

Electric Railway Journal

Vol. XLI

NEW YORK, SATURDAY, JANUARY 11, 1913

No. 2

PUBLISHED WEEKLY BY

McGraw Publishing Company, Inc.

JAMES H. MCGRAW, President. C. E. WHITTLESEY, Secretary and Treas.
239 West 39th Street, New York.

CHICAGO OFFICE.....1570 Old Colony Building
PHILADELPHIA OFFICE.....Real Estate Trust Building
EUROPEAN OFFICE....Hastings House, Norfolk St., Strand, London, Eng.

TERMS OF SUBSCRIPTION

For 52 weekly issues, and daily convention issues published from time to time in New York City or elsewhere: United States, Cuba and Mexico, \$3.00 per year; Canada, \$4.50 per year; all other countries, \$6.00 per year. Single copies, 10 cents. Foreign subscriptions may be sent to our European office.

Requests for changes of address should be made one week in advance, giving old as well as new address. Date on wrapper indicates the month at the end of which subscription expires.

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Entered as second-class matter at the post office at New York, N. Y.

Of this issue of the ELECTRIC RAILWAY JOURNAL, 8000 copies are printed.

SEP 20 1914

LAWS AGAINST TRESPASSERS

One of the public services which the National Association of Railway Commissioners performs is its action in calling attention to the correct standing of trespassers on the private right-of-way of railways. A railway seeking to operate with a minimum of accidents in a hazardous business should not be forced to take, as it frequently is in the uninformed public mind, the responsibility for accidents to trespassers on its own property. A railway buys a right-of-way and fences it in for the purpose of having a controlled thoroughfare for the transportation of its passengers at high rates of speed. By fences and signs it serves notice that trespassers not only are not wanted but that if, in spite of that fact, they go on the right-of-way they do so at their peril. At the last meeting of the National Association of Commissioners the report of the committee which touched on this subject said that trespassers can be kept off only by penal laws rigorously enforced. All that the state commissioners can do to bring about a public recognition of this fact and corrective steps will help to reduce the total of accidents and in particular those accidents for which the railways are not responsible.

SAFETY VALVE MAINTENANCE

The modern safety valve is one of the most delicate parts of the steam boiler and demands constant care and attention if accurate working is to be assured. Like many other pieces of apparatus associated with the "steam end" of the station, any neglect of the equipment not only opens the door to a possible accident or interruption of service but also tends to reduce the operating economy through the escape of heat in the form of vapor or excessive condensation. Experience has led in one important railway plant to the practice of quietly lifting all safety valves off their seats at least once in twenty-four hours in order to avoid the formation of a so-called skin on the spring and seat. If a valve is not lifted for a week, the

effect of this skin is to increase the lifting pressure and consequently to expose the boiler to a slightly larger strain in operation than may be desirable. The above method of handling the safety valve is that commonly used in practice, but for close regulation careful engineers raise or lower the cushion seat according to the range within which it is desired to have the valve act. The custom of striking the safety valve spindle or any other of its parts in order to make it close is a dangerous one and may cause serious results. Where station logs provide for regular records of the condition of valves, high-pressure and low-pressure steam lines, fire-protection systems and water valves, the safety valve equipment may well be included and periodical entries made as to the setting, the blow-offs which take place and the adjustments or repairs required at various times. In any case full instructions should be secured from the valve manufacturers and these, with the details of construction and setting, should be carefully studied before adjustments are attempted in service. Under no circumstances should any attempt be made to change adjustments except under direct supervision of the head of the power station organization, as the result of setting, even accidentally, a safety valve to pop at a pressure higher than that authorized will vitiate the boiler insurance and open the way for legal difficulties in case almost any kind of accident occurs.

THE NEW JERSEY GAS DECISION

Important questions as to what should constitute the value of a public utility when appraised for rate-making purposes promise to be brought before the courts for adjudication in New Jersey as the result of the gas decision by the Public Utilities Commission of that State, reported in the issue of this paper for last week. The Public Service Gas Company has accepted the rate established by the board, but has reserved the right to test at its convenience the legality and constitutionality of the board's valuation of its property. Undoubtedly one of the most important matters to be settled during the next few years, concerning both public service companies and the public, is this question of the proper basis for the valuation of public utility properties for rate-making purposes. The statutes in nearly all States which grant rate-making powers to public commissions authorize them to establish rates which shall be "just and reasonable," but these words are meaningless without some generally accepted standard as to what percentage constitutes a "fair return" on the investment and what assets should be included in a "fair valuation." As our readers know, the views on these two points, even among the rate-making bodies, are practically as far apart as are the poles. A long hearing extending over the past three years and involving these points, so far as electric lighting rates are concerned, is fast drawing to conclusion in the Westchester lighting case, which is being considered by the Public Service Commission of New York, Second

District. There are other cases before the courts involving other public utilities, but none other, perhaps, so far as the electric lighting companies are concerned, which is being considered so thoroughly. After all, the final word in the matter will have to be pronounced by the highest court in the land. Until then the financial status of new capital in such enterprises will be uncertain, and investors will be unwilling to risk much money in public utilities.

PUBLICITY IN THE CLAIM DEPARTMENT

That the attitude of publicity in methods and policies on some electric railways has been effective in molding public opinion and bringing about more friendly relations between the public and the managements is evidenced by the results obtained by those taking this attitude. There still is room, however, for improvement along the same line in the claim department. Recently this department of a large railway system was made the subject of very strenuous attacks by the press concerning what were assumed to be underhand methods in caring for injured persons and adjusting their claims. These attacks continued until the general claim agent decided that the best policy to pursue under the circumstances was one of publicity. A printed letter in pamphlet form explaining the methods and policy of the railway company in cases of personal injury was mailed to the managing editor of each of the papers. The result of this open letter was that the attacks were discontinued and friendly relations now exist.

We believe that this example is an excellent one to follow. The claim department should have nothing to conceal and certainly has many things to expose to public view. Little does the public know of the methods employed by the unprincipled in personal injury cases. The "ambulance chaser" is ever ready to take up the case of the faker and, in many instances, the innocent, asserting that others have received large sums for similar injuries. The usual result follows; the claimant receives certain damages, but it all goes to pay the attorney's fees. We believe that many of the legitimate cases for damages would be settled out of court to the benefit of both claimant and company if the same methods of publicity were pursued in the claim department as in other branches of the industry. This policy would also bring about a spirit of fairness on the part of the public in its dealings with the railway company.

Without doubt any claim department can cite innumerable cases in which claims were admitted amicably and letters were received praising it for its fair methods. These recommendations in the form of letters of praise should not be filed immediately; the public should know about them. The limelight of publicity is not a cure-all, but it is a step in the right direction. At first it will be found that the public is suspicious of the company's motives, but in the end it will become educated as to the new condition of affairs, and the fruits of the changed policy will be apparent to the railway company. As has been remarked at meetings of the Claims Association many times recently, the modern claim agent must be an educator of public opinion. Efforts of the Boston Elevated Railway in these directions, described in this issue, illustrate this point.

WHAT CONSTITUTES A FAIR TEST OF MATERIAL

Every engineer is confronted by the problem of so conducting his department as to reduce the amount of waste and lost motion to a minimum. To do so he must get the best results out of both the labor and the material with which he has to deal. As a rule each is as important as the other, and an error in judgment in the selection of the proper material for repairs may be just as expensive as slackness in the conduct of the work. This fact points to the importance of testing materials and to the question of what constitutes a fair test. Shall the engineer base his judgment on the service tests of a sample or shall he purchase a small quantity from which an average may be obtained under varied service conditions?

At first thought the solution appears simple enough; that is, to request samples from the different manufacturers and draw conclusions from the results obtained under actual service conditions. This method may serve as the basis for the placing of the first order, but it should not be conclusive evidence. It may be unfair to the road, as the material obtained may not be up to the original sample, and again some of the samples of other manufacturers may have been tried under more severe conditions than the one apparently giving the best results.

In the purchase of paint or varnish, as an example, we believe that one's judgment should not be based on the life of a paint as given by a sample on a paddle but should be based on a sufficient amount to paint a car or bridge. The chemical tests are very good as a means of elimination, but where the results obtained from several samples are about the same service conditions only should be trusted, as a chemical test is only secondary at best. The same method holds in the selection of parts of car equipment. One should base his conclusions on the averages of several samples from each manufacturer. We do not believe in "snap judgment." It may serve in some instances, but not when true economy is desired. One may be able to procure information relative to results obtained by other companies, but at the same time one should be sure of the other company's service conditions and the fairness of the test.

Another point which must receive consideration is the question of price, but not to the extent of eliminating a sample from the test. In numerous instances it will be found that the material which will give the greatest economy will be one costing considerably more than the other samples. For instance, we know of a case where paint costing one-third more than that already in use not only covered one-third more surface per gallon but gave a greatly increased life in service. It also decreased the cost of labor per square foot of surface covered, as it eliminated one-third of the lost motion, namely, that of dipping the brushes into the paint and refilling the painters' buckets. Before one chooses any material as against another, he must be sure in his own mind that the test conditions were absolutely fair to himself and the manufacturer and that he has considered the expected economies from every possible angle. Although the net saving effected may be small on a single gallon or piece of any material where great quantities are used each year, the total saving is worth while and will materially assist in adding to the net profits.

THE STATUS OF THE INDUSTRY AS SHOWN BY STATISTICS

A great deal has been said during the past few years about the condition of the electric railway industry, but no descriptive statement could illustrate so clearly and pointedly the actual status of the electric railway lines of the country as the statistics in regard to miles of track built and cars ordered during 1912 published in the last issue of this paper. In brief, they show that while the number of cars ordered is in excess of those ordered during 1911—in fact, is greater than during any one of the past five years during which the *ELECTRIC RAILWAY JOURNAL* has compiled statistics of this kind—the length of new track built or electrified is practically the smallest during the same period.

We use the word "practically" because, while nominally the miles of track built or electrified in 1912 were more than those built during 1909 by 63 miles, the excess is more than accounted for by the extensions of two electric railways which are not properly either city or interurban railways and so should not be considered as being included in the class of roads which we are now discussing. One of these was the electrification of part of the main line of the New York Central & Hudson River Railroad, which amounted to 58 miles, and the other was a 78-mile extension of the Oregon Electric Railway, which is controlled by the Spokane, Portland & Seattle Railroad, a steam railroad. These two extensions alone account for 136 miles, or more than 14 per cent of the total. The fact clearly shown by these figures is that while the business on existing electric railway lines is increasing, owing to the increased population and expanding business of the country, and cars have to be purchased by electric railway companies to carry these passengers, the construction of new lines and of extensions to old lines has almost ceased.

It should be remembered in this connection that during the past year there has been on the whole a marked revival of business and that the population of the country has been increasing at the rate of about 2 per cent a year. Normally one would expect the electric railway lines to increase in length in about this proportion, especially because of the small amount of track built during the previous few years. But in such a state as New York, outside of the main line of the New York Central Railroad, already mentioned, and the New York, Westchester & Boston Railroad, which was also built practically for steam railroad conditions, there was only 17 miles of new track, or an increase of less than one-half of 1 per cent, although during the decade from 1900 to 1910 the population increased at the rate of 2½ per cent yearly. Similarly, Massachusetts last year reported an increase of only a little more than 13 miles, also less than one-half of 1 per cent of its trackage. Ohio reported only 16 miles and Indiana only 13 miles. Several states, including Georgia, Kansas, Kentucky, Maryland, Missouri, Nebraska and Virginia, reported less than 5 miles of track each.

It would be foolish not to attach significance to these figures. No one, we believe, will claim that the real needs for transportation facilities in the states mentioned increased only at the trivial rates which this added mileage would indicate. We do not intend here to discuss the

causes, but the facts disclose a condition which is of serious import to the public at large, if city and interurban railways are really as great factors in the prosperity of urban and interurban communities as they are generally credited with being. The question is not one simply of concern to the railway companies. They need not attempt to serve any more territory, but can devote their attention to the more intensive cultivation of the lines which they have. But how will such a plan help those communities which are not now served by any existing railway line and hence are deprived of the transportation facilities which might be a factor in their growth? We bring this question and the figures already quoted to the attention of the legislatures which are now meeting in most of the states in this country.

NEW MOUNTAIN ELECTRIFICATION

The announcement made this week of the decision of the Chicago, Milwaukee & Puget Sound Railroad to electrify some 440 miles of its main line between Harlowton, Mont., and Avery, Idaho, proves the correctness of the arguments often advanced by electrical engineers on the desirability of electric locomotives for service on mountain grades. Not only is the available fuel in the far Western mountain districts of low grade, but water-power is usually near at hand. Finally, the capacity of the locomotive, and hence of the track, can be greatly increased by the substitution of electric for steam power, as shown in the article on this subject by Mr. Armstrong published in this paper last week. The proposed installation will be similar in general character of service required to that of the Denver & Rio Grande proposed electrification, announced a few weeks ago, but will be considerably more extensive, as nearly four times the length of track to be equipped electrically is mentioned in the dispatches. On neither of these lines has a definite selection been made yet of the electric system to be used, but in an interview a prominent official of the company in Chicago is reported to have said that the chances favored the use of 2400 volts. This is, of course, the voltage adopted for the Butte, Anaconda & Pacific Railroad, which will also be supplied with electrical energy from the same power distribution system, and possibly the choice for the Butte, Anaconda & Pacific road was made in contemplation of the future electrification of the main trunk line. Recuperation, an especially valuable factor on mountain-grade divisions, is also mentioned as a probability, although whether this was, or will be, a factor in the choice of the electric system to be used is yet simply a matter of conjecture.

In one respect it seems at first somewhat of an anomaly that the superiority of electric power to steam power should have been recognized first at what appear to be the two extremes of railroading, namely, for rapid transit commuter service near densely populated cities and in the sparsely settled mountain districts of the country. But these two classes of service have this point of similarity, the question of increased track capacity is a very important one, and electric power affords the cheapest means of securing it. On the whole, the outlook for an increase of heavy electric traction lines during 1913 is promising.

Accident Prevention in Boston

Special Form of Inquiry Which Follows Accidents in Boston—Campaign of Education to Avoid Accidents Conducted with Owners of Vehicles, Trainmen and Public

BY EDWARD DANA, ASSISTANT SUPERINTENDENT OF TRANSPORTATION BOSTON ELEVATED RAILWAY

The street car accidents which occur daily are numerous, and their reduction imposes a task of the first magnitude. Such an end demands the constant application of all the intelligence that a company can command. One often hears of certain accident "campaigns" being productive of results. These usually are of a temporary nature, but indicate what is within the range of possibility and the goal to strive for. Novel methods are employed until the enthusiasm weakens, whereupon a period of rising accidents sets in and lasts until such time as the company awakes to the need of another "campaign."

The successful company of the future must plan to exist without these sprints. The "campaign" must be a consistent, perpetual movement productive of results. It must strive to prevent rather than cure, for cures are not always permanent. The underlying causes of accidents must, therefore, be analyzed to the finest degree possible. Proper record should be secured to the end that if some condition attracts attention it can be traced back, as well as watched in the future, without prohibitive expense.

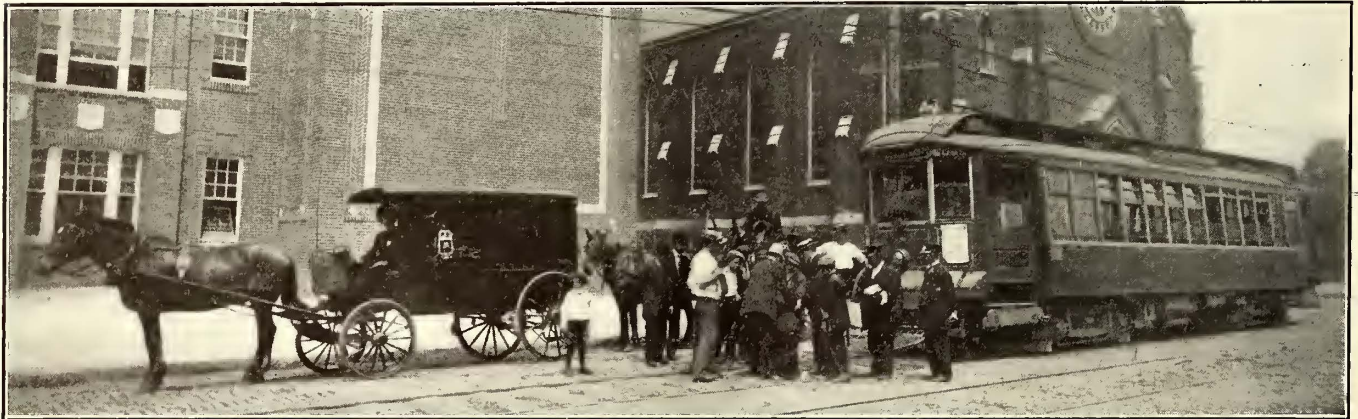
must receive their proportional share of the growth, and even more if possible.

