant and principal assistant engineer.

During the construction of the joint interurban terminal freight houses in Indianapolis in 1923 Mr. David was supervising engineer. These are believed to be the largest interurban freight facilities of their kind in the world, costing approximately \$900,000. The houses have 43,160 sq. ft. of floor space under cover and 3 miles of tracks on the property which cover an area of approximately 12 acres.

Mr. David was born in Indianapolis Aug. 18, 1876. He is a member of the American Society of Civil Engineers.

The appointment of James P. Tretton, superintendent, to the position of

general superintendent, comes as a well-merited acknowledgment of his 30 years continuous employment in the various departments of the Indianapolis Street Railway. He entered the company's service in 1898. It may be said that the electric railway business was Mr. Tretton's "first love" as he began his career after leaving school, at the age of fifteen years, his first position being in the truck department of the company's shops. Later he was promoted to the storeroom at the shop. In 1904 he was appointed paymaster. Three years later he was placed in charge of arranging schedules for the operation of the different lines. In 1907 he was advanced to the position of assistant superintendent and in 1919 he was made superintendent. On Jan. 1, 1928, he was advanced to the post of general superintendent.

J. A. BROMLEY, general manager and engineer of York Corporation Tramways, York, England, has been appointed general manager of Durban Corporation Tramways, South Africa. Before going to York Mr. Bromley held prominent tramway positions at Leeds and afterwards at Keighley.

## Obituary

CHARLES P. HOWARD, president of James L. Howard & Company, Inc., Hartford, Conn., manufacturers of railway car supplies, died March 6 at his home in that city. Mr. Howard was educated in the Hartford schools and later matriculated at the Massachusetts Institute of Technology. After graduation as a mechanical engineer he became associated with the Howard company where he spent his business life. He was 74 years old.

DARLING L. WILSON, an employee of the Dallas traction lines for the past 41 years, and the Dallas Railway & Terminal Company since its organization, died recently in that city. Mr. Wilson was the author of a history in which he traced the development of railway traffic in Dallas from the days of the first mule car up to the present time.

W. N. OLDHAM, the oldest trainman in the employ of the Portland Electric Power Company, Portland, Ore., died Feb. 15, after 40 years of service. He was operator of the first horse car on the east side, and when cars were electrified he was placed on the Woodstock line. Since that time he had worked on various lines, with no major accident while in service. Mr. Oldham was 77 years old and worked up to June of last year.

STANLEY SHAFFER, 67 years old, prominent member of the Cincinnati Bar, died recently. He was associated with the builders of the Cincinnati, Lawrenceburg & Aurora Electric Street Railroad from its inception, a connection which continued until his death.



James P. Tretton

# Manufactures and the Markets

## How Price Cutting Works

A Close-Up Picture of the Tension that Exists  
Between the Seller and the Purchaser  
in the Utility Industries

BY EARL WHITEHORNE  
Commercial Editor "Electrical World"

In the Feb. 18 issue of *ELECTRIC RAILWAY JOURNAL* Mr. Whitehorne outlined the evils that result from the present "buyer's market" for utility equipment. In this article he cites some of the purchasing and selling practices that are not in accord with sound business principles.—EDITOR.

IT IS perfectly natural and practical and proper for the purchasing agent to buy as cheaply as he can. And it is no less right for the manufacturer who sells the goods to get as profitable a price as possible. But in the evolution of business certain principles have developed and certain responsibilities. The trickery that once was the life and sparkle of horse trading, is now frowned upon. Fair dealing has become the accepted standard in commerce. The seller is supposed to give honest value and the buyer is expected to pay an honest price. Why, then, is there so much talk right now of trouble between large buyers and sellers? What has gone wrong in the market place that there is bitter talk of price cutting by manufacturers and profiteering by purchasers?

### TRICKS OF THE PURCHASER

Study it a bit and you find an interesting thing. There are some manufacturers who have the courage to establish prices and maintain them. Their price is their price and they refuse to dicker. But there are some who lack the courage or the strength. And just so there are some purchasing agents who do not haggle. They ask for bids from suppliers whose product is acceptable and the low man gets the business. But there are others who seem to consider their function one of dollar squeezing; and the length to which this gentle art is carried is astonishing.

The number and variety of tactics employed by these purchasers are without end, but there stand out certain typical situations:

1. Where the purchasing agent gets the high bidder to cut on the indefinite promise of a large block of business next year.

2. Where the buyer lies, giving a bidder the false intimation as to his competitor's price, or representing the competing price on motors alone, for instance, as the complete price for motors and control or citing a price on equipment that is not comparable, or ringing some other subtle change on the truth that deceives and tempts the bidder to cut.