The narrow streets of the business section of Boston are conducive to vehicle collisions. During the autumn the company mailed the following letter to as many owners of vehicles as it was possible to reach. The tone of the replies received indicated an appreciation of the situation:

CIRCULAR LETTER TO VEHICLE OWNERS

"DEAR SIR: During the last twelve months the surface cars operated by our company have been concerned in 4087 collisions with vehicles upon the public highways. Some have been slight, others have been more serious in their consequences. In the aggregate, however, they represent a financial loss of no mean proportions to both the company and the owners of the vehicles. It is safe to say that but a very small percentage were unavoidable.

"We have exerted ourselves to the fullest degree to prevent the occurrence of these collisions. We have evolved a thorough method of instruction and system of following up our motormen. We find that these efforts



Boston Safety Campaign—View from Moving-Picture Film

BLANKS FOR RECORDING CAUSES

In Boston there has been developed for this purpose a series of forms which pertain to the three classes of collisions, namely, with car, with vehicle and with pedestrian. Of these the first and the last are shown on page 60. The remaining one contains questions similar to most of those in either one or the other of the blanks reproduced, with the addition of questions to show the direction in which the vehicle was going. The information called for is readily obtained in the form of a memorandum at the time a superintendent interviews the employees concerned. The blanks are then sent to the superintendent of transportation, where they are filed and analyzed, and, if called for by the claim department or vice-president, they are easily accessible.

It has usually been difficult to show managers that an expenditure calculated to reduce accidents was warranted because of the fact that it is well-nigh impossible to secure tangible evidence which can be attributed thereto. The two surest avenues, however, to fewer accidents are competent instruction and reinstruction and efficient street supervision. Modern managers must be liberal in supplying appropriations for these two items if results worth while are to be expected. As a system enlarges these items

have not been in vain, and that, during the period quoted, in 40 per cent of the collisions our men were in no wise to blame and in 40 per cent more they were not responsible for the collision, but we deemed it wise further to instruct and caution them. In 80 per cent, therefore, of the collisions cited the responsibility for them has rested with the drivers of the vehicles. In the remaining 20 per cent our men have been responsible and have suffered the consequences of their negligence.

"The volume of vehicular traffic here in Boston is on the constant increase, and the modern tendency is for speed at almost any hazard. The conditions, therefore, will be more conducive to accidents as time goes on.

"This, however, is the age of co-operation, and we ask you, for your own interests, our interests and the interests of the community at large, to co-operate with us in a practical, effective manner to reduce the collision account.

"We recommend to you the practice of having talks given to your drivers and the good which bulletins or cautionary instructions might do. A careless driver is in more ways than one as unprofitable an investment for you as is his counterpart with us.

"We should be glad of any suggestions, and any information which you may desire concerning the difficulties of car

operation on bad rails, etc., we should be glad to afford you.

"We trust you will look upon the matter along the broad lines which we endeavor to, and we earnestly hope that you will see fit to expend energies along this line."

This letter was signed by the superintendent of transportation.

TALKS BY SUPERINTENDENTS AND "ACCIDENT CLERKS"

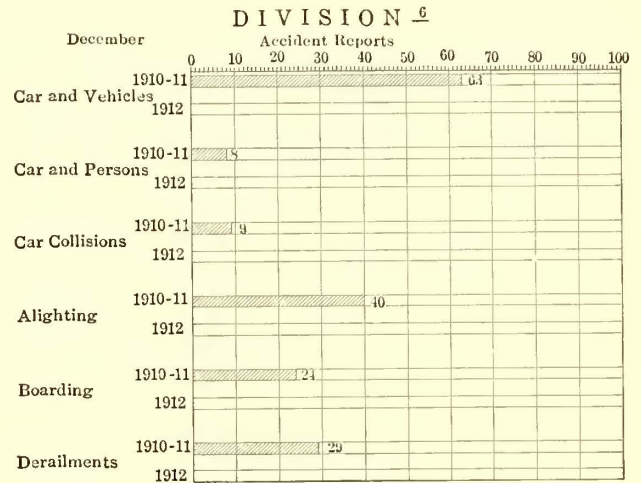
Much good can result from periodic, forceful talks to the men collectively by superintendents and others. If these are held too frequently, however, or are too protracted, the results secured are much lessened.

Within the past year "accident clerks" have been appointed in Boston, and it is the general opinion that the company has profited by the appointment to a considerable degree. Educated in the claim department, these men are in a position to show trainmen how serious the accident question really is from the viewpoint of the department where the income of the company flows the wrong way. The three men assigned spend a week in one division and then move to the next, and it is so arranged that they are not assigned to the same division more than once in two months. Their duties require them to study all conditions which may seem conducive to accidents and to point out in individual conference at the time that accident reports are made the ways in which the employee was negligent.

As indicative of the manner in which a proper atmosphere can be created in which to present the accident problem to the men, the following letters were mailed to the home addresses of conductors and motormen. They were signed by the superintendent of transportation. The letter to conductors was dated Nov. 18, 1912, and that to motormen Sept. 30, 1912. It was thought that as these letters were read around the home table in the evening there would come a deeper realization of the responsibility of him who day in and day out wears the, to him, commonplace uniform. Undoubtedly other members of the families read them and conceived ideas which caused the subject to be brought up again at a later date. Replies were received from some

in this business, a public service, at a uniform rate, that all must be accorded the same treatment.

"Doubtless it is true that no agent in other lines comes in contact daily with as many customers as you do. Many of them, for want of else to do, observe with interest the manner in which you perform your duties. It should be a source of satisfaction therefore to know that if your work is well done others observe it, not infrequently call it to the attention of the management, and in any event inwardly respect you. By proper conduct you build up the good will of the business. If the good will of the business is



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Boston Safety Campaign—Comparative Chart Posted in Carhouses

strong, it is by just so much an easier matter satisfactorily to explain matters which may not suit the individual.

"If a passenger aggravates you, retain always your self-control. The next time the same passenger rides make no allusion to the past and conduct yourself properly. You cannot but change his attitude from one of anger to respect and probably a feeling of shame upon his part. By simply doing right in such a case you have done unquestionable good in that you have taught a moral lesson.

"Always bear in mind that by your careless act a boarding or alighting accident is likely to occur. You may be responsible not only for the financial loss which the company may sustain but for suffering and injury. It may be a young, active person who must carry the burden of this injury down the years of life, or it may be an elderly person whose brief remaining span of life is shortened because of this injury. In either case it is too great a toll for a few seconds which the company has never asked that you save or spend in such a way.

"A comparatively fixed relation exists between the gross receipts of the company and the amount which can be disbursed as wages. Failure therefore because of inattention, carelessness or inefficiency on the part of a conductor to collect the revenue rightfully due the company for service rendered bears directly upon the company, the general public and the conductor himself, as well as upon his fellow employees. Much there is to try you, but in the short dealing you have with passengers it is not for you to know the burdens each may be carrying which, in their outward expression, bear heavily upon you.

"Remember that your work well done is constructive effort making stronger the company, those who observe you and yourself, and further remember that you will never be regarded as 'a good railway man' till you run your car without accident and with civility to passengers."

LETTER TO MOTORMEN

"To Motormen of Surface Lines:

"In these busy autumn days let your energies be exerted to the avoidance of the accidents which heretofore have



Boston Safety Campaign—View from Moving-Picture Film

and they were most gratifying as showing the sentiment of responsibility which existed upon the platforms.

LETTER TO CONDUCTORS

"To Conductors:

"This company comes in contact every day with about a million and a half individuals, all of them different. To them you represent the policies as well as the kind of service which it provides. We deal in the commodity of transportation and you are the agents of the company as it is delivered. It is recognized as sound business policy to discriminate against no one. More especially is this true

been peculiar to the season. Bear in mind that each collision leaves a scar, and no one wishes to cause a scar.

"That scar may cause human suffering, and no one wishes even to reflect upon the fact that many homes each Christmas are saddened from the scars of street car accidents during the previous twelvemonth. That scar may cause the company to pay out money for repairs to car or object damaged, in which case it is an economic loss, merely replacing what formerly existed.

"If the company did not have to pay out these sums it could, by just so much, improve the facilities for transportation as well as the compensation of its men. In the last analysis every accident is the result of carelessness or failure of judgment on the part of someone and consequently is preventable.

"Every motorman has but one duty to himself, the com-

"Do not allow yourself to imagine that the other users of the highways will make any move except the one most unfavorable to your position and be prepared for it. Remember, when on a car you should concentrate your attention on your work just as much as should a surgeon who is performing a delicate operation in which life hangs in the balance. Enter upon this reduction of the accident account with a determined mind and surprising success well worth while from any point of view will result."

MOVING PICTURES

A wide range of persons were also reached by means of running a series of pictures at twenty-one of the moving picture theaters in the city. Typical views from these pictures are reproduced. Appropriate wording was displayed before each was thrown upon the screen. Just how valuable such an outlay really was can only be presumed,

Form 1248-9-12-18

BOSTON ELEVATED RAILWAY COMPANY.

REPORT OF COLLISION WITH CAR.

Date of Collision		191		Time		A. M.		P. M.	
Car No.	Run Cond. By	Collided With	Car No.	Run Cond. By	M' men				
On	Street Avenue	At or Opp. No.	(Other Post No. if not near Street No.)	Street Avenue					
GRADE	Up Down	AT	Station Name Junction Point	VEHICULAR	Open Closed	LOCALITY	Well Lighted Poorly Lighted		
RAIL	Straight Curved	MOTORMAN	Standing Seated	LOCALITY	Well Lighted Poorly Lighted	STOP BY	Break Reverse		
SPECIAL WORK	Switch Freight	RAIL	Wet Dry	SPEED (at time of collision?)					
AT	N. B. Crossing	CONDITION	Slippery	BRAKE	Air Hand	WEATHER	Good Fair Stormy		
MOTORMAN'S EXCUSE FOR COLLISION		INJURIES TO PERSONS							
COUNSEL STATEMENT AS TO HOW COLLISION OCCURRED		DAMAGE							
No. of years of service of Motorman if possible		Approximate time rail last audited?							
No. of Car Collisions in 3 years		Condition of tracks as found by Inspector							
Date of last Collision		Condition of Rail as found by Inspector							
Description of last Collision		Condition of the equip. as found by Inspector							
Times reported for extra duty in 3 years		Condition of Road as found by Inspector							
Times reported for extra duty in 2 years		Delay Occurred							
Times reported for extra duty in 1 year		Discipline (Recommended)							
Date		191		Div. Superintendent					

Form 1248-9-12-18

BOSTON ELEVATED RAILWAY COMPANY

Report of Collision with Person

Date of Collision	191		Time	A. M.	P. M.
Car No.	Conductor Motorman	Collided With	Name of Person	Apprentice Age	
On	Street Avenue	At or Opp. No.	or	Street Avenue	
GRADE	Up Down	VEHICULAR	Open Closed	LOCALITY	Well Lighted Poorly Lighted
RAIL	Straight Curved	MOTORMAN	Standing Seated	STOP BY	Break Reverse
SPECIAL WORK	Switch Freight	RAIL	Wet Dry	SPEED (at time of collision?)	
AT	N. B. Crossing	CONDITION	Slippery	BRAKE	Air Hand
MOTORMAN'S EXCUSE FOR COLLISION		INJURIES TO PERSONS		EXTENT OF INJURIES	
COUNSEL STATEMENT AS TO HOW COLLISION OCCURRED		DAMAGE		What action necessary to remove or release person from car or fender? Time required	
No. of years of service of Motorman if possible		Approximate time rail last audited?		Were Jacks in Use? Time taken to fix same Person	
No. of Car Collisions in 3 years		Condition of tracks as found by Inspector		If Jacks were used to extricate person	
Date of last Collision		Condition of Rail as found by Inspector		If Jacks were used ON CARRIAGE	
Description of last Collision		Condition of the equip. as found by Inspector		Time taken to extricate person after arrival of Jacks	
Times reported for extra duty in 3 years		Condition of Road as found by Inspector		Length of service of Motorman	
Times reported for extra duty in 2 years		Delay Occurred		No. of Collisions with Person in 3 years	
Times reported for extra duty in 1 year		Discipline (Recommended)		Name of last	
Date		191		Kind of Fender	
				Kind of Wagon	

Boston Safety Campaign—Blanks Used for Obtaining Information of Collisions with Cars and Persons

pany and humanity while his car is in operation, and that is to give his entire attention to operating it safely. This company has stood in the front ranks of street railway operation in this country. The incentive should be therefore not to be satisfied but to progress and be a leader in every way.

"The management believes that this fall a successful stand can be taken against accidents. It has communicated with the schools, the public authorities and others who use the public highways. It now appeals to its men to strive earnestly for this end and show results.

"Each day from Oct. 1, 1912, there will be posted the number of collisions which occur during October and November with those that occurred during the same time the previous year.

"Be sure you have sufficient sand for an emergency, making allowance for the frosty rails of this time of year as well as the falling leaves. If you observe a motorman younger in the service than you are make a careless move which, if repeated, might cause a serious accident, make it your duty at some time, in a friendly way so that he cannot help but appreciate it, to warn him.

but it is inconceivable that serious impression was not made upon a good many, old as well as young, and that some acts of carelessness were not by this means prevented.

ACCIDENT CHARTS FOR TRAINMEN

To focus the attention of trainmen concretely upon the accident standing from day to day, charts, similar to that shown on page 59, were posted at all carhouses, and each day the number of the several classes of accidents was drawn in beneath the average record for the previous two years. There seemed to develop a genuine purpose among the men not to allow the current year line to creep up on the "bogy," they realizing the consequences to the company if it did. Simple as is this plan, there is no question that it accomplished good results. It might be well if prizes of some sort were given to the division making the best record against its own previous performance in this connection.

OTHER PRECAUTIONS

The words "Do not talk to the motorman" have long been stenciled on some part of the vestibules of electric cars. In most cities the observance of these words is the exception rather than the rule. How many accidents might

have been avoided had this not come to be the case can only be conjectured, but certain it is that violation of the rule is conducive to accident, and up-to-date operation should combat it vigorously. Policemen and firemen are frequent offenders and should be reached through their respective departments.

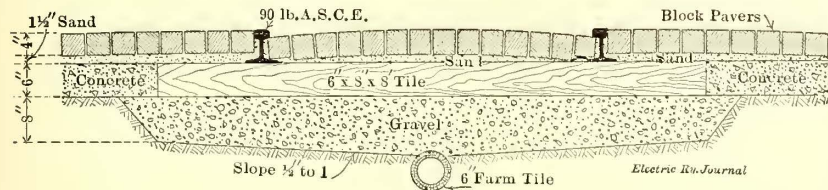
It has been said that drivers of horse-drawn vehicles should be licensed, and there is considerable merit in the proposition, although the labor organizations would in all probability oppose such legislation. It is a fact that many of the vehicle drivers are unfit for the responsibility and should be prevented by law from jeopardizing in the public highways their own lives and those of pedestrians or those of a carload of passengers.

In congested cities harrowing accidents result from the street gamins and newsboys stealing rides. Here is presented a problem, the seriousness of which is increasing as congestion increases. It has its pathetic side which must be studied and met, for many of the boys stealing rides are the product of families which have been wrecked. Often their mothers are away all day earning the wherewithal to support them, while their fathers have deserted them or are "good-for-nothings." This task is one for the church, the schools, the juvenile courts and the railroads to pursue earnestly and thoughtfully if we are to have a reduction in this class of accidents.

In conclusion, it more and more becomes an economic problem of far-reaching consequence to reduce the accidents of common carriers in this country and bring to pass a conservation of our human resources.