3. Where the large buyer demands spe-

cial discounts for large volume, claiming that this volume carries the manufacturer's overhead, and thus forces the big manufacturers' price down to where the small manufacturer cannot compete.

4. Where very large buyers of electrical equipment that is used as part of a manufactured product threaten to make their own equipment unless the price is cut.

5. Where large utility holding companies argue that one of the savings possible through holding company operation should show up as savings in purchasings, and demand discounts greater than those given to operating companies, which eliminate the small manufacturer and force the large manufacturer's price below the margin that provides for the further development of bigger and better apparatus.

6. Where purchasing agents apparently do not know how to buy because they have no facts to check bids with and no methods of evaluating bids and therefore resort to haggling.

### WHAT THE SELLER DOES

That's what they are saying about the purchasing agent—not all, of course—but many. But what is the matter with the manufacturer? you'll say. Why does he fall for such methods? There is the rub. The manufacturer right now finds himself in a buyer's market. He has permitted himself to become involved in a mad scramble for orders that has enmeshed him until for every story reflecting upon the purchasing agent there are fourteen about manufacturer and his salesman. As one man put it—"You can take a pure young man and make him a purchasing agent today and before Sunday the manufacturer's salesman will have taught him all the dirty tricks in the business."

The utility purchasing agents say that the manufacturers are themselves the greatest culprits and are responsible for price buying. They say that first bids today are made for trading purposes only. Therefore, they say, they too must use trading methods because those are the methods that the manufacturers have developed and seem to understand. The purchasing agents say that they are willing to pay fair prices but that the manufacturers haven't the courage to put fair prices on their products and then stick to them.

The small manufacturer also charges that although the large manufacturers state that they desire competition and see no virtue in monopoly, yet they chafe under the competition of the small manufacturer and cut prices to get business, relying on price cutting and not on

better quality, better delivery or better salesmanship to maintain their position. It is alleged that the spread of prices established by these larger manufacturers is unreasonably wide and is not justified by the savings effected in making and selling the larger quantity to the large buyer. In this competition between the manufacturers also, certain typical conditions stand out—

### TRICKS OF THE MANUFACTURER

1. The large manufacturer uses the lump sum bid as a lever to lower prices on individual products to compete with the small producer who specializes in that line. It is said that at times this is so manipulated that it has the effect of a straight price cut.

2. Allowances are made on old equipment taken back that range all the way from a reasonable scrap allowance to the full original price. This is pure price cutting when the allowance is more than the seller may reasonably expect to realize from the second-hand value.

3. Some manufacturers are making extravagant contributions in preliminary engineering expense for detailed working data that is out of all reason and constitutes a price consideration because it puts an undue extra burden on the profit.

4. Financial affiliations between some manufacturers and the utility companies are used to bringing pressure from on high to throw the order.

5. Reciprocity arrangements are drawn into competitive bids to an extent that overshadows the actual comparative values involved and works an injustice upon bidders who are invited to compete with the assumption that it is to be a fair and open contest.

6. And then there are the everyday conditions of price cutting where the manufacturer loses his nerve and pares his price for no other purpose than to get the order and camouflages it with all manner of alibis and explanations, such as a mistake in figuring, or new information or an unexpectedly favorably purchase of materials or some other cock-and-bull story.

### THE MORAL ASPECT

There are many time-honored practices that some day will give way to the onward march of principle and be changed. There are many things that men used to do that have been stopped and are not countenanced today. After all, it gets down to a very simple consideration of plain honesty. If a purchasing agent lies or otherwise deceives a bidder into cutting his price, he is not dealing honestly. He is not fair. And if a manufacturer offers a bid that is not fair, either because the goods are not worth the money, or because he has padded the price for trading purposes, he is not dealing honestly.

Everybody will agree that it is considered wrong to slip your hand into a man's coat pocket and extract his wallet while his attention is distracted. No purchasing agent will do this to a salesman. No manufacturer will do it to a buyer. Well, the only difference is that dickering with bids and cutting prices has not yet lost its social standing. Today it involves no conspicuous degree of moral turpitude. But gradually the day will come when between intelligent business men price cutting will be taboo.



It is a matter of simple inescapable truth that destructive commercial warfare between competitors or between buyers and sellers eventually demoralizes markets, wrecks the economic health of the industry, and ultimately paralyzes the service upon which the public is dependent. And that is the reason why we find modern business bulwarked about with codes and standards and principles, with a highly developed system of self imposed controls that have evolved out of experience because without co-operation and mutual good will there is no safety for investment, no stability upon which to base projects and plans.

**TWO OBJECTIVES**

The greatest single problem in this whole situation to my mind is the difficulty of shaking men loose from the purely negative idea that because these unintelligent buying practices are general and have existed for long, they can't be changed. But that is just foolishness. Every buyer wants to get his money's worth. Every seller wants to get a fair price. No more, no less is satisfactory. What can be done, therefore, to put an end to the haggling and the price cutting? Fundamentally it seems to me there are two things to be done:

*One—By the purchaser—*Industry needs more intelligent buying. It needs purchasing agents who know the values of the equipment they buy, and make of their function something more than an adroit matching of prices. It needs recognition that what is bought must be paid for and that bids which embrace elements of engineering, and of service as well as the delivered product, cannot be compared by a mere tallying of the total cost figures.

*And Two—By the manufacturer—*Industry needs more sincerity in selling. It needs manufacturers who consider that a bid is a word given—an honest offer of service to a friend—and not just a gesture in a sparring match. In other words, a bid from a responsible concern to a reputable customer should be a firm bid, the pledge of the house, signed with its good name. And such a bid is the equivalent of an open bid because there is no trick in it. It is not subject to a revision, any more than the written word of that manufacturer is subject to question, because his honor is involved.

All this will not happen at once—not

this week. I know it. But industry can work toward it—can fight for it. And the logical approach to it is for the seller to refuse longer to cut his price because the buyer tells him to. Let him at least begin to protect himself by making sure that the other bids that he is asked to beat are comparable and that the purchasing agent is not lying. If he is asked to refigure after the bids are in let him at least demand that all the bids be opened to inspection. And also, it is time the manufacturer knew a little more about the reasons why he loses orders, through regularly organized post mortem studies of the bids on his closed business.

**Wheeler and Childress Railway Planned**

Construction of an electric inter-urban railway between Wheeler and Childress, Tex., approximately 80 miles, is planned by the group of large oil companies which are operating in the Panhandle District. Electric power for the proposed line will be furnished by the West Texas Utilities Company which already has a power transmission line along the entire route of the proposed railway. Although it is intended that the electric railway shall handle passenger traffic, its chief purpose will be to give the oil fields of these companies an additional transportation outlet. The road will pass through Shamrock, Wellington and serve other smaller towns.

**First of Twelve New Macon Cars Shipped**

The first of the twelve new units for the Macon Light & Railway Company built by the Perley A. Thomas Car Company were shipped on Feb. 22. The second one was scheduled for shipment the last of that week. Delivery of the remainder is at the rate of two cars per week until completion of the order.

The cars are of the one-man double-end double-truck type, all steel design. They have an over-all length of 41 ft. 8 in. and a seating capacity for 40 passengers. Green and cream is the color scheme of the exterior, and the interior trim is of cherry. Specifications were printed in ELECTRIC RAILWAY JOURNAL issue of Oct 15.

**Madagascar to Electrify**

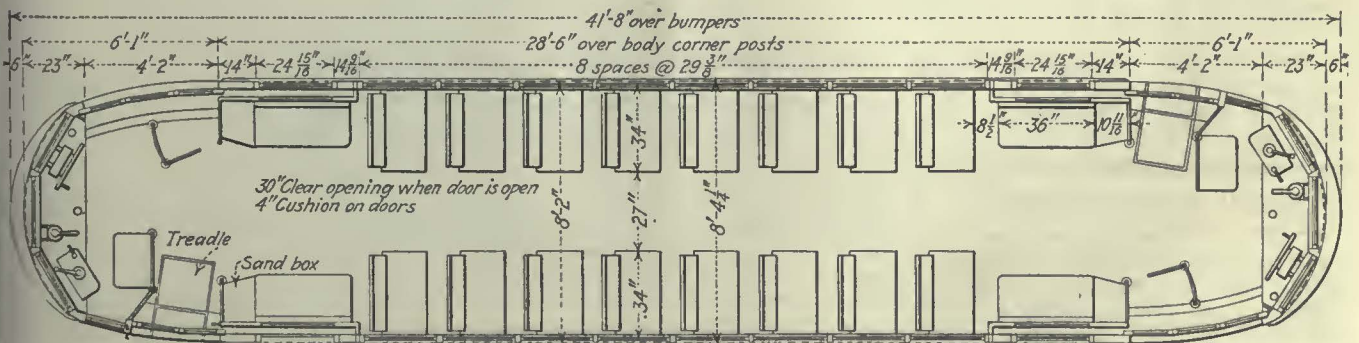
The government of the French colony of Madagascar has approved a project for the partial electrification of the Tananarive-East Coast main line railway to make use of the potent waterfalls located on the Mangoro River. The project is estimated to cost 20,000,000 francs, not including electric locomotives. It will take six years to complete. The work will probably not be undertaken before late in 1928.