ILLINOIS TRACTION T-RAIL PAVEMENT CONSTRUCTION

The engineering department of the Illinois Traction System has recently developed a type of track construction in pavements which includes several novel features. A section of this new construction is shown in the illustration. It was designed for both creosoted block and brick pavement and its advantages are found in the method of handling the pavement between the T-rails. The section was designed for 90-lb. A. S. C. E. rail on 6-in. x 8-in. x 8-ft. wooden ties with a 6-in. concrete foundation under the pavement. By employing a template which will prepare the sand cushion between the rails and give a crown at the



Standard T-Rail Construction in Paved Streets—Illinois Traction System

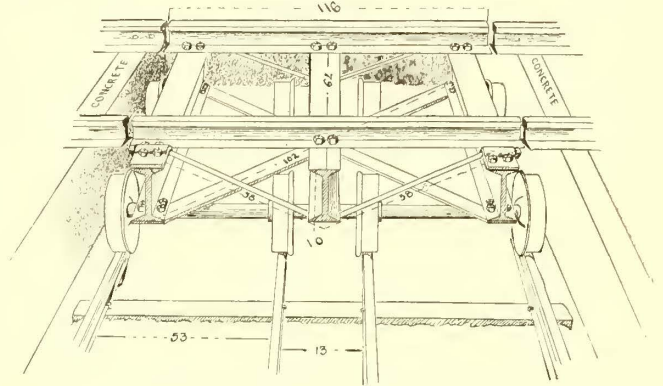
center equal to the height of the ball of the rail no special filler block in the pavement is required. In case brick is used a special brick may be purchased which is 3 in. deep, or the paving block, if the width is less than the depth, may be turned on the side. In case a creosoted block is employed, the shallow block may be purchased at no additional cost over the price of the standard size. It has been found that the public expressed no objection to this type of construction, and at the same time it affords a cheaper method of paving between the rails.

Another feature is the method of preparing the subgrade. Usually the trench containing the ballast under the ties is rectangular in section, but in order to provide drainage to a 6-in. farm tile, which is installed at the center of the trench, the subgrade is sloped from the ends of the ties to the tile, 1/2 in. to 1 ft. The installation of farm drain tile with outlets in the center of the track trench is advantageous in that the trench is usually below the subgrade of the

street and provides drainage from both sides as far as the building lines. Its installation is limited, however, to streets where an outlet can be provided to the city sewer system or otherwise.

CROSS PIT TRUCK TRANSFER TABLE

One of the problems confronting the master mechanic of a small road where the amount of rolling stock does not warrant the installation of an overhead crane in the repair shop is the replacement of trucks at a minimum expense.



Cross Pit Truck Transfer Table

This problem is particularly pertinent on interurban roads where it is necessary to jack up the heavy car body to a sufficient height not only to clear the trucks but to allow the trucks to pass out under the pilot. In case it is not possible to do this, the pilot and possibly the draft rigging must be removed, a task which entails considerable expense. In solving this particular problem the master mechanic of the Fort Dodge, Des Moines & Southern Railroad Company built a cross pit between the inspection pit and the track on which truck repairs are made. He also designed and built a comparatively inexpensive transfer table of scrap material found in the company's storeyard. A sketch showing the transfer table construction as well as the cross pit is shown. The numerals on the drawing give the dimensions of the several parts in inches.

Since the cross pit has been built and the transfer table installed the cost of removing trucks from cars has been reduced to a minimum. An interurban car is run on the inspection track so that the trucks rest on the table. Two jacks are placed under the side sill of the car and bear on the concrete cross pit walls. After the car body has been raised to a sufficient height to clear the center bearing plates, the transfer table is pushed by hand to the truck repair track, where the defective truck is removed and one in good order replaces it on the table. The transfer table is then moved back to the inspection track, the car body lowered, the king pin dropped in place, and the car is again ready for the road.

One of the largest hydroelectric plants thus far installed has recently been placed in service at Trollhättan, in Sweden. It is a government enterprise utilizing as its storage basin Lake Vänern, the third largest lake in Europe, with an area of 2150 sq. miles. With the regulation possible to be applied on the lake the minimum flow can be considerably increased and the possible output will rise to not less than 200,000 hp. Approximately half this amount is the output planned for the present installation. The equipment of the initial plant consists of eight turbines, six of which are already in operation. These turbines are double-runner units of the Francis type, working under 108-ft. head, each directly coupled to a 11,000-kva generator.

Reports on San Francisco Conditions

One Report Just Rendered Recommends the Construction of 72 Miles of New Track Within the Next Five Years and Says the City Must Adopt a Definite Railway Policy—Another Report Analyzes the Rush-Hour Traffic—The Third Discusses the Probable Growth of Traffic and Required Investment

Three reports have recently been submitted to the Board of Supervisors of the city of San Francisco by B. J. Arnold. The first is a continuation of report No. 10, of which an abstract appeared on page 1240 of the *ELECTRIC RAILWAY JOURNAL* for Dec. 21. It refers to the extensions, immediate and future, of street railway facilities in San Francisco which Mr. Arnold considers necessary. This report was submitted Dec. 2, 1912. An addendum to the report, dated Dec. 11, 1912, refers to the defeat of the proposed charter amendment No. 34 by a small majority at the referendum.

The second report, No. 11, was submitted Dec. 23 and relates to traffic and service in the downtown district of San Francisco. The third report, No. 19, was submitted Jan. 2, 1913, and discusses the growth of traffic in San Francisco, past and future, and the investment which will be required to provide new transportation facilities in the city adequate to care for the future traffic. The reports are of especial interest because of the expressed policy of the municipality to own all of its electric railway systems.

In the earlier reports Mr. Arnold showed the necessity, especially in view of the approaching exposition, for the city to provide some means by which the transit facilities should be made adequate to the needs that will arise in 1915. A charter amendment which permitted the co-operation of the city and of private capital to make certain extensions to care for this situation was defeated by popular vote, as already mentioned. The addendum to Report No. 10, abstracted first below, outlines the courses now opened for the city and urges the adoption of a definite transportation policy. The final report, No. 19, then discusses the requirement for rapid transit during the next forty years and shows that under the constitutional debt limitation of the city the assessed valuation of its property will not provide sufficient margin to enable the city to make the improvements and extensions which would be required yearly.

A DEFINITE POLICY IMPERATIVE

The addendum to Report No. 10, Part 2, made immediately after the election already referred to, says that it is now incumbent upon the city:

"First—To finance, by local assessment or bond issue, all or a large part of the extensions called for and to secure the right of exchange of its own cars with the connecting United Railroads lines (involving an adjustment of wage scales); or

"Second—To build the roadbed only and grant private operation rights there-over; or

"Third—To secure private capital to finance these extensions and secure the right of through service under present charter conditions.

"The time has now arrived for the city of San Francisco to establish a definite transit policy, either to undertake a prolonged warfare of competition with established lines or else to accept a reasonable compromise and subdivision of territory served between the municipal and private systems until such time as it is able to assume the financial burden of the entire transit system."

NEEDS OF THE FUTURE

In the full report, which was submitted before the election, Mr. Arnold says in part:

"While the necessities of the present are being considered it is equally necessary that those of the near future and of a decade hence shall be anticipated as far as possible in order that piecemeal development may be avoided

and a transit system planned which will eventually coordinate all of these successive steps into one efficient and unified operating system, whether under one or several managements, municipal or private. The extensions herein recommended are designed as parts of such a unified system, irrespective of ownership, i. e., with a system developed only with reference to the best needs of the respective districts, and with duplication of capital investment eliminated.

"This unified plan does not in any manner prevent the future control by the city of all of its traction lines but may be regarded at the present time as simply the best means to a much-desired end—adequate service. From the standpoint of the patron, the ideal condition of service necessitates one city, one fare, universal transfers.

"However, plans have been prepared for the subdivision of this unified program of development into its component parts, one of which contemplates a privately operated system and the other a municipally operated system, both covering the entire city as far as possible and operating in direct competition. But such a plan necessarily results in extensive duplication of investment along parallel streets and consequently duplication of service."

Among the conclusions and recommendations set forth are the following:

"A study of the relative growth of population, operated trackage and riding habit indicates that the principal traction system in its extension program is at least six years behind the average rate established by the company from 1900 to 1905, which was 6 $\frac{2}{3}$ miles of single track per year. During the preceding decade an even higher rate was maintained—8 $\frac{3}{4}$ miles per year. Furthermore, extensions are by no means keeping pace with the growth in population, and only about 8 miles more track is now being operated than in 1905.

"The apparent needs of the immediate future, determined independently of the above facts, require the construction of about 72 miles of single track, 94 per cent of which is under municipal jurisdiction, and by far the greater proportion of this mileage is to be regarded as simply completing a delayed program.

"Upon the completion of the above construction, five years hence at the most, a second construction program should be entered upon, involving about 50 miles of single track, which may possibly be warranted within the present decade.

"After this period further extension work should be steadily carried out as indicated, both in the outlying districts and within the city proper, solidifying and perfecting the present system. Inasmuch as San Francisco is hardly half developed, there remains much to be accomplished before a so-called saturation point shall have been reached to justify retrenchment in extensions.

"This work will call for an approximate expenditure of about \$6,000,000 in track and equipment within the next five years and \$11,000,000 for all the extension work indicated herein, exclusive of all special street improvement work, such as regrades, tunnels, etc., and exclusive of all rapid transit undertakings, except the Twin Peaks tunnel project already recommended.

"At a very conservative estimate the investment in physical property should increase at the rate of \$3 per \$1 earned per year, and possibly at a higher rate. As the earnings for the future are conservatively estimated as doubling in from fourteen to eighteen years, this means that within the

next decade probably \$18,000,000 will have to be invested in extensions, additions and betterments to the transportation facilities of San Francisco.

"A large proportion of these extensions must be operated as part of the private system having no possible connection with the municipal lines, present or contemplated. But if these various outlying fragments were built by the city, some form of contract should be entered into to guarantee through service during the life of the trunk line franchise.

"As the maximum benefit from service will be derived from extensions nearest the business center or into comparatively thickly settled suburbs, these should receive consideration before lines into thinly settled districts.

"Single-track construction, with turn-outs, will be justifiable in the case of some extensions into very thinly settled districts. This, together with the lighter construction employed, will so reduce the relative investment as to make it possible to serve a much greater territory than if standard construction were used throughout. But such single-track lines, if of reasonably permanent construction, especially as regards the substructure, should be laid at the side of the street, so as to be in position when the line is double-tracked and re-railed.

"In outlying territory, where the streets and topography permit, a spacing between adjacent lines should be adopted which will divide the undeveloped territory with reasonable equality of service, as herein indicated. In other words, parallel lines should not be located nearer than three or four blocks apart, unless through exceptionally dense settlements. Otherwise unwarranted duplication will occur.

"It is probable that a number of the extensions recommended, especially those not in a direct line of through traffic, may be better handled for the present by means of a shuttle service rather than to attempt through service to the downtown district. On such lines smaller car equipment would be permissible, such as would not be of sufficient capacity to warrant operating through the business district.

"In conclusion, it is again necessary to draw the attention of your board and the citizens of San Francisco to the serious fact, with which they are confronted, that capital must be found to build these extensions. The municipality, of course, has a free hand in this contemplated use of its streets; but many of the extensions are of such a fragmentary character that it is a grave question whether it should undertake, under present conditions, a capital burden of this nature. The only alternatives are for these extensions to be financed by assessment upon the property benefited thereby, or else by private capital, and to make this possible the passage of charter amendment No. 34, with proper restrictions, is therefore necessary and vital to the proper development of your city, particularly in time for the Panama-Pacific exposition."

A table which accompanies the report gives figures of approximate cost for extensions. The estimates assume that electric power would be purchased, thus excluding the cost of power stations and transmission lines, and they include only roadbed, overhead, cars and power-converting equipment. They are as follows: Immediate, city, 66.92 miles of single track; outside control, 4.76 miles; cost for total of 71.68 miles, \$5,730,000; after five years, city, 44 miles; outside control, 3.79 miles; cost for total of 47.79 miles, \$3,820,000; ultimate, city, 21.37 miles, cost \$1,710,000.

TRAFFIC CONDITIONS IN DOWNTOWN DISTRICT

Traffic and service in the downtown district of San Francisco are discussed in preliminary report No. 11, submitted under date of Dec. 23, 1912. An abstract of this report follows:

"Owing to the variation in travel from day to day, this traffic study cannot represent all conditions that occur but

rather is intended to give an impression of typical operating conditions existing during a normal business day, that is, excluding Saturdays and Sundays and other days of unusually light or heavy travel. Further, the report is confined to the 'downtown' or loading district, the outer limits of which may be defined, from a traffic standpoint, as including the points of maximum outbound loading on the individual routes; that is, the limits within which the loading of cars is completed. These points form the basis of a so-called 'cordon count' of traffic, the object of which was to intercept during the maximum rush hour every outbound passenger on his homeward journey.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

"Adequate city transportation is largely a question of meeting, on the one hand, the capacity demands of the four rush hours, when one-half of the total day's travel must be handled, and, on the other, of providing a reasonably frequent headway during the remaining hours of light travel. The former requires, for four hours only, about twice the number of cars and crews necessary for the rest of the business day.

"Outside of the extra investment in rush-hour equipment, the greatest problem is to provide a reasonable day's work for rush-hour trainmen without running idle cars during the day to fill out the working day of 'tripper' men.

"Of the two rush-hour periods, the evening has by far the heavier travel—easily 100 per cent greater than the average for the business day and 20 per cent greater than the morning peak. On practically all lines, maximum travel occurs within a short period from 5:15 to 5:30 p. m. and is approximately 10 per cent higher than the hourly average.

"A composite passenger count of all lines leaving the business district during the evening rush hour indicated a total homeward travel of about 49,000 passengers per hour, 84 per cent of whom were city-bound and only 16 per cent transbay commuters. Although nearly 15,000 commuters cross at this time each day, ferry-bound riding was found to be generally light, as over half of the commuters, encouraged by street and terminal obstructions, walk to the ferry.

"The operations of the traffic squad have been effective and should be encouraged, as street congestion is responsible for a considerable reduction in speed and carrying capacity. The average operating speed in the terminal district is exceedingly low, but since 1905 the average schedule speed for the city has increased from 7.6 to 8.5 m.p.h., or over 12 per cent.

"Every effort should be made to eliminate unnecessary stops. Within the usual range of speed, a reduction of one stop per mile will result in an increase in speed of about 5.6 per cent.

"The prepayment principle for collecting fares has not had a fair trial in San Francisco especially as applied to short platform cars designed for non-prepay collection, particularly those fitted with fare boxes, which require about two-thirds more time to load a passenger than for the long platform of the latest Oakland cars. With a properly designed platform, passengers can load at a speed of about one second each.

"A comparison of official schedules of 1909 and 1912 indicates on the whole a small increase in equipment operated as determined by trips scheduled. Checks against operating schedules covering every car in the system showed that practically all of the available rolling stock is being operated, there being only 8 per cent idle cars out of the total, 5 per cent being held for emergencies and the remainder undergoing repair.

"Comfortable standing should be limited to 50 per cent above seating capacity for cross seats, 100 per cent above for longitudinal seats, or 3 sq. ft. per standing passenger allowed for normal maximum capacity.

"Analysis of service standards indicates excessive loading on many routes. While the average car loading throughout the city during the rush hour was 58 per cent in excess of seats furnished, that of Mission Street was 112 per cent for the hour and for the heaviest 15-minute period both Market and Mission throats showed 135 per cent excess loading over seats furnished.

"Individual car loading was frequently so excessive as to make it impossible for conductors to reach passengers on non-prepay cars. In one case ninety passengers were missed on a single trip—38 per cent of the registration—which shows the necessity for prepayment platforms, properly designed.

"The most prolific cause of excessive car loading is irregularity of headway, due to street obstructions, careless dispatching or improper schedules. At present delays of three to four times the headway are common.

"The great interchange of transfer passengers clearly indicates the effectiveness and need of crosstown lines in city service.

"The new equipment now under construction will probably reduce the average excess rush-hour loading from 58 per cent now to about 38 per cent, which will hardly suffice for the present, even neglecting the needs of the exposition in 1915, unless by means of a general re-routing much car mileage now unused can be conserved where most needed, thus giving more service for the same number of equipments and trainmen on duty.

"In conclusion, permanent relief from the conditions above enumerated may be obtained only by, first, an increase in car mileage (carrying capacity) to be secured through effective re-routing and additional equipment; second, more uniformity in headway to be secured by improved schedules, inspection and dispatching and decreased street obstruction, and, third, increased operating speed, both in the loading of passengers and along thoroughfares.

GENERAL DISCUSSION

"During the four rush hours approximately one-half of the total day's travel must be handled. Furthermore, a considerable difference exists between morning and evening travel in the suddenness and severity of the peak loads. Thus, the outbound evening peak is two and two-fifths times that of the morning, while the morning inbound peak is only one and two-fifths times as great as the inbound evening peak. And finally, the difference in this fixed riding habit is shown in a total evening peak, both inbound and outbound, one and one-fifth times, or 20 per cent, more than the morning peak.