**Employment Activity on Increase**

Employment and activity in the manufacturing industries of the United States have been on the increase since November, 1927, it is indicated by the January, 1928, returns from about 2,000 manufacturing plants reporting monthly to the National Industrial Conference Board, New York. These plants are located throughout the various sections of the country, are of both large and small size and represent 25 different divisions of manufacturing. Inasmuch as midwinter is a quiet period in many industries, seasonal influences should show further improvement in February and March employment when the data for these months become available, in the view of the board.

January figures show more than 1 per cent increase over the number employed last November which, according to the conference board's reports, was the lowest ebb of employment for the year 1927 and the lowest since the last quarter in 1924. However, not only has the number of employed increased, but the total number of hours worked in these plants shows an even greater increase, totalling 3½ per cent more than in November, 1927. This, the conference board points out, indicates not only more employees at work but an increased number of working hours per employee, and thus an increase in activity exceeding that indicated by the additional number of men engaged. Average weekly earnings per worker during January showed proportionate increase.

The decline in employment in the manufacturing industry during the year 1927, which came to a halt in December, amounted to only 3½ per cent for the entire year from January, 1927, to January, 1928. There was a decrease in manufacturing employment in



Floor plan of new Macon cars

January, 1928, as compared with January, 1926, when industrial activity was near the peak of the 1921-1927 period. The total number of hours worked, in January, 1928, was 8½ per cent lower than in January, 1926, and 4 per cent lower than in January, 1927.

### Steel for Subway Work

Bids will be taken March 30 on 7,700 tons of structural steel for a subway section near Prospect Park, Brooklyn. The state of North Carolina is in the market for 3,000 tons for state highway bridges near Wilmington.

American Bridge Company has taken 500 tons of bridge work for New York State, and an inquiry is in the market for 500 tons additional. Erie Railroad is inquiring for 250 tons for a pier on the Hudson River in Jersey City.

### ROLLING STOCK

WINNIPEG ELECTRIC COMPANY, Winnipeg, Canada, has received recently three Twin Coaches of the mechanical-drive, street car type, made by Twin Coach Corporation.

SAN DIEGO ELECTRIC RAILWAY, San Diego, Calif., has received its third street car type Twin Coach made by Twin Coach Corporation, Kent, Ohio.

HAZLETON AUTOBUS COMPANY, Hazleton, Pa., a subsidiary of the Lehigh Traction Company, has received from Mack Trucks, Inc., New York, N. Y., one Mack six-cylinder 29-passenger city-type bus.

WICHITA FALLS TRACTION COMPANY, Wichita Falls, Tex., operating the Wichita Falls Bus Company, has placed in service two Mack four-cylinder 25-passenger city-type buses.

MONTREAL TRAMWAYS, Montreal, Canada, has ordered 50 new cars costing about \$1,000,000, from the Canadian Car & Foundry Company.

ILLINOIS POWER & LIGHT CORPORATION, Chicago, Ill., has accepted delivery on one Mack six-cylinder 29-passenger parlor-car bus.

CHICAGO, SOUTH SHORE & SOUTH BEND RAILROAD, Michigan City, Ind., has received two 80-ton electric locomotives built by the Baldwin Locomotive works and the Westinghouse Electric & Manufacturing Company. The new engines, of 1,200 hp., are 39 ft. 4 in. long, and cost about \$56,000 each.

CITY OF OSLO, Norway, has placed an order for four more A.C.F. 198 in. wheelbase chassis. The fleet at Oslo now consists of 43 A.C.F. buses.

### SHOPS AND BUILDINGS

CINCINNATI STREET RAILWAY, Cincinnati, Ohio, has put into service the Colerain Avenue substation, first of the nineteen stations to be completed in the new automatic power distribution sys-

### METAL, COAL AND MATERIAL PRICES F. O. B. REFINERY

	March 20, 1928
<b>Metals—New York</b>	
Copper, electrolytic, cents per lb.	13.8125
Copper wire, cents per lb.	16.125
Lead, cents per lb.	6.00
Zinc, cents per lb.	6.00
Tio, Straits, cents per lb.	52.25
<b>Bituminous Coal, f.o.b. Mines</b>	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons.	.....
Somerset mine run, Boston, net tons.	.....
Pittsburgh mine run, Pittsburgh, net tons.	.....
Franklin, Ill., screenings, Chicago, net tons	1.825
Central, Ill., screenings, Chicago, net tons	1.675
Kansas screenings, Kansas City, net tons.	2.125
<b>Materials</b>	
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	5.30
Weatherproof wire base, N. Y., cents per lb.	16.50
Cement, Chicago net prices, without bags.	2.05
Linseed oil (5-bbl. lots), N. Y., cents per lb.	10.3
White lead in oil (100-lb. keg), N. Y., cents per lb.	13.25
Turpentine (bbl. lots), N. Y., per gal.	\$0.655

tem now under construction. Power from this station will go to cars on five routes. All five stations are scheduled to go into service in July.

BRITISH COLUMBIA ELECTRIC RAILWAY, Vancouver, B. C., is reported to be planning to erect two substations at an estimated cost of \$70,000.

### TRACK AND LINE

LOS ANGELES RAILWAY, Los Angeles, Cal., has under way a widening and grading program on Vermont Avenue between San Marino and Washington Streets. Grading will also be done on Mesa Drive from Vernon to 61st Street.

KANSAS CITY PUBLIC SERVICE COMPANY, Kansas City, Mo., has submitted its 1928 program for track improvement to the Kansas City park board and the director of public works. The program includes the reconstruction of the double tracks on Broadway between West Linwood Boulevard and Westport Road, the relaying of the double tracks on Prospect Avenue between 43rd and 47th Streets and a single track on Prospect Avenue between 48th and 75th Streets. Other double tracks to be relaid are on Twelfth Street between McGee Street and Euclid Avenue, Main Street between Pershing Road and 27th Street, McGee Street from Twelfth to Fifteenth Streets, Walnut Street between Twelfth and Thirteenth Streets and Jackson Avenue between Twelfth and Fifteenth Streets.

### TRADE NOTES

E. D. GIBBS, who has served as advertising director of The National Cash Register Company, Dayton, Ohio, at three different periods, has resigned his position to engage in business for himself in New York City. He will serve a limited number of clients on work in connection with sales promotion, sales contests and advertising. His temporary New York address after March 15 will be 66 West 55th Street.

IDEAL COMMUTATOR DRESSER COMPANY, Sycamore, Ill., has opened a New

England office at 182 Purchase Street, Boston, Mass., and has appointed the following new sales representatives: C. B. Keck, 1565 Ryalmount Road, Cleveland Heights, Ohio; F. D. Lawrence Electric Company, Cincinnati, Ohio; O. T. Hall, 432 North Calvert Street, Baltimore, Md.; G. A. Brewer, New Haven, Conn.; and DeMoss-Fox & Company, Detroit, Mich.

ARMCO CULVERT MANUFACTURERS ASSOCIATION, Middletown, Ohio, has appointed as its municipal engineer Harry E. Cotton, formerly assistant city engineer at Omaha, Neb. His engineering experience is now at the service of all municipalities in the United States and Canada for assistance in the solution of problems involving drainage, subdrainage and flood control.

HENDRICK MANUFACTURING COMPANY, Carbondale, Pa., manufacturer of "Mitco" interlocked steel grating, stair treads and armorgrids, announces the opening of a Chicago district office, 223 Railway Exchange Building, Chicago, in charge of Lon Sloan.

GERARD SWOPE, president of the General Electric Company, has returned to this country after a trip abroad. He says England is definitely on the road to economic and industrial recovery and progress is everywhere evident.

ASBESTOS BRAKE LINING ASSOCIATION and the National Battery Manufacturers Association announce the removal of their offices to the Hale Building, 7 East 44 Street, New York, N. Y.

### ADVERTISING LITERATURE

SILENT HOIST, WINCH & CRANE COMPANY, Brooklyn, N. Y., has issued a new bulletin, No. 27, on winches. The winches illustrated are suitable for either portable or stationary use and as car pullers.

SHERMAN CORPORATION, Boston, Mass., has published a report of a survey of industry, entitled, "What Is Happening to Business?" The report includes causes to which increase or decrease in net profits is attributed, and excerpts from interviews with representative business executives.

LINCOLN ELECTRIC COMPANY, Cleveland, Ohio, has issued a new bulletin descriptive of the "Linc-Weld" motor.

GENERAL ELECTRIC COMPANY, Schenectady, N. Y., has issued bulletin GE A-828 describing the electrification of the Butte, Anaconda & Pacific Railway. Other bulletins issued are: GE A-872 on drum-type controllers for railway service; GE A-951 on Mazda C short-circuiting lamp and socket; GE A-137A on synchronous motors, types T.S. & Q.S.; GE A-914 on CR9441-LS 424A limit switch; GE A-797 on the repair of railway commutators; GE A-921 on better lubrication of railway motors; GE A-467A on automatic starters for slip ring motors; and GE A-808A on totally enclosed fan-cooled motors.

# EVENTUALLY—

more electric railways will consider their hand brakes of greater importance than merely part of their car equipment!

More properties will insist and order the hand brake on each car be applied at least once during every trip. Greater safety is a recognized policy.

Before issuing such orders they will make sure that hand-brakes are in working condition and will stop their cars.

If equipped with "Peacock" Staffless Brakes, no matter how badly brake shoes are worn or how loose the rigging is, they are insured of adequate braking power.

With three times the braking capacity of ordinary hand brakes—up to 144 inches of chain-winding capacity—simplicity of operation—etc., cars equipped with "Peacock" Staffless Brakes are always ready for any emergency.