"With an adequate day service the rush-hour service must be exceedingly poor. With an adequate rush-hour service the day service must be unnecessarily good. This condition, in effect, has occurred in the street car operations of this city. While the maximum evening travel is two and two-fifths times the minimum midday travel, the maximum car movement is only one and thirteen-twentieths times that of the minimum midday—that is, 65 per cent additional trips are run during the evening rush period, which is far too low for a proper balance of service. In most large American cities practically double service during evening rush hour is found necessary. This rush-hour service ratio must be interpreted with caution, however, and in the last analysis the only absolute criterion is actual average loading of equipment.

"One very serious cause of the increased difficulties of giving adequate service is the interference of vehicle traffic. A very material improvement, however, has resulted from the institution of traffic regulation in this city by the traffic squad. While the average schedule speed for the entire city is 8.5 m.p.h., the actual operating speed in the terminal district is but little over half—4.4 m.p.h.; in the next zone of operation, 6.7; further out in the districts where vehicle interference is small, 8.9, and finally, on streets clear of interference, as high as 11.3 m.p.h.

"This exceedingly low speed in the central terminal district, averaging about the same speed as brisk walking, undoubtedly accounts for the loss to the railway company of a very large amount of short-haul traffic, which is by far the most lucrative of all the traffic handled. Therefore, any measures tending to increase running speed will make possible more service in the poorly paying outlying districts for the same total income per year.

"Since the electrification of the cable lines, the schedule speed has increased about 12 per cent and is continually improving, thus realizing one of the greatest advantages of electric service: In 1905 it was 7.599 m.p.h.; in 1906, 7.647; 1907, 6.85; 1908, 7.91; 1909, 8.113; 1910, 8.284; 1911, 8.43; 1912 (eight months only), 8.509. These average figures are based upon the actual car hours or running time of trainmen.

"Another important element in preventing high schedule speed is too frequent stops. Numerous observations made on various routes indicate a relation between stops and speed as follows: Ten stops per mile, 528 ft., 7.5 m.p.h.; eight stops per mile, 660 ft., 8.4 m.p.h.; six stops per mile, 880 ft., 9.4 m.p.h.; four stops per mile, 1320 ft., 11 m.p.h.; two stops per mile, 2640 ft., 13.7 m.p.h.

"The results of a large number of observations on the various types of cars in service referred to in a previous report on lower Market Street indicate that the prepayment principle has not had a fair trial in San Francisco, because of its being applied to cars designed for non-prepay service with short or constricted platforms. Thus, for a group of twenty-five passengers boarding at one point (a condition which occurs at the ferry regularly), the short-platform cars fitted with fare boxes require about two-thirds more time per passenger than for the long platforms in the latest Oakland cars fitted with a movable handrailing.

"Comparisons of headway, past and present, show not only a general improvement in service, although small, but also no evidence of attempt by the operating company to improve temporarily the service on particular lines counted while the traffic record was being obtained. The operating company is using its available rolling stock to the best possible advantage, and it is a creditable showing that so large a percentage of its equipment remains in service, which indicates a high degree of maintenance.

"It is recommended that reasonable standards to be applied to all types of cars are as follows:

"(1) Comfortable standing, 50 per cent in excess of cross seats and 100 per cent in excess of longitudinal seats.

"(2) Normal maximum capacity, 3 sq. ft. per standing passenger.

"(3) Emergency maximum capacity, 2 sq. ft. per standing passenger.

"A summary of observations on all the various outbound routes shows that for a typical composite business day slightly less than 49,000 passengers travel homeward on the surface cars during the maximum rush-hour period—5 to 6 p. m. Of this total 42,500, or about 87 per cent, were handled by the electric lines and less than 13 per cent by the cable lines, and 41,000, or about 84 per cent, represents city-bound traffic, the balance, or 16 per cent, representing trans-bay commuter traffic to the ferry terminal.

ANALYSIS OF SERVICE

"Taking the hourly basis, it was found that the average loading for all lines of city-bound passengers only was 158 per cent, i. e., 58 per cent excess passengers over seats; or for every 100 seats outbound fifty-eight passengers were forced to stand. For the electric lines only the corresponding loading was 158.5 per cent and for the cable lines 155.4 per cent of the seating capacity. These figures give due credit to the operating company for all unoccupied seats—that is, they recognize the standing by

preference, due to the fact that many people stand even with seats vacant, as has been previously explained.

"If the trans-bay traffic to the ferry be included, the average loading for the system is then reduced to 131.1 per cent, due to the fact that the ferry-bound traffic is relatively light, averaging for the hour only 69.2 per cent of the seating capacity, i. e., one-third more seats than passengers. But it is not deemed proper to include in the final analysis this trans-bay commuter traffic to the ferry, for the reason that it is handled almost entirely on inbound cars and has no bearing on the outbound city service.

"It is necessary to state here that the above percentage loadings, while apparently fair considered on the rush-hour basis, are in reality entirely too high. The ratio between rush-hour and basic midday schedule indicated too low a rush-hour service standard. The throat counts fully confirm this conclusion. In modern urban transportation, where the rush-hour load much exceeds 133 per cent of the seating capacity on an average, excessive standing results. Here the rush-hour average of city-bound traffic is 158 per cent, or nearly 20 per cent higher.

"Disparity between the records of the operating department and those found by actual count may largely be accredited to the fact that it is a physical impossibility for any conductor to keep an accurate record of passengers or fares where continued car loading as excessive as that enumerated above is encountered. And here exists the most forcible argument for the installation of the prepayment principle on all lines.

"To make sure of results, as many as five observers were stationed on the non-prepayment cars of both double-truck and single-truck type. These counts showed the following missed fares or passengers missed by the conductor on a single trip: One line was ninety passengers short; four lines were fifty passengers short; eight lines were twenty-five passengers short; thirteen lines were ten passengers short.

"In comparison therewith, only two prepayment lines showed ten passengers or more missed by the conductor, the average being four or five, and in these two cases the excessive crowding on the rear platform (which is against the rules of the company) prevented the conductor from reaching the passengers clinging to the rear step.

"It is therefore deemed unquestionable that the prepayment car has served a most useful purpose in securing the proper income that should be derived from the passenger traffic handled, which should not be considered for the sole purpose of increasing dividends, as often considered, but also for the purpose of securing from this justly increased revenue the additional car service made possible thereby."

GROWTH OF TRAFFIC AND INVESTMENT IN TRAFFIC FACILITIES

On Jan. 2 Mr. Arnold presented a report to the Board of Supervisors on the growth of traffic in San Francisco and investment in traffic facilities. It was entitled "Preliminary Report No. 19." It discusses the general laws of cities and makes predictions as to the future income of the transit lines in San Francisco with their necessary equipment investments. The city at present contains 450,000 people, and Mr. Arnold believes that this will double in twenty-six years and will reach 1,000,000 in 1945. The city is now growing more rapidly than before the fire, but not as rapidly as other large cities on the Pacific Coast. The report says further:

"An analysis of railway earnings shows that they are increasing in proportion to the square of the population—that is, when the population doubles earnings quadruple. United Railroads earnings alone should double in the next thirteen and one-half years—i. e., should reach \$16,000,000 by 1924-5—and should quadruple by 1942. Earnings per capita are now the highest in the country—\$20 per capita for all companies."

On the other hand, "in extension of track mileage San Francisco is at least six years behind the necessities of

the growth in population. Trackage should extend at least as fast as the population, if not faster. The total track mileage is now about the same as before the fire, due to abandonments, and the last fifteen years show a slower growth than at any period of the city's history. This delayed construction must now be made up. The present necessities for track extension require about 15 miles per year up to 1920."

DIFFICULTIES OF MUNICIPAL OWNERSHIP

The city's expressed policy of municipal ownership of public utilities makes an analysis of the purchasing power of the city with respect to its utilities of interest. The report shows that the underlying property valuation is increasing at a slower rate than the necessary railway investment—viz., as the 1.7 power of the increase in population, instead of the square as in the case of earnings. At the very lowest estimate, \$3 of capital must be invested for every \$1 gross earnings. Under the present bond limit, therefore, the city's liability to purchase or build is becoming more and more inadequate, thus requiring a progressive refunding basis.

The present available purchasing power of the city is approximately \$51,000,000 for all purposes, including water supply. By 1930 the total railway investment required will be \$62,000,000; by 1950, \$123,000,000. This means that over one-third of the total bonding capacity of the city on its present 15 per cent basis would be continually pre-empted for railway investment alone, assuming the city entirely free from debt.

The conclusion from this situation is that "if the city of San Francisco declines to accept the assistance of private capital in financing its utilities both for the present and the future, the conclusion cannot be evaded that a revision of the bond limit must be secured immediately in order to provide the capital necessary for preserving the normal rate of growth of the city."

PROBABLE INCREASE IN EARNINGS

The analysis in the report of the predicted growth of the city and its suburbs in population and territory occupies considerable space in the report, but no abstract of this part of the report is presented here because it does not relate directly to street railway traffic. Portions of the discussion on the growth of the earnings of the street railways are as follows:

The report lays down the general law that the total annual railway earnings increase approximately as the square of the increase in population; or, in other words, the earnings per capita will increase approximately in direct proportion to the increase in population. In this connection the diagram on the next page is presented. This diagram is plotted on logarithmic cross-section paper, like other similar diagrams in previous reports by Mr. Arnold, so that ratios represented by $Y = X^n$ appear as straight lines, the value of n being indicated by the angle which the line makes to the horizontal line. In the case of San Francisco, the earnings of the railway system have increased more rapidly than the square of population and the value of the property at a somewhat less ratio. The broken guide line indicates the square relation, and any line parallel to it conforms to this law. In the chart the rate of earnings for the distant future has been conservatively decreased, as the report refers largely to surface transportation and is not intended to include expensive rapid transit projects.

INCREASE IN EQUIPMENT

The track mileage in San Francisco up to the time of the consolidation of the properties had increased at a more rapid rate than the population, but not lately. According to the report, a proper development of the transit facilities requires that it should increase at a rate at least proportional to the increase in population. The seating capacity of the cars in San Francisco is now practically the same as before the fire.

An estimate of the proper rate of increase in car equip-

ment and car mileage can be made, according to the report, by several methods as follows:

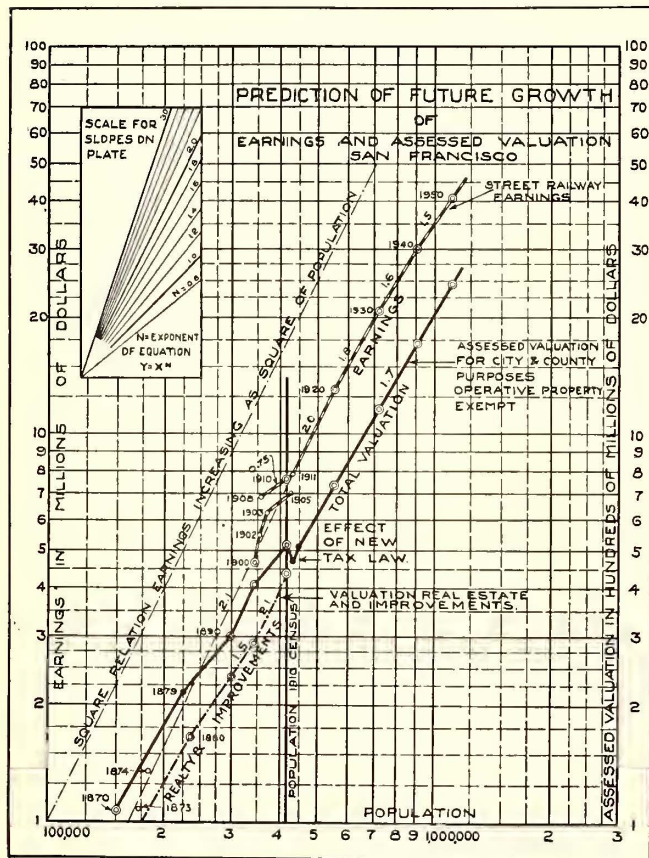
"(1) Assuming a uniform density in cars per mile of track, and increasing in proportion to track mileage.

"(2) Assuming a fixed income per car year, and thus increasing in proportion to the gross earnings.

"(3) Assuming a fixed operating ratio, expenses per car mile, and car mileage per car year, and increasing in proportion to the gross earnings."

Considering these in their order, on the first basis, "the car density resulting from a total of 741 cars averages for 1911 2.52 cars per mile of track. For a total trackage in 1920 of 414 miles there will be required 1043 operating cars, or adding 5 per cent for reserve and repair, a total of 1095 cars, equivalent to thirty-nine cars added per year. This represents a minimum, as the car density in San Francisco is low."

According to the second method, "the average income in 1911 for 741 cars was \$11,600, which is much higher than



San Francisco Report—Chart of Future Growth and Railway Earnings

in other cities. For gross earnings in 1920 of \$13,100,000, a total of 1176 cars would be required, or forty-eight per year."

According to the third method, "taking the present ratio, including taxes, of 65 per cent, an operating expense of 20 cents per car mile and the present yearly mileage per car of 36,700 miles, the estimated earnings for 1920 of \$13,100,000 will require a total of 1218 cars, or fifty-three per year.

"Thus it appears that on the present operating basis thirty-nine to fifty-three cars per year should be added to the entire system. That this latter rate is entirely practicable is shown by the fact that it would permit earnings of about 10 per cent on the investment, assuming \$3.50 invested for each \$1 of earnings.

"The only way in which this car purchase schedule can be reduced for the same service is that proportionate economies in operating car mileage be introduced by means of increased speed and effective re-routing of present lines."

INVESTMENT NECESSARY

The deductions from these data are of interest not only to San Francisco but to every municipality contemplating exclusive municipal ownership. As the future earning power has been determined, it is possible to deduce the total investment which will be necessary to extend the railway system according to the policy. These figures appear below:

Year	1912	1920	1930	1940	1950
Population (thousands)	443	558	722	909	1,121
Street railway earnings (millions)	8.4	13	21	30	41
Total assessed valuation for city and county (millions)	511	750	1,160	1,710	2,420
Investment in street railway property of \$3 to \$1 earned (minimum) (millions)	25	39	62	90	123
Bond limit (15 per cent of valuation) (millions)	77	113	174	257	363
Per cent of present bond limit necessary for railway investment	33	34.8	35.9	35.1	33.9

This table shows that an average investment of at least \$1,750,000 per year will be required to 1920. The investment ratio assumed is \$3 to each \$1 earned. This, the report says, applies only to a system which is properly extended year by year in proportion to the growth in population and is probably the minimum investment necessary. If rapid transit undertakings in any form should be carried out during the intervening period, a considerably higher investment ratio would result, somewhat according to the following plan:

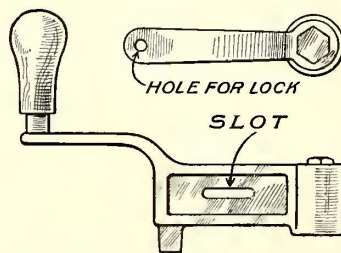
- Rapid transit subways..... \$6.00 to \$8.00
- Electrified steam lines..... 4.00 to 6.00
- Street railways..... 3.00 to 4.00

CONCLUSIONS

The conclusions reached are that unless some revision is made in the basis of the bond limit for the purposes of investment in municipal utilities, the city can never hope to acquire, much less to construct, a complete transit property of the character necessary to meet its future. The table shows that more than one-third of the total bonding capacity on the present basis would be continually pre-empted for railway investment alone, assuming the city entirely free from debt. It was for this reason that the provisions of Charter Amendment No. 34 were so drawn as to permit private capital to assist municipal development until such time as the city could take over its utilities upon an adequate bonding basis, as in the case of New York City in its latest subway acquisitions.

PADLOCKING CONTROLLER HANDLES

As a result of several serious accidents, two of which were fatal, the Lincoln (Neb.) Traction Company made the removal of the controller and reverse handle compulsory. After this rule became effective the car crews and



Interlocking Controller and Reverser Handles

repairmen at the shops experienced considerable difficulty in keeping a sufficient number of extra handles on hand to take care of emergencies. To eliminate this trouble all controller handles were slotted to receive the handles of the reverse levers and 1/2-in. holes were drilled in the ends of the latter. Now when a crew

leaves a car at the close of the day both handles are removed, the reverse handle is slipped through the slot in the controller handle, and the lever of a padlock, permanently attached to the brake staff bracket, is passed through the 1/2-in. hole in the reverse handle and locked. This arrangement keeps a set of handles with each car, and all properly authorized parties have keys to the padlock.

Electric Arc Welding on the Pacific Coast

An Account of the Experiences of Two Electric Railways in Rehabilitating Worn Track and Equipment by Building Up with New Metal Welded Into Place by the Electric Arc

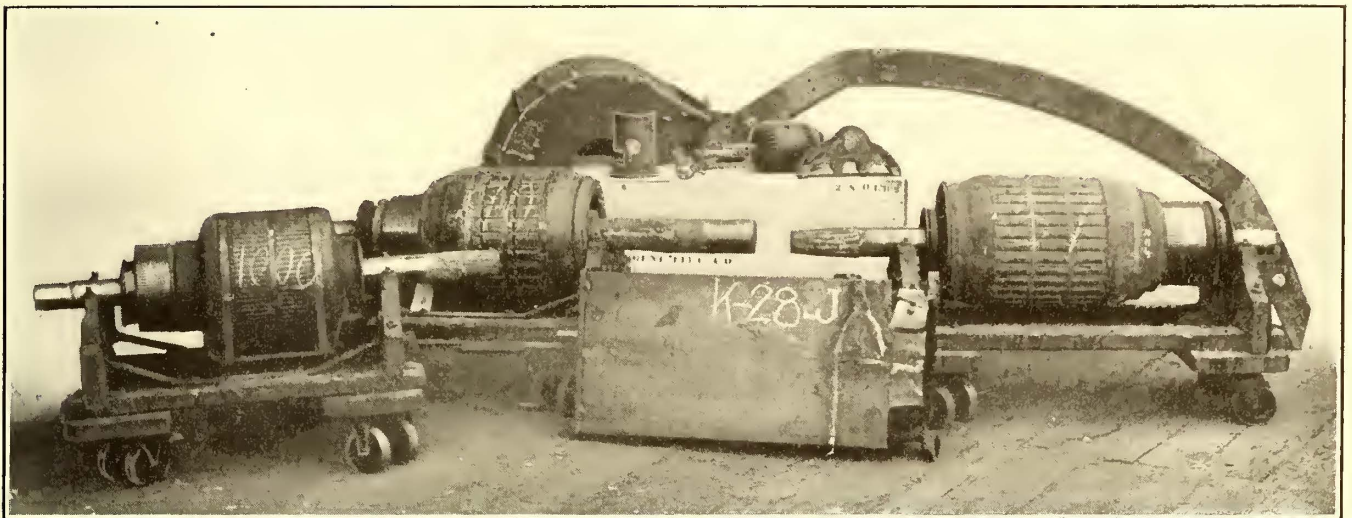
The commercial development of the art of electric arc welding, placing as it does an opportunity before the user for almost unlimited rehabilitation of worn or broken material, is a matter of great interest to electric railways, as such enterprises, having always available a supply of cheap electric current, are in a peculiarly advantageous position for its utilization. Although arc welding is still in its early stages, the development has been exceedingly rapid, and on several railways enough progress has been made already to demonstrate beyond any doubt the practicability of the method and the satisfactory results which may be obtained from it.

On the United Railroads of San Francisco eight or nine electric welding outfits of the portable type, manufactured by the Indianapolis Switch & Frog Company, have been in use since the beginning of 1912 and have proved thoroughly satisfactory in every respect. Through their use

rehabilitate the crossing, thereby prolonging its life for possibly several years at a cost of between \$75 and \$100.

It is, of course, the feature of portability which affords the greatest opportunity for saving. In many cases where welding is done at a forge or furnace by a blacksmith by far the greatest part of the cost of the complete operation is that which is involved in dismantling the damaged piece, transporting it to and from the forge and reassembling it after the repairs are finished. The ability to bring the welding flame to the work and to apply it from almost any direction or angle eliminates practically all of this indirect expense, and through the localization of the welding heat it has now become possible to make the so-called spot welds, to weld in narrow strips along crooked lines, or to operate upon material of a degree of thinness which would prohibit its being handled on a forge or on an anvil.

This accounts largely for the great variety of work



Electric Arc Welding—Different Classes of Car Equipment Repaired in the Shops of the United Railroads of San Francisco

the road has been able to reclaim and rehabilitate many thousands of dollars' worth of material in the repair shops as well as a very large amount of rail and special work in the streets. In the latter case corrugations and cup-outs have been built up easily and satisfactorily in addition to plates in hardened center special work where the points have become broken or worn.

For repairs to track and special work the apparatus is especially economical. The road reports that, for a very nominal sum, material to the value of several thousands of dollars is reclaimed annually and the life prolonged for several years. It is, of course, almost impossible to estimate the exact saving on track work through the use of electric arc welding for the reason that, while the value of a new piece of special work may be \$1,500 or \$2,000, the actual cost of replacing the worn-out piece will amount to considerably more when the cost of labor for installation and the amount involved in tearing out and replacing the pavement is considered. As an example, it is reported that at one of San Francisco's busiest corners considerable complaint arose on account of the noise caused by cars running over a worn double-track section. This layout cost about \$1,400, and the cost of replacing it with new material would have amounted to \$1,000 additional, but through the use of the new process the road was able to

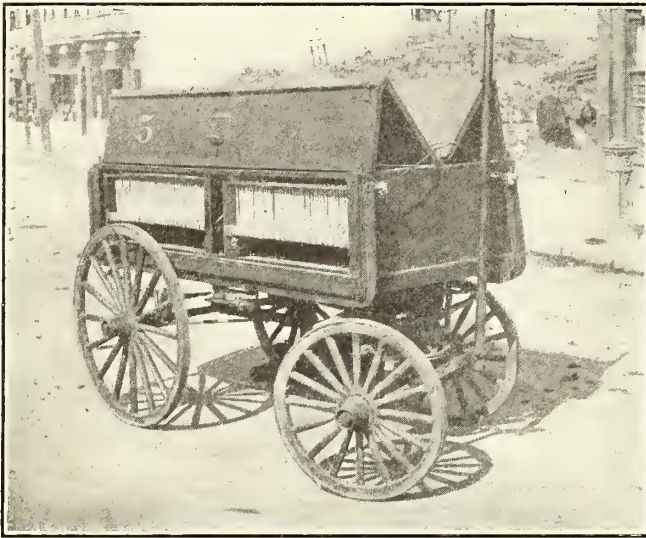
which can be done with the electric arc, an example of which is given in the list of material repaired by the electric arc on the United Railroads of San Francisco. Here they report that they regularly make repairs to gear cases, motor cases, axles, truck frames, axle bearings and brake-shoe heads where the dowel pin has become oblong, armature shafts where the keyway and the tapered pinion seat have become worn, axle caps, brake levers, bolster castings, brake hangers, controller backs, step castings, and in fact all of the material used in their repairs of cars. In the track department the road has used the electric arc for repairing switch tongues, frogs and mates, for filling up cup-outs and corrugations in rail and for filling up low joints in both straight rail and special work.

An interesting example of the application of the electric arc welding on this road occurred soon after the introduction of the process, when about 600 half gear cases which were taken from the scrap pile were reclaimed at a price not exceeding 50 cents each. The new value of these gear cases was about \$4,000, so that the saving on the lot amounted to about \$3,700. These gear cases could not be repaired by ordinary methods. To all intents they were scrap material, quite incapable of being reclaimed commercially until the introduction of the new process permitted patches to be welded over the holes worn through

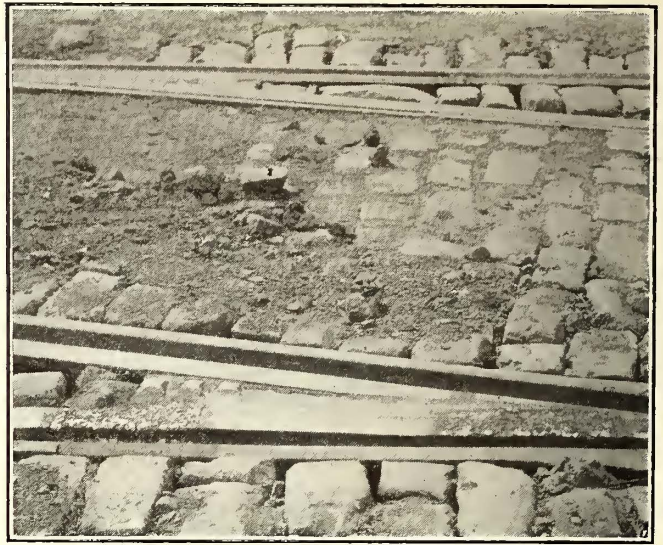
the original metal. The use of a localized flame which could be directed around the edges of the patch regardless of its irregularity naturally made these repairs rapid as well as inexpensive.

In the car repair shop the ability of the electric arc to weld cast iron is the most surprising of its features, and

The three illustrations on this page show a badly broken piece of special work in the various stages of rehabilitation. At the left the joint is shown in its original condition before repair, and the adjoining two illustrations show the same joint immediately after welding and after the grinding of the built-up metal had been commenced. This



Electric Arc Welding—Cart Containing Resistance Grids for Use with Trolley Voltage



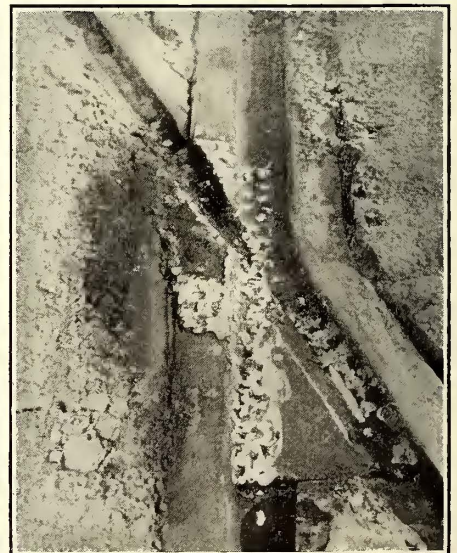
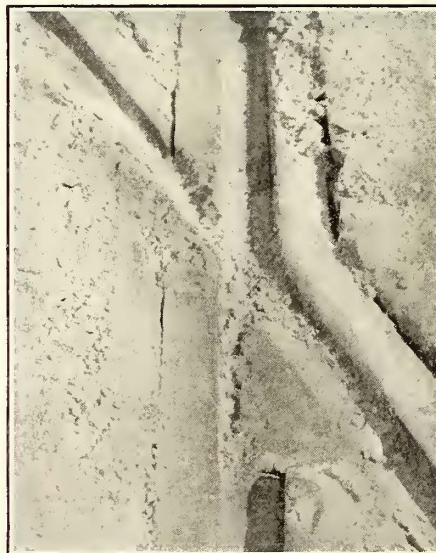
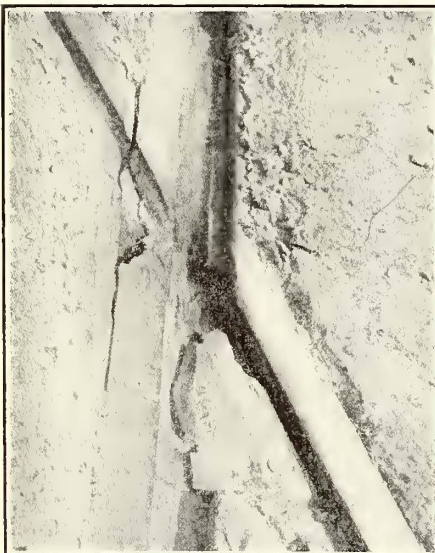
Electric Arc Welding—Typical Built-up Cup-outs Before Grinding

this adds very materially to its sphere of usefulness. One of such pieces of repair work is shown in the accompanying illustration of various parts of car equipment reclaimed in the shops of the United Railroads of San Francisco. This is a cast-iron controller back which was broken into several pieces, but was welded together into its original form without the necessity for any further labor or machine work.

One of the illustrations shows the carriage for the resistance grids used for cutting down the trolley voltage where the current is collected from the trolley wire in order to make repairs to the track. Alongside of this

was stated to be a somewhat difficult task for the reason that the frog was in such a worn-out condition as to be almost beyond reclamation. The railroad officials considered that in this case the frog might better have been replaced. However, it shows the really extraordinary possibilities of the process.

Of the two upper halftones on page 69, one is of a hardened center crossing which has been built up by the welding of additional metal both on the manganese plates where they had become chipped and also on the rail which had cupped out. The operation has undoubtedly prolonged the life of this crossing for several years. The other illus-



Electric Arc Welding—Progress of Repairs to a Badly Worn Frog, Showing Its Condition Before Welding, After Welding and During Process of Grinding

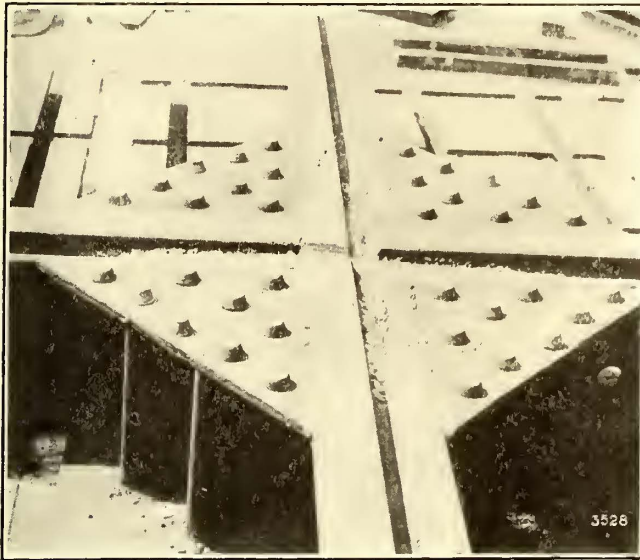
illustration is another showing two cup-outs in the head of a typically worn rail, the photograph having been taken immediately after the welding operation and before the application of the grinder, which is used to grind the filled portion of the rail to a smooth surface even with the adjacent track.

tration shows an electrically welded built-up crossing in which no bolts or rivets have been used. The rivet heads which are on the corner plates are installed merely to keep horses' hoofs from slipping and do not enter in any way into the construction of the crossing.

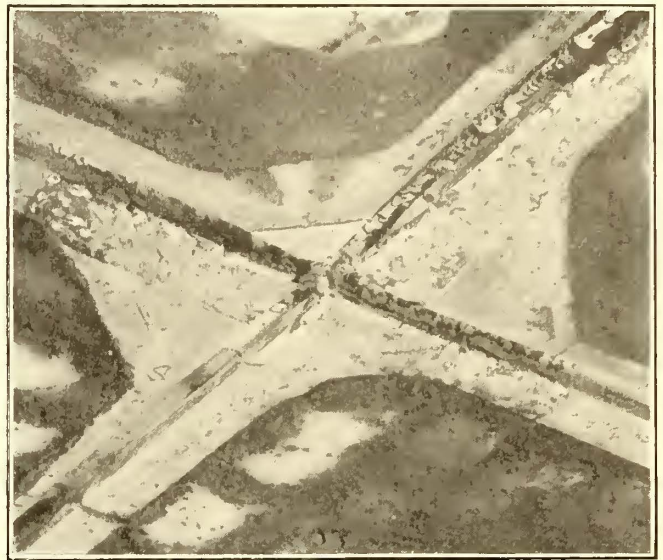
The two illustrations on page 70 show an electrically

welded fishplate and bond which has been proved through actual service on the United Railroads of San Francisco to be able to withstand the severe stresses and strains of the heaviest city traffic. It is stated to possess greater conductivity than the usual bolted fishplate joint with copper bonds and can be made at a cost of from 40 to 50 per

lb. applied to the head of the rail. After this application the rail was reversed and the same load was applied at the base of the rail. The final result of the reversed loads is shown in the photograph. The two rails when welded were close together, and the separation which is shown was caused by the elongation of the fishplates. The joint itself



Electric Arc Welding—Built-up Crossing with all Joints Welded, No Bolts or Rivets Being Used



Electric Arc Welding—Hard-Center Crossing with New Metal Welded Onto Treads and Grooves

cent of that of an ordinary joint. The company has in service over 400 compromise joints, connecting rails of two different sections, and with this welded fishplate installed on them they have met with excellent success. The officials of the road feel that if the joint can withstand the severe stresses of the compromise joint it naturally should prove even more satisfactory for straight rail. The joint which

was found after this extremely severe test to be in perfect condition, with the exception of a very short space along the top of the plate where the elongation of the plate had broken the weld between it and the rail. This elongation of the plate is clearly shown by the patches of scale broken off from it on each side of the rail joint in the form of a roughly shaped triangle, and this would indicate that the



Electric Arc Welding—Apparatus Used for Applying the Arc



Electric Arc Welding—View Showing Apparatus in Use on Track Work

is shown in place in the street was installed during February of last year, and in order to give it severe service the ties were left untamped. It is still in service and reported to be apparently in perfect condition.