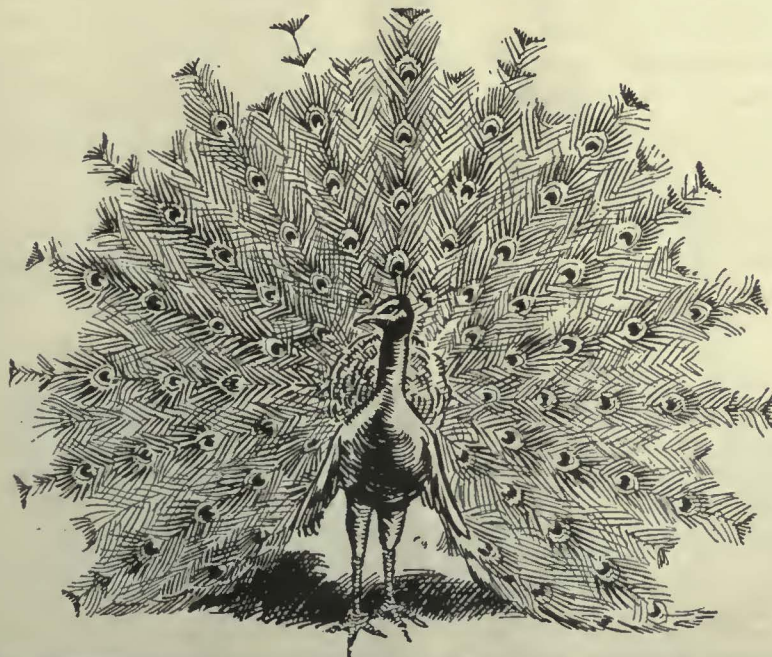
## National Brake Company, Inc.

890 Ellicott Square

Buffalo, N. Y.

*Canadian Representative:*

Lyman Tube & Supply Co., Ltd., Montreal, Canada



Up!  
Up!  
Up!

## His sales volume responded to INDUSTRIAL ADVERTISING

**L**ISTEN to this story of a business that pulled itself up by its own boot straps, the story of a manufacturer who defied the trend of general business and gained sales volume regardless.

From a minor position to recognized leadership by steady yearly gains, always exceeding the progress of industry as a whole—that is what took place and how it was done is an open book.

It was a young business, making power plant supplies and small parts—sort of a line of industrial “notions”—just the type that might be thought too small to employ Industrial Advertising effectively. In the light of what happened, no one can tell this manufacturer that Industrial Advertising cannot be geared to a small business. That is just what he did—

### *Geared Industrial Advertising to His Business*

At the outset the policy was established to specialize on worthwhile markets. The buyers' habits were studied intently and a complete plan of Industrial Advertising and Selling was built around their needs. The counsel of an experienced advertising agent was retained.

Thoughtful attention was devoted to the selection of industrial publications and the preparation of advertising copy. In team-work fashion both sales and advertising strategy were aimed at one thing—*Recognition by worthwhile buyers.*

This *Recognition* was found to be the straight line to larger sales volume. Tangible results were greater than a previous inquiry campaign had produced. A check of actual buyers against McGraw-Hill subscribers showed that 80% were on both lists.

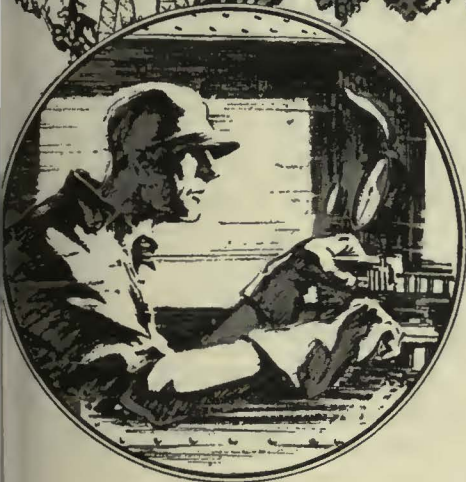
From each year's business came the wherewithal to produce next year's increase. Eight per cent of gross revenue appropriated for Industrial Advertising produced an average yearly gain in sales volume of nearly 30%. Only once did the manufacturer experiment with a reduced appropriation. And this was the only period when he experienced reduced sales. Comparing the three curves of the chart shows that this manufacturer's growth was controlled not so much by general business conditions as by his volume of Industrial Advertising.

His curve of *net profits* has closely paralleled the curves of gross sales and advertising for the past six years and is still ascending steadily.