The other illustration shows a specimen test joint which had been suspended on 6-ft. centers under a load of 140,000

plate had nearly reached its elastic limit. As the usual spacing between ties is 2 ft., the suspension of a specimen joint on 6-ft. centers provides an unusually severe test, and it is surprising that any joint could have withstood it with so little damage. On a tensile strength test of the joint a load of 380,000 lb. was reached without signs of rupture.

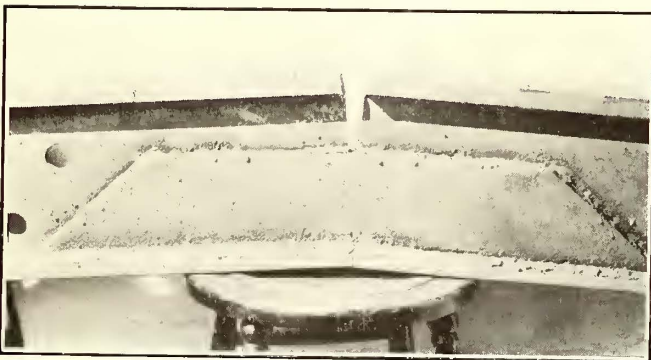
The officials of the United Railroads of San Francisco state that the welding can be done by any intelligent laborer after receiving reasonably thorough instructions, and that, in general, Greek laborers are being used for performing all the operations in the track department. In the repair shop the operators are developed from a similar class of labor for much of the work which is done.

On the Pacific Electric Railway Company a machine



Electric Arc Welding—Welded Fishplate Which Eliminates Necessity for Bonds

similar to those used in San Francisco was placed in service several months ago. This is reported to be kept busy almost all of the time since its purchase and is stated to have done exceedingly satisfactory work in building up cupped rails. It is stated to have prolonged the lives of crossings and special work from eight months to a year, and although there has been no occasion to use the machine on any manganese special work as yet, the operating officials consider that it will prove satisfactory for this service. It is in fact used at present to a considerable extent for cutting rails and boring holes in manganese steel. The operating cost to make a weld in a rail is reported to be



Electric Arc Welding—Welded Fishplate Joint After Test of Reversed Load of 140,000 Lb. with a 6-Ft. Span

approximately \$3, Mexican labor being used, as it has been found that the apparatus does not require any special skill after the operators have been advised how to handle it.

This paper is indebted to Thomas Finigan, purchasing agent United Railroads of San Francisco, for the illustrations and the account of the work on that railway and to E. C. Johnson, assistant chief engineer Pacific Electric Railway Company, for the comments on its practice.

The mechanical department of the Metropolitan Street Railway, Kansas City, Mo., has decided to abandon all other methods of preparing exposed steel in car bodies for paint in favor of sand blasting. This method assures a complete removal of old paint scale, exposing a bright, pitted metal surface to which paint is sure to adhere. If compressed air is available, this is the cheapest of all methods.

ELECTRIFICATION PLAN OF THE CHICAGO, MILWAUKEE & PUGET SOUND RAILWAY

An important step in the electrification of the mountain divisions of transcontinental railroads between the Rocky Mountains and the Pacific Coast was made this week when President A. J. Earling of the Chicago, Milwaukee & Puget Sound Railway announced that that company expected to electrify its main line division from Harlowton, Mont., to Avery, Idaho, a distance of 440 miles. The electrification will be in operation within the next three years, and the number of electric locomotives required is estimated to be between 50 and 100. Nine separate water-power developments will supply the required energy for the full stretch of 440 miles, which traverses the Belt Mountains, Rocky Mountains and Bitter Root Mountains. No contracts have yet been placed, and no detailed plans have yet been made for the electrical equipment, but C. R. Goodnow, assistant to the president, in a recent interview, said that the plans in general provide for the handling of all of the traffic with electric locomotives and that probably the 2400-volt system will be used. Regeneration is being considered seriously and plans for the equipment and overhead construction are being pushed forward rapidly. The installation will be begun within eighteen months and the completion rushed.

Part of the railroad power will be supplied by the Great Falls Power Company, which has secured from the federal authorities for a term of fifty years the grant of a right-of-way across the public domain for a 150-mile transmission line. In fact, the first announcement of the proposed railway electrification was made through a statement by Walter L. Fisher, Secretary of the Interior, that this grant for a right-of-way had been made.

The grant embodies the fundamental principles of water-power policy which Secretary Fisher has been advocating for the past two years and the transmission line, in matter of fact, is already in operation, but it was built under a revocable permit issued in 1909. At that time no better right could be given for any power development, but the agricultural appropriation act of March 4, 1911, authorizing the making of fifty-year grants for transmission, telegraph and telephone lines, provides that the grants are to be made under general rules and regulations to be fixed by the Secretary of the Interior. The act further provides that old lines already constructed can have the benefit of the statute on like "terms and conditions" as new lines. In view of the importance of this application to travelers and shippers by rail, and in further view of the fact that only transmission lines, not water-power sites proper, are involved, Secretary Fisher felt justified in ruling that he has the power to grant the more permanent right obtained. The installation of the new system will involve the expenditure by the railroad of many million dollars and the railroad company was unwilling to invest so large a sum while the power company's rights were revocable in the discretion of the government. Therefore Secretary Fisher's grant is conditioned upon the power company's entering into and performing its obligations under a contract to supply electricity for the motive power of the railroad.

Energy at 110,000 volts and at 60,000 volts will be fed to the railroad company at eight different points on its right-of-way, the minimum requirement for power being 25,000 kw and the maximum for the present 50,000 kw. Ultimately five stations of the Montana Power Transmission Company, three stations of the Great Falls Power Company and the station of the Thompson Falls Power Company will supply the load. The Thompson Falls Power Company is now constructing a 50,000-hp hydroelectric station at Thompson Falls, Mont., and the Great Falls Power Company has also under construction a 130,000-hp hydroelectric development on the Missouri, at Great Falls, Mont.

POWER PLANT EXTENSION FOR THE UTAH LIGHT & RAILWAY COMPANY

An instance of rapid power plant construction will be found in the extension to the Jordan steam station of the Utah Light & Railway Company at Salt Lake City, Utah, which was designed and constructed by Westinghouse, Church, Kerr & Company, constructing engineers, New York City. The original station was built in 1910 and consisted of an 8500-kw single-unit steam turbine station, designed to act as an adjunct to various hydroelectric plants operating in the vicinity and also to form the nucleus for such steam generating equipment as might be later required to serve Salt Lake City.

The new work, which consists of an extension to the old station, comprises in general a brick and steel building, approximately 100 ft. x 60 ft. The building walls rest on a pile concrete mattress composed of 36-ft. piles, overlaid with about 3 ft. of concrete. Condenser intake and overflow flumes are formed in the foundations. The boiler room

through the length of the bunker over the boilers. Ashes are dumped from ash pits into side dump cars, which run on an industrial railroad in the boiler room basement, are lifted to ground level by an elevator and are run out by hand to dump on adjacent land which is being filled.

The new turbine equipment consists of one Westinghouse-Parsons unit of 8500-kw capacity running at 3600 r.p.m. and delivering current at sixty cycles, three-phase, 4400 volts. The unit is served by a Leblanc condenser placed directly beneath it in the turbine foundation, the condenser having turbine-driven air and circulating pumps. The main generator is provided with the usual air ducts for ventilation and is excited by a turbine-driven set of 100-kw capacity. General Electric switching apparatus is contained in concrete cells, and the ring type of bus is used to secure the desired flexibility in switching operations.

The construction of the extension and the installation of the equipment were carried out with unusual rapidity owing to the necessities involved by operating conditions. The extension to the plant was authorized on March 27, 1912,



Utah Light & Power—General View of Salt Lake City Power Plant



Utah Light & Power—General View of Turbine Room Showing New 8500-kw Turbine

consists of a steel frame structure supporting an overhead coal bunker with brick walls and concrete floor and roof. The turbine room is similarly constructed, the only steel, however, being in the crane rails, floor beams and roof trusses.

The new boiler equipment consists of six Stirling boilers and Roney mechanical stokers, supplied with natural draft by means of a radial brick stack 11½ ft. in diameter by 225 ft. in height. The boilers operate at 200-lb. pressure and 125 deg. superheat. The piping is thoroughly modern, designed with welded flanges for high-pressure work and cast-steel fittings and valve bodies. Valve seats, disks and spindles are of Monel metal, particular attention being given to providing for expansion and contraction in view of the high steam pressure and the superheat.

In this station it was not necessary to store coal in large quantities and the coal and ash handling equipment is comparatively simple. It consists of a track hopper into which coal is dumped from railroad cars and carried by an inclined bucket conveyor up to the top of the boiler house, where it discharges on a horizontal belt by which it is distributed

and completed on Aug. 26, 1912. Actual field work was commenced ten days after authorization, so that the time spent in actual construction up to the time when the new unit went under commercial load was only 142 days. The work described in this article was carried out under the direction of O. A. Honnold, electrical engineer Utah Light & Railway Company.

APPROVAL OF MELBOURNE ELECTRIFICATION

It is announced that the resolution providing for the electrification of the Melbourne (Australia) suburban lines, which was recently passed by the lower house of the Victorian Legislative Assembly, has now passed the Legislative Council, or upper house. The plan of Messrs. Merz and McLellan, providing for electrification at 1500-volt direct current, has therefore been approved. It is understood that the contract will be arranged as early as possible. The principal features of the approved report were published in the ELECTRIC RAILWAY JOURNAL for Dec. 14, 1912.

SCHEDULE BOARDS FOR CITY LINES

In the modern American city of 50,000 population and more the quality of the electric railway service rendered is measured largely by the regularity of the schedule. To facilitate the actual arrangement of a schedule or a number of schedules which interspace, the schedule board as described in this article has been introduced on the surface lines in the city of Fort Wayne, Ind. While the purpose and principle of the board were taken directly from the boards in use on many steam roads and some interurban lines, the application to city work, where the track lay-out is generally much more complicated, is comparatively new.

It has been found there that a well-designed board offers to the trained eye a graphical process in which every car will be portrayed, as well as its exact location at every moment during a trip, its relation to all other cars on the same route in both directions and its relation to all other cars on the same and parallel routes at switches, sidings, junctions and turn-outs. In fact, almost any desired condition relative to the car movements can be instantly and accurately determined. In addition to the car movements the exact car speeds can be determined at any point along the

track length, is $\frac{3}{8}$ in. to each half-minute space. For a sixty-minute board, the best one for most uses, this gives 45 in. of time space; and by adding to this the space required for the track lay-out, scales, street names, etc., a total length (or height if used the other way) of from 50 in. to 60 in. is established.

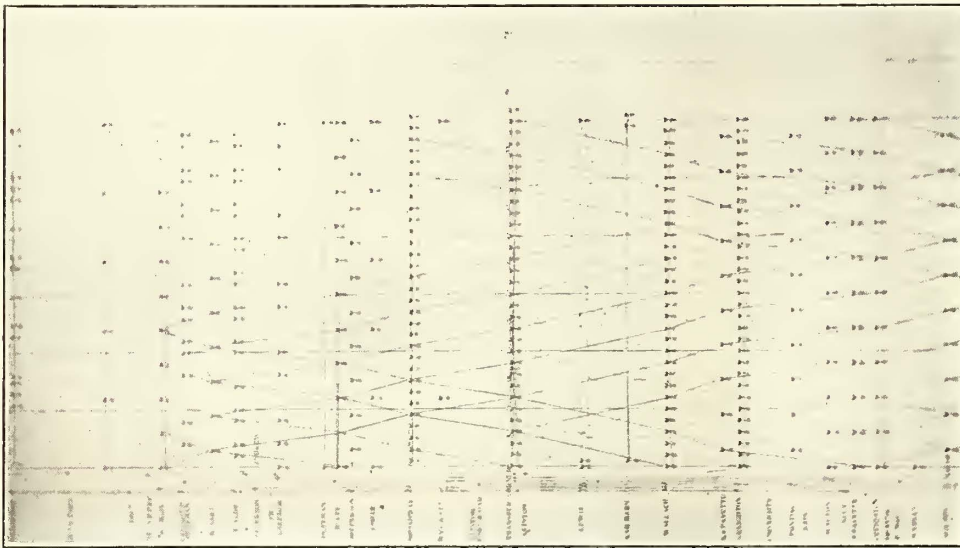
In laying out such a board the best results can be obtained with a ruling pen and inks on a flat white surface. After the lay-out is complete a number of thin varnish coats should be put on to complete the appearance of the board as well as to protect it. In preparing the track lay-out care should be exercised to be accurate and to show the location, diagrammatically if possible, of all points necessary to the make-up of the future schedules. In other words, all topographic conditions, factories and other points affecting operation should be shown.

The actual procedure of arranging any particular schedule by strings will be greatly facilitated if thumb tack plugs are used. These plugs are the ordinary brass furniture tacks used in upholstering, and if the receiving holes are of the proper size they can be most conveniently removed and re-inserted. The size of the hole should be slightly smaller than the shank of the tack and not over $\frac{3}{8}$ in. in depth. The tack must fit the hole snugly but not so tightly as to cause difficulty in removal.

To determine the speed of a car at any point a series of slant lines are drawn close enough to each other to allow the operator to compare the slant of the string with the nearest series of speed lines. These speed lines naturally slant at an angle depending on the scale used. In other words, the speed slant is a function of the distance, vertically, and of the time, horizontally, or vice versa if the board is placed in the position shown in the illustration.

This paper is indebted for the suggestions printed above, as well as for the accompanying illustration, to

C. E. Warwick and R. R. Ritchie, both of Fort Wayne, Ind.



Schedule Board for Four Interspacing Routes, Showing an Hour's Run with 36 Cars

line. The schedule can be made to fit the track and traffic, lessened in some places and increased in others. Where single track plays an important part in the make-up of the schedule, the speed, delays and other conditions can be shown accurately. Lastly, the board can be used in an educational way to instruct inspectors, starters and even the carmen themselves how the running time is determined and what affects the time points which they know to be so important.

The experience at Fort Wayne shows that the following specifications are well suited for the purpose of such a board. It should be made of well-seasoned white pine or other soft wood, 1 in. to 1½ in. thick, depending on the outside dimensions of the board. It should be carefully joined and cleated on the back to prevent warping.

The height should be a direct multiple, to scale, of the longest route combination possible. In some cases where there are suburban lines much longer than this a second scale for such routes may be chosen. A good scale for a line length of 5 miles is $\frac{1}{4}$ in. to 100 ft. Where the length of line is greater than 7 or 8 miles, it is very desirable to have the track lay-out extend horizontally, as in the accompanying illustration, in which case the board can be made long with only the limits of the room as a determining factor. The length of the board depends upon the scale of time chosen. A good value, regardless of the maximum

REPORT OF THE BOSTON TRANSIT COMMISSION

The eighteenth annual report of the Boston Transit Commission, covering the year ended June 30, 1912, has been made public. It is a pamphlet of 218 pages, and reviews the work of the board in the period above stated, with special reference to the completion of the Boston connection of the Cambridge subway, the subways now under construction under Winter Street and in the Back Bay, and the extension of the tunnel and subway leases of the Boston Elevated Railway Company until 1936. A large amount of miscellaneous legislative matter, canvasses of bids, costs of work accomplished and reports upon transit bills is included in a lengthy appendix. The board had expended to the date of its report \$19,120,207 in the construction of subways in Boston, including the Charlestown Bridge.

Work is actively in progress on the Boylston Street subway, which is to be a two-tracked structure about 1.9 miles long designed for large surface cars. It begins at an inclined entrance in the Commonwealth Avenue parkway, at Kenmore Street, and after passing under the Fenway district runs under Stony Brook conduit and Newbury Street to Massachusetts Avenue, and thence through city property

to Boylston Street. It then continues in nearly a direct line in and under Boylston Street to Tremont Street. From this point to Park Street the precise location of the subway and its stations have not yet been determined. Other stations will be located at Massachusetts Avenue and Copley Square. At the lowest part of the subway the track level will be 19 ft. below mean low water of the sea and 27 ft. lower than the surface of the Charles River Basin.

An extension of the East Boston tunnel is now under construction. Under Court Street the grade of the tunnel is to be changed so as to run under the present Scollay Square station of the Tremont Street subway, with a station for the East Boston tunnel traffic at this point. Thence it will continue westerly to Bowdoin Square, coming to the surface near Chambers Street in the West End. A station in the vicinity of Bowdoin Square is contemplated, and the extension, although only 2300 ft. in length, will materially facilitate the entrance and egress of surface cars between Cambridge and Boston, and will permit, so far as required, the operation of through cars between East Boston and Cambridge. Still another important extension now under construction is that of the Boston connection of the Cambridge Main Street subway under Winter and Summer Streets to the South Station, and thence to South Boston and Dorchester.

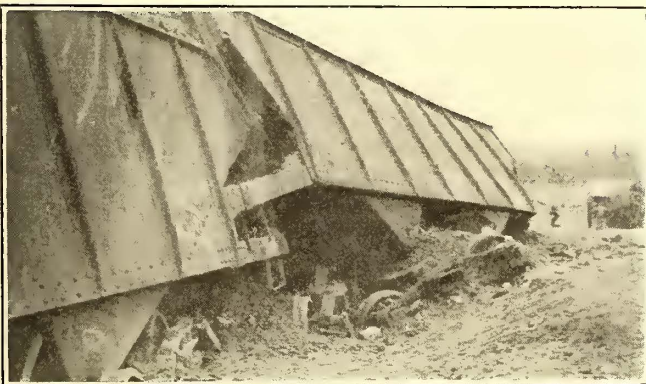
COMMUNICATIONS

A REMARKABLE SERIES OF COINCIDENCES

AUGUSTA-AIKEN RAILWAY & ELECTRIC CORPORATION
AUGUSTA, GA., Jan. 4, 1913.

To the Editors:

Quite accidentally I noticed the frequency of the figures 1 and 3 in connection with a big wreck we had at North Augusta at 3 a. m. on Dec. 29, 1912. There was no loss of life nor serious personal injury. After the first 13 was commented on as being the final figures on Car 25,213, I found a lot of 13's right on the spot. I send you a list I made out the other night, thinking it will have some interest for your readers. I also inclose a photograph of the wreck, just to let you know it was no insignificant affair. The express car was thrown on its side, down the road, a



Accident at North Augusta, S. C.

distance of 190 ft. All trucks were dismembered from the three cars, and they took all sorts of directions. The express car is back in the shop, but the steel gondolas are still in the canal they dug. A track has been built for them to the main line, and jacks are being used to elevate them to the level of the road.

The two gondola coal cars were being shifted from Clearwater, S. C., to the Hampton Terrace Hotel, in that State. The train was handled by the following men: Charles Herron, motorman; Yeoman Padgett, conductor; Thomas Hawkins, colored, helper. Count the letters in each of the names:

- Charles Herron..... 13
 - Yeoman Padgett..... 13
 - Thomas Hawkins..... 13
 - The year was 1912. Add those figures; result..... 13
 - Add the letters in the name of the State, South Carolina. 13
 - It happened Sunday morning. Count the letters in "Sunday morning"..... 13
 - One of the coal cars had defective brakes. It was C. & O., No. 52,150. Get the result by adding the figures 13
 - The other coal car was C. & O., No. 25,213. Take from the five the last two figures, and you have..... 13
 - Or, for amusement, add the figures in the number, 25,213 13
 - The smash-up was on twelfth, 29, 1912. Add the letters in the number of month and the digits in the dates.. 13
 - The cars jumped the track in front of the home of James U. Jackson. See if the letters in his name don't add up..... 13
 - The number of the express car which hauled the coal cars was 130. Cut off the cipher and gaze at beautiful 13
 - The coal cars chewed up thirteen cross-ties. Without purpose in so doing, except to get them out of the way, eight were sent to James U. Jackson and five to George Jackson 13
 - Just for fun, count the letters in the last name—George Jackson, at whose door the cars were demolished. Hush! 13
 - Take the middle figure from the conductor's badge number—123. Once more we get..... 13
 - And what do you get if you take the final figures from the same badge number? Skiddoo!..... 23
- GEORGE H. CONKLIN, Claim Agent.

RIVETED-WELDED JOINTS

CLEVELAND RAILWAY COMPANY
CLEVELAND, OHIO, Jan. 4, 1913.

To the Editors:

I note with interest the article in your issue of Dec. 21, 1912, on "The New Type of Joint for Baltimore." This heading is rather misleading. This is not a new type of joint, although I note in the article that you give a slight credit to me by saying that it is somewhat similar to the "Clark joint." This, of course, is practically so. However, there is nothing about this joint which we have not already developed. In fact, a saving could be made in this joint of about 2 lb. of thermit if the shape of the mold was changed. We found by experimenting, five years ago, that the bottom of the mold under the base of the rail should not be level but should be brought up to within 1/4 in. of the base of the rail at the center. This allows the thermit steel to flow through this opening and heat the base of the rail as it flows by. This change would permit a saving of 2 lb. of thermit to each joint. We also undercut our rails by mitering them at the base three years ago.

Another criticism which I would make of the joint is the fact that the riveting is being done by hand, the rivets being backed up with a "dolley." I am very sure that the plates cannot be made as tight in this way as in our method of using a riveting machine which squeezes the rivets with a 100-ton pressure. Another improvement which we have made, but which is not mentioned in connection with the Baltimore joint, is that we drill our rails 3 1/32 in. from the center of the first hole to the second hole, and the other two holes are spaced 3 in. The joint bars are rolled from the same material as the rail, and the drilling is 3 in. to the center of the first hole and 3 in. from center to center of the remaining holes. This small difference of 1/32 in. in the drilling allows a drift pin to crowd the heads of the rail together.

CHARLES H. CLARK,
Engineer Maintenance of Way.

Messages of the Governors

The Regulation of Public Service Corporations, Minimum Wages and Workmen's Compensation Measures Are Discussed

Legislative sessions are held in nearly all the states this year, and most of the sessions will be begun this month. Among the states where the sessions are now in progress are the following: New York, Massachusetts, Pennsylvania, Rhode Island, Connecticut, Oklahoma, Maine and South Dakota. Extracts from the messages of the Governors of all these states follow:

GOVERNOR SULZER OF NEW YORK

"The question of the conservation of the natural resources of the State, and their development and utilization for the benefit of all the people, is a matter of vital importance to our Commonwealth and demands the most careful consideration at your hands. We should favor the preservation of our forests by intelligent forestry legislation. We should protect our watersheds and utilize to the utmost our numerous rivers as they flow from the hills to the sea.

"To secure for those less accustomed to the competitive struggle protection that other workers have won for themselves through organization, we should carefully consider the establishment of wage boards with authority to fix a living wage for conditions of work below which standards no industry should be allowed to continue its operations.

"Another type of legislation beneficial to the state that aims to conserve human life and health is that which requires the use of safety appliances and establishes safety standards. Practical results of such legislation prove that these regulations are a good investment. Statistics prove that the welfare of the worker is indissolubly involved in permanent industrial progress."

GOVERNOR FOSS OF MASSACHUSETTS

"The railroad situation in New England, and especially in Massachusetts, is such as to cause the deepest concern. In this day and generation no public service corporation can prosper if it lacks public confidence. The continued hostility of the press and the public to the great railroad system upon which we depend is sure to lead to serious results. The situation to-day clearly demands something more than criticism. It behooves us to take fully into account the probability of the acquisition and operation of the railroad systems of the United States by the national government. We must do our part by providing adequate regulation in this Commonwealth to make national ownership and operation unnecessary. The only way to postpone national ownership of railroads and to retain in the Commonwealth the power to regulate our transportation system is to assert that power at once and to apply it without delay. I therefore renew my recommendation, that a powerful public service commission be created, armed with mandatory authority over the public service, so far as this is within the power of Massachusetts to control. This commission should have power to compel the adoption of an interchangeable mileage. It should enforce such train schedules as will provide convenient connections between trains at junction points. This commission should have authority to fix freight and passenger rates on an equitable basis, to examine and audit the books of all transportation companies at any time, and to hold the railroad corporations to a sworn statement of their current operating expenses and disbursements. It must have authority to order the construction of railroad extensions, side tracks and spurs wherever required.

"It is equally important that this commission should have power to supervise and force the electrification of all the railroads within the metropolitan area, and their connection through whatever tunnel system is required to unite our principal railroad and water terminals into a complete system, giving us adequate facilities for rail and deep-

water connections. If you were to fail in this crisis to create a public service commission with mandatory power, this Legislature would fall under just public condemnation. It is your obvious duty to exhaust every means within your constitutional power to regulate our public service and to compel from its existing agencies the full discharge of their duty to the public.

"A second measure, by which the benefits of both private and public ownership may be secured, would be to enact a law providing that henceforth the Governor shall appoint a number or the majority of the directors of every corporation which owns, operates or controls a railroad in Massachusetts, proportionate to the mileage of that railroad in the State. Thus, if every state in which the railroad operates shall pass a like statute, the directors representing these states shall constitute a majority of the board of directors of the railroad. The act should provide further that the Commonwealth shall obligate itself to purchase at any time, at a price to be fixed by a court of competent jurisdiction, any share of stock offered to it for purchase, unless the Commonwealth shall at the time of said offer already have acquired and then hold shares of the capital stock of that corporation equal in proportion to the total capital stock to the proportionate representation of the Commonwealth in the majority of the directorate of that corporation. Also, the directors of any railroad shall not have the power to withhold the declaration and payment of any dividend that has been earned over and above a reserve for depreciation.

"Such a measure would accomplish directly every result which could be achieved indirectly through the condemnation, purchase and operation by the Commonwealth, or any other state, of every mile of railroad over which it has power. It would also preserve to the public every advantage of private ownership and management. It would not only be fair to the stockholders, but would benefit them."

GOVERNOR TENER OF PENNSYLVANIA

"I earnestly urge the early passage of a sane, sound, comprehensive and effective public utilities law, framed along substantially the same lines as that drafted by Attorney-General Bell, which failed of passage at the last session of the General Assembly. No doubt several bills will be introduced concerning this subject. I therefore recommend the early reference of all such proposed legislation to an active committee, which shall forthwith give intelligent consideration to the same, with a view of reporting to the Legislature the best of such proposed enactments, or, if deemed wise, a new or composite bill, which shall contain the best provisions to be culled from any or all of those suggested bills and from the field of such legislation in other states.

"I strongly urge the enactment of the workman's compensation bill, and the other related bills included in the report of the industrial accidents commission, without change in their essential features, and without delay, especially the bill regulating the employment of women and children.

"In my inaugural address I called attention to the necessity of the State exercising jurisdiction over the issuance of obligations by public utility corporations, to the end that such obligations should represent actual value. I renew that recommendation, with the further recommendation that every corporation, company, copartnership or association, organized, proposed to be organized, or which shall hereafter be organized, within or without this State, whether incorporated or unincorporated, shall not be permitted to sell, or negotiate for the sale of, any bonds, stocks or other

evidences of property or interest in itself or any other company, unless subject to regulation and supervision by the proper departments of the Commonwealth, to the end that such securities shall represent actual value only.

"An enlarged application of the water policy already begun by the State, through the co-operative relationship of the Department of Health and the Water Supply Commission, is one of Pennsylvania's greatest needs."

GOVERNOR POTHIER OF RHODE ISLAND

"Public regulation of the public utilities in Rhode Island had been undertaken none too soon, and the efficiency of such regulation should be maintained by vesting sufficient power and authority in the commission to enable it to achieve the results for which it was created. The rates charged for the service rendered by the various utilities are now matters of record with the commission, but with no authority to inspect their securities or to make a physical valuation of their properties, the commission finds it difficult to determine whether or not the rates charged are just, or such as would be warranted to insure a fair return on the capital invested. Provision for such physical valuation of the property of all public utilities operating in the State, and also for the inspection of their securities by the commission, should be made by an amendment to the present law. The commission also should have the power of prescribing proper and uniform accounting methods, and of requiring, from all companies under its jurisdiction, reports of operating expenses and financial and other data. Provision should be made in the law for the appointment of experienced men to act as inspectors of the equipment of steam and electric railways, and of the gas and electricity supplied for public consumption. The most important need, however, is some provision for the physical valuation of utilities and the inspection of their securities, and the General Assembly should enact an amendment to the present law containing such provision.

"I recommend the passage of an amendment to the workmen's compensation act, requiring employers to report all accidents in their several establishments to the commissioner of industrial statistics, immediately after each accident has occurred, upon blanks to be furnished by the commissioner, and also to make to him a further statement as to the settlements made in all such cases, in order that the State may be fully informed as to the benefits which accrue as a result of the law."

GOVERNOR BALDWIN OF CONNECTICUT

"The results attained by the Public Utilities Commission have fully justified the expectations of those who contributed to its creation.

"A commission appointed pursuant to an act of the last General Assembly to consider, among other things, the expediency of adopting a workmen's compensation act has agreed on a bill for such an act, the passage of which it unanimously recommends. The scheme is to place the administration of the remedy mainly in the hands of four commissioners, with an annual salary of \$5,000 apiece and a very moderate allowance for expenses.

"I think three commissioners could do all the business, and that a salary to each of \$3,500, with an allowance of not exceeding \$1,200 for expenses, would be more advisable than a salary of \$5,000 and the allowance for expenses recommended by the commission of not over half that sum. With such changes in these respects as you may think desirable, I should recommend the enactment of the bill."

GOVERNOR BYRNE OF SOUTH DAKOTA

"I believe that the time has come when all public utilities should be brought under control of the Board of Railroad Commissioners and it be given the powers and duties of a general public utilities commission and charged with the duty of regulating service and charges. The basis of successful regulation and control must be the physical valua-

tion of the property in use, the determination of proper standards of equipment as to kind, quality and construction, and an accurate system of accounting to show the gross earnings and the necessary and proper expenses and thus the net income. For this purpose the board should have a competent engineer and expert accountants and the question of proper regulation and control be taken up broadly, comprehensively and with a view to permanent results. Considerations of economy should be kept in mind and the utmost care exercised in appropriating public funds, but it is to be remembered that it would be false economy indeed to fail to put this board in a position where it can accomplish the important work there is for it to do in securing good and efficient service from the public service corporations doing business in the State and saving to the people large sums in rates and charges. The board recommends the enactment of a law requiring the railways to report annually their gross receipts and disbursements at each station in the State. This is a matter of importance, and I especially urge it upon your attention. In this connection I call your attention to the recommendation of the Attorney-General for the enactment of a law providing for appeal from the Board of Railroad Commissioners to the Supreme Court of the State, direct. This recommendation of the Attorney-General relates to an important matter regarding the enforcement of orders of the Board of Railroad Commissioners and should receive your careful attention."

GOVERNOR CRUCE OF OKLAHOMA

"I recommend that you give to the people a law upon the subject of workmen's compensation, framed with the view of dealing out absolute justice to the employer and employee alike, based upon the experience gained from other states in the Union that have adopted such a measure."

GOVERNOR HAINES OF MAINE

"We now have nearly 80,000 wage-earners in the manufacturing plants of the State. Under the rules of the common law now in force in this State, the employer is bound to provide a reasonably safe place in which to work, reasonably safe tools and machinery, to be reasonably careful in hiring competent fellow workmen, and to make proper rules for doing work. Under modern conditions these rules work much hardship and injustice to the wage-earner. Placing the liability for accident upon the employer only in cases where his negligence is established, under these rules, leaves the employee in a hazardous and uncertain condition as to maintenance and support when injured. Under modern manufacturing conditions these rules of the common law can but result in great injustice. That we have outgrown this system in Maine cannot be denied. I believe it to be your duty to pass a workmen's compensation law such as will place our State abreast of other states, for the protection of our wage-earners and the insuring of friendship and a feeling of mutual interest and dependency between employee and employer.

"The question of reasonable regulation and control of persons and corporations furnishing public service of different kinds to the people of our State is one uppermost in the public mind to-day. While our statute contemplates some regulations in some cases in these matters, and the common law undoubtedly clothes our court with such authority, there is no easy and practical way for the average citizen to get at this question; and the public seems to feel that such a means should be provided. I believe that the time has come when a public service commission or court should be established for this purpose. Such a court could do the work which is now done by the railroad commissioners. It may also be vested with authority in the matter of the issue of stock and bonds of corporations, which would tend to give confidence and encourage the investment of capital in new enterprises in our State. I recommend its establishment, with proper authority for the regulation and control of the public service business of the State."