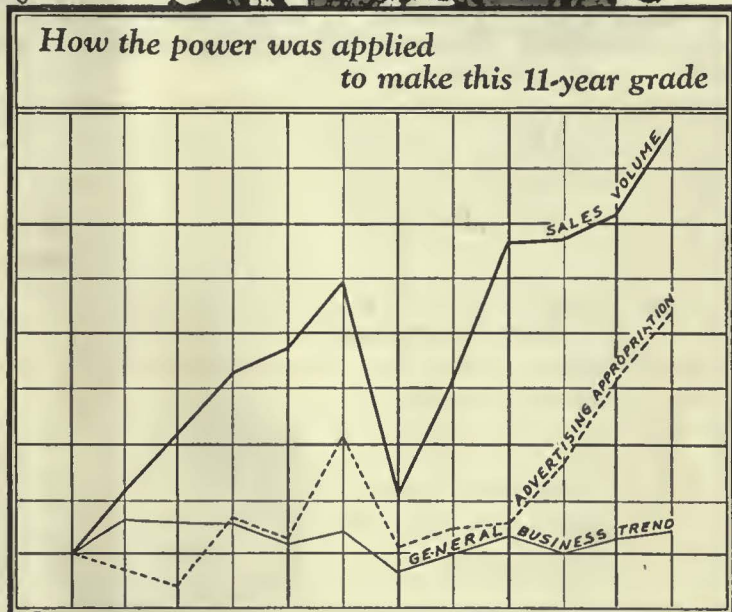
### *Industrial Marketing at Work*

After studying hundreds of such successful cases, McGraw-Hill prepared its new book, “Industrial Marketing at Work.” This book establishes *recognition* as the proper goal of Industrial Marketing and offers a practical method, in ten logical steps, for its accomplishment.

If your markets lie within any field of industry broader than your strictly local territory a McGraw-Hill representative will gladly discuss this study and present a copy to you or your advertising agency. For promptness, address your nearest McGraw-Hill office.



How the power was applied  
to make this 11-year grade



# McGraw-Hill Publications

**Electrical**

ELECTRICAL MERCHANDISING  
ELECTRICAL WORLD  
ELECTRICAL WEST

**Transportation**

ELECTRIC RAILWAY JOURNAL  
BUS TRANSPORTATION

**Construction & Civil Engineering**  
ENGINEERING NEWS-RECORD  
CONSTRUCTION METHODS

**Mining**

ENGINEERING & MINING JOURNAL  
COAL AGE

**Radio**

RADIO RETAILING

**Industrial**

CHEMICAL & METALLURGICAL  
ENGINEERING

AMERICAN MACHINIST  
(American and European Editions)  
POWER

**Affiliated Publications**

(Published by McGraw-Shaw Company)

FACTORY AND  
INDUSTRIAL MANAGEMENT  
INDUSTRIAL ENGINEERING  
with which is consolidated  
INDUSTRY ILLUSTRATED

(Published by  
Business Publishers International Corporation)

INGENIERIA INTERNACIONAL  
EL AUTOMOVIL AMERICANO  
AMERICAN AUTOMOBILE

**Catalogs and Directories**

McGraw-Hill Electrical Engineering Catalog  
McGraw-Hill Electrical Trade Catalog  
Keystone Coal Mining Catalog  
Keystone Metal Quarry Catalog  
Keystone Coal Buyers Catalog  
McGraw Central Station Directory  
McGraw Electric Railway Directory  
Metal Quarry Directory  
Coal Field Directory  
Bonbright Survey of Electric Power &  
Light Companies in the U. S.

HERE THE ADVANCE OF ENGINEERING, PRODUCTION AND INDUSTRIAL ADVERTISING HAS BEEN RECORDED FOR HALF A CENTURY

# "Ignorance is the cause of economic waste"

—said Mr. O. H. Cheney, Vice-President of the American Exchange-Pacific National Bank, New York City, in a recent address. "Ignorance of the facts of supply and demand is the cause of troubles which afflict the separate industries. Ignorance of efficient business methods is the cause of individual failure."

There is no need, today, for the individual business man to be in the dark about conditions and improved practice in his field. The business press particularly those publications belonging to the A.B.P., are serving industry better and more completely than ever before.

*Fight waste with facts from A. B. P. papers*

Get the most out of your business paper. Read its editorials for the worth-while



*Be a consistent reader of your paper. Each issue contains information that you would not want to miss.*

opinions of men who know. Read its technical articles to keep pace with current developments. Read its advertisements for dollar-saving suggestions.

You fight waste with facts when you get your information from an A.B.P. publication—this one, for example. High standards of accuracy in editorial as well as advertising content are exacted as a condition of membership in the Associated Business Papers, Inc.

Advertisers in A.B.P. papers are combating selling waste by reaching selected groups of readers who are searching for just such economical suggestions as the advertisers have to offer.

Are you making the most of this, your business paper?

THE ASSOCIATED BUSINESS PAPERS, Inc.  
Executive Offices: 220 West 44th St., New York, N. Y.

# A. B. P.

*An Association of none but qualified publications reaching 54 fields of trade and industry.*

# Nuttall

and  
Timken!



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

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

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

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

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

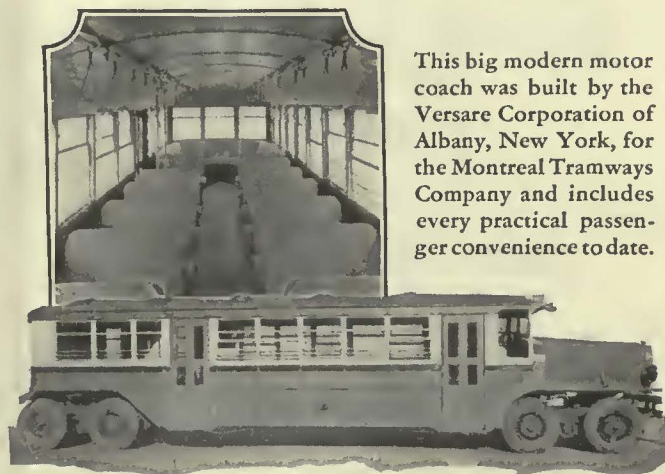
Now Nuttall settles another question—the price question.

*Send for Bulletin No. 46*

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

All Westinghouse Electric & Mfg. Co. District Offices are Sales Representatives in the United States for the Nuttall Electric Railway and Mine Haulage Products. In Canada: Lyman Tuhe & Supply Co., Ltd., Montreal and Toronto.

# Nuttall



This big modern motor coach was built by the Versare Corporation of Albany, New York, for the Montreal Tramways Company and includes every practical passenger convenience to date.

## Balsam-Wool Provides Comfort for Motor Coach Passengers

PEOPLE naturally seek the most pleasant mode of travel and many are turning to the rapidly increasing number of motor buses for suburban, interurban and long distance transportation.

To attract this trade the builders of motor coaches are giving a distinct consideration to comfort for passengers.

Not all motor buses are as big or expensive as that in the illustration but all can have the same quiet comfort, the same protection against winter cold and summer heat by insulating with Balsam-Wool.

Balsam-Wool provides the maximum of heat stoppage, assuring warmth and comfort to passengers.

It is light weight, flexible, tough and non-settling, highly fire-resistant, odorless and sanitary.

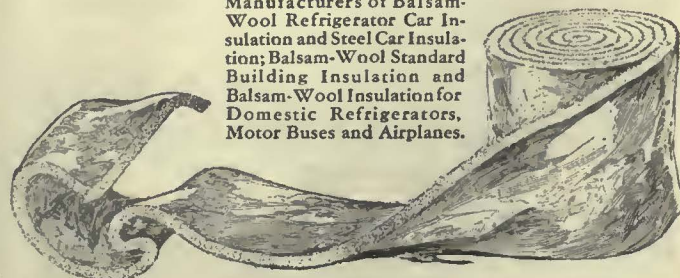
For motor coach manufacturers we have valuable facts regarding Balsam-Wool that will make your buses attractive to passengers the year round. We will gladly supply them together with samples of this effective insulation. Write today.

### WOOD CONVERSION COMPANY

*Insulation Division of Weyerhaeuser Forest Products  
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Industrial Sales Office: 360 N. Michigan Ave., Chicago, Ill.

Manufacturers of Balsam-Wool Refrigerator Car Insulation and Steel Car Insulation; Balsam-Wool Standard Building Insulation and Balsam-Wool Insulation for Domestic Refrigerators, Motor Buses and Airplanes.



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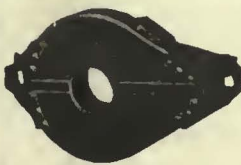
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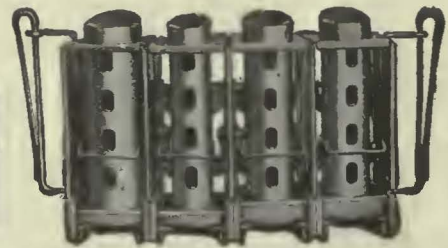
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BOXES for BUSES**

Let us tell you of this especially de-  
signed box for this class of service.

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**I**NDIVIDUAL items of used equipment, or surplus new equipment, or complete plants, are disposed of (and found) through advertising in the *Searchlight* Section of this paper.

This is the section which so effectively aided the Government in selling the many millions of dollars worth of surplus material and equipment accumulated during the war without disturbing the market.

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Electric Railways**

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Catalog Sent on Request

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**BETHLEHEM**

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 Box Numbers in care of any of our offices count 10 words additional in undisplayed ads.  
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 An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page.

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*Immediately*

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