A SIMPLIFIED FORM OF THERMIT RAIL WELDING

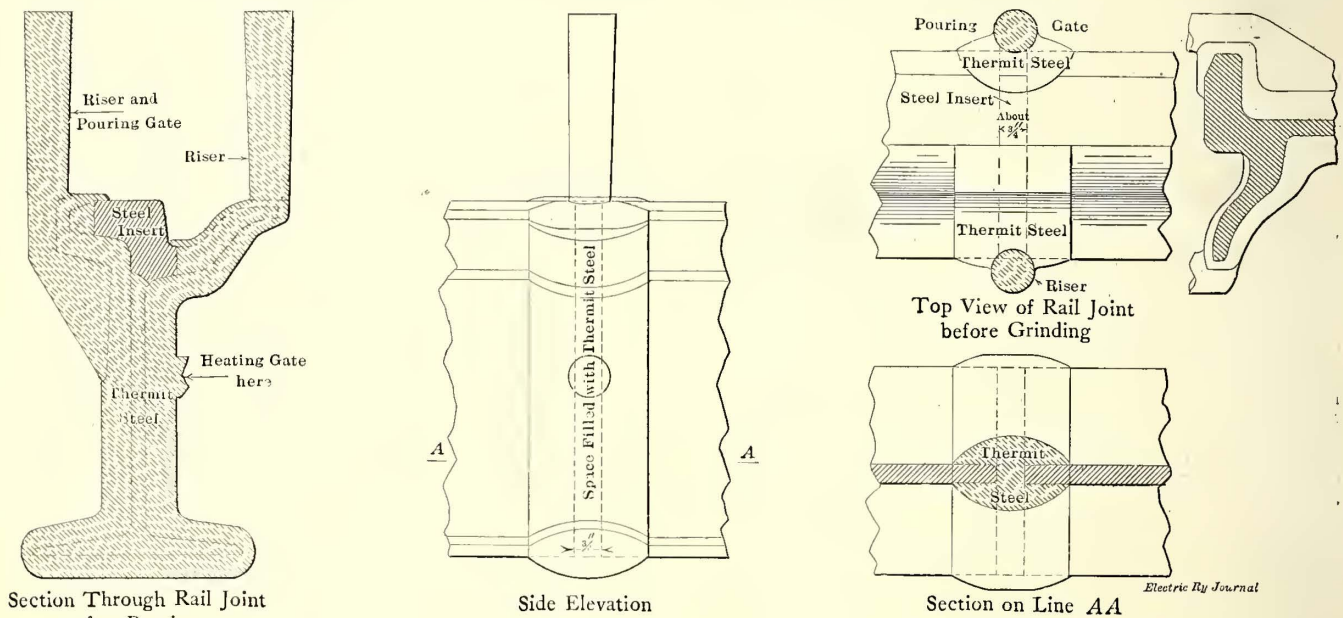
After considerable experimental work, the Goldschmidt Thermit Company announces that it has devised a successful method for welding the entire rail section without incurring the risk of changing the composition or wearing qualities of the steel in the head of the rail. In the method of welding used until recently a space of $\frac{3}{4}$ in. was left between the rail ends. This space was filled with thermit steel, which also flowed around the rail at a temperature sufficient to melt the sections with which it came in contact and to amalgamate with them to form a homogeneous mass when cooled. Although this method proved satisfactory, it involved much preliminary analysis of the rail steel to determine the amount of alloy, such as chromium or nickel, which would have to be added to the thermit in order to produce a steel of the same wearing quality as the steel in the head of the rail. The new method is a modification of the one just described and also of the procedure for thermit rail welding followed in Europe.

In Europe butt welding is most generally used. The reason for two thermit rail-welding methods is, of course, the fact that abroad the high-carbon rail (0.65 per cent to

section with thermit steel, the difficulty was in providing for the welded head a composition which would wear equally with the original rail steel. After considerable testing the following process was developed:

A $\frac{3}{4}$ -in. piece cut from the same rail section as the one to be welded or from a rolled section of the same composition and of the shape shown in the accompanying drawing is introduced between the ends of the rails. Although this insert is cut to fit closely, its retention of its position between the ends of the rails is insured by the process of preheating, which, of course, expands the abutting rails. No clamps are used, as their functions are performed by a thermit weld on the outside edge of the ball of the rail and by another weld on the lip. These welds are made in one operation. The force due to the shrinkage of the two welds compresses and butt-welds the white-hot rail ends to the insert. It should be noted that the usual thermit weld of the base and rail has been retained. From the foregoing description, it is evident that as no part of the wearing surface is replaced with thermit steel, there is no further need for special alloys, chemical analysis of the rails or other preliminary work.

The improved method has been found to result in an ab-



Sections and Elevations Showing Combination of Thermit Welding and Insert for the Head of the Rail

0.08 per cent carbon) is an exception, whereas American rails sometimes contain as much as 0.95 per cent carbon. A low-carbon rail adapts itself very easily to a butt-welding process. The rails are lined up on temporary ties, and a special patented clamping apparatus is adjusted on the rails. An opening is left between the rail ends sufficient to introduce a circular ratchet file. With this the ends of the heads of the rails are very carefully filed to parallel surfaces. The ratchet is then removed and the rails are drawn together by means of the clamping apparatus. The heads of the rails are preheated by a small charcoal furnace, after which the molds are applied quickly. The thermit is then ignited in the crucible, and the thermit steel is tapped into the mold, fusing and forming a collar about the base and web of the rail, while the slag runs over the head. A further addition of thermit is next made and is directly ignited by the heat of the slag, so that the rail head is thus brought to a welding temperature. This takes about four minutes after the pour has been made. The powerful clamp is then again brought into operation, and the heads of the rails become butt-welded. Several modifications of this method, of course, are also used for special cases.

As the American practice has been to weld the whole

solutely continuous running surface of the same composition and hardness as the rail itself. Furthermore, it gives a joint which is stronger than the rail and has but a slightly greater mass of metal at the joint than elsewhere along the rail. The slight extra cost of using the insert is balanced by a decrease in the amount of grinding required to finish off the rail surface with the Goldschmidt Thermit Company's special grinder.

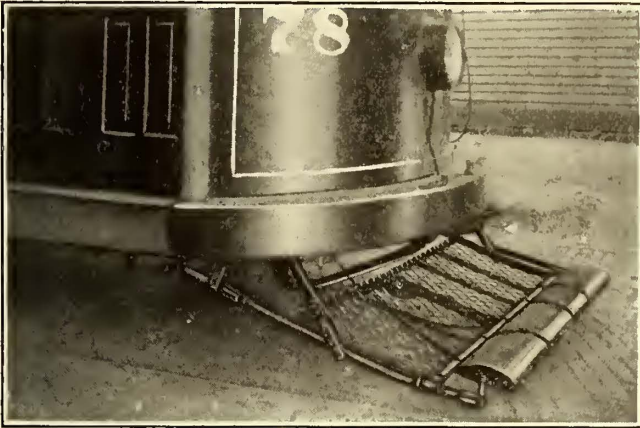
As the physical principles of the new method of welding may not be entirely clear, the following demonstration may be of interest:

Assume that the rails are 30 ft. long and that the contraction is taken up locally in this rail length. Then the total tension put in the rail by the contraction strain due to the welded joint would under good track conditions be about 10,000 lb. per square inch. This strain, however, is distinct from the secondary strain which is set up in the added metal surrounding the insert. If with a $\frac{3}{4}$ -in. gap the steel is made molten for a distance of $1\frac{1}{2}$ in. (the molten steel contracting about $\frac{3}{16}$ in. to the foot), there would be a contraction of $\frac{1}{50}$ in. in this distance, and in the distance of the insert, $\frac{3}{4}$ in., there would be half of this, or $\frac{1}{100}$ -in. If a modulus of elasticity of 30,000,000 is assumed and the insert is considered cold, the strain

produced on this insert would be more than 400,000 lb. per square inch, which force would, of course, rupture the joint. That the joint does not rupture and develops its full strength is proof that the larger part of this strain is taken up in the upsetting of the insert, which, owing to the preheating and to the added heat from the thermit steel, is brought to a welding temperature and is, of course, welded during this upsetting.

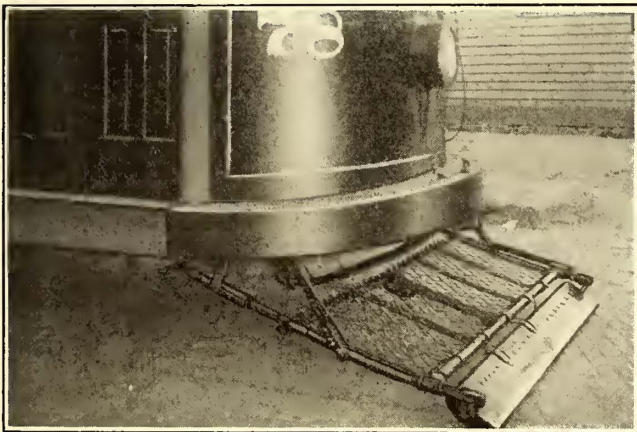
A NOVEL DISAPPEARING FENDER

The Fonger Fender Company, Chicago, has placed on the market a new type of projecting fender which has several unique features. The illustrations show this fender



Disappearing Fender—View Showing Fender in Normal Position with Scoop Held Up by Trigger

in three different operating positions as installed on one of the cars of the Union Electric Company, Dubuque, Ia. The most unusual feature of the fender is a tilting shield at the lower end of the basket which, upon coming in contact with an object on the track, automatically overturns and serves as a scoop in picking up the object encountered.

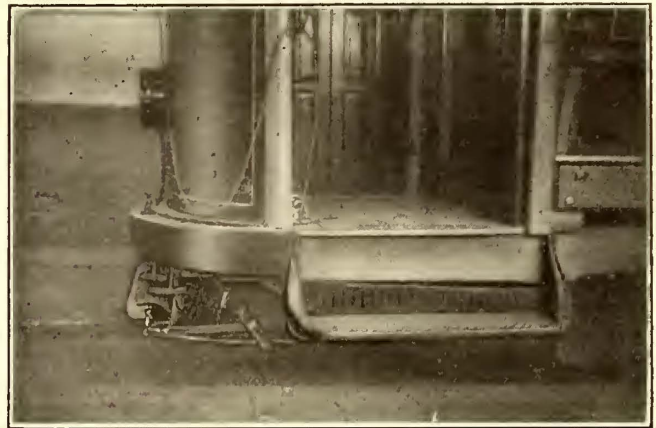


Disappearing Fender—View Showing Fender with Scoop Tilted

In its operating position the fender projects less than 2 ft. beyond the bumper, and it is so attached to the car by pivoted hanger rods that it may be swung out of the way beneath the car when it is at the rear end.

One of the greatest advantages claimed for the new type is that it can be easily released from the operating position by the motorman and swung back under the platform of the car when a collision with a vehicle or other inanimate body is unavoidable. Its position is, in fact, governed by the judgment of the motorman, as a foot lever and chain enable him to set the fender in operating or

carrying position at will. The position of the scoop, however, is governed by a trigger spring which holds it in the normal operating position. After it has been tripped it



Disappearing Fender—View Showing Fender in Concealed Position

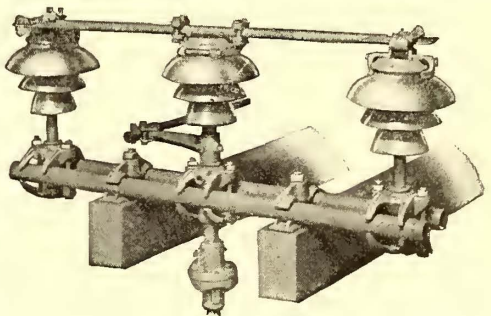
is necessary to reverse the scoop and set the trigger by hand. The fender is constructed entirely of steel with the exception of the scoop, which is made of oak incased in sheet steel.

POLE-TOP DISCONNECTING SWITCHES

Pole-top switches are coming into wider use as the sole switch equipment of the high-voltage side of outdoor substations. Such switches should be made so as to open all poles at once from the ground, in order to insure the safety of the operator. As made by the Electrical Engineers Equipment Company, of Chicago, Ill., they can be obtained in single, double, triple or four-pole types of either the single-break or double-break feature per pole, as well as with the combination of these features for use in connection with fuses.

A single pole of a 30,000-volt, 150-amp pole-top switch of the double-break type is shown in the first illustration. The contacts are of the flexible, self-aligning type. The switch is furnished so that it can be locked in either the open or closed position as desired. This style of switch, when equipped with discharging horns, can break considerable loads.

A triple-pole, 22,000-volt, 100-amp pole-top switch of the single-break type is shown in the second view. This style of switch can readily be mounted either vertically or horizontally, since the control handle adapts itself to either mounting, as well as at either the center or the end of the switch as desired. The switch illustrated in this view is not equipped with fuse tubes or fittings, but can be so furnished if required.

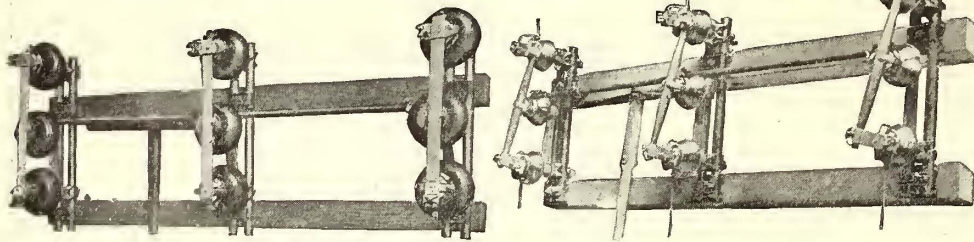


30,000-Volt, 150-Amp Pole-Top Switch of Double-Break Type

The third illustration shows a triple-pole, 15,000-volt, 100-amp combined switch and fuse, the usual switch blade in this type being supplanted by a hickory tube, boiled in linseed oil, dried and then varnished. The hickory tube

contains the fuse, which is readily renewable. The switch and control handle can be mounted in a manner similar to that described above.

All three types of pole-top switches have been so designed that the work required for installing them is of the simplest nature, consisting of bolting the switch units, which are shipped completely assembled, to the arms and attach-



22,000-Volt, 100-Amp Pole-Top Switch and 15,000-Volt, 160-Amp Switch and Fuse

ing the control. The switches are built with clamped pipe arms and are capable of adjustment in every way, thus affording a rigid construction readily adaptable to standard pole line framing. It is only necessary for the user to furnish the required pole and cross-arm work.

Of the many uses to which switches of the pole-top type have been put, the most usual are opening branch lines, disconnecting transformer banks, diverting energy past substations when installed upon the roof, disconnecting portable substations from high-tension lines of electric railways, and as line sectionalizing switches.

CITY CAR WINDOW-GLASS TEST

The service obtained from car window glass has received little attention from electric railways, yet window glass is a continued source of expense. This expense is not only attributable to glass renewals, but broken glass often results in personal injury claims. It is also practically impossible to obtain perfectly clear glass of a uniform thickness for cab windows, where clearness is especially desirable and when the glass must stand severe wind strains. Another desirable feature is that if the glass has these qualities it must also withstand the sandblast action of dust and remain perfectly clear as long as it lasts.

In 1910 a large street and interurban railway system in the Central West received forty-four double-truck, closed-

were operated along with the new ones so that service conditions would be exactly similar.

The mechanical department had had previous unsatisfactory experience with polished plate glass, and it was not considered in this test, as it had been found to cost more than the double-strength or the blown glass, and did not give the desired strength in service tests with interurban equipment.

The service tests from which the accompanying data were collected extended from Jan. 1, 1911, to Dec. 30 of the same year. The difference in the sizes of glass used, noted in the column containing this information, was due to the fact that a stock of one kind of glass was on hand, while the other was purchased to size. The stock of double-strength glass consisted of approximate sizes for general use, it being considered better economy to keep approximate sizes and cut to fit rather than pay

	Double Strength	Blown Glass
First cost of total glass per car, plus replacement per year	\$19.10	\$44.35
Weight of total glass per car, lb.....	361	495
Average cost of replacement per car per year.....	\$8.41	\$1.69
Interest on investment, at 5 per cent. per car per year..	1.36	2.30
Cost of hauling, at \$0.05 per lb. per year.....	18.05	24.75
Total cost	\$27.84	\$28.74

interest on the large stock required to supply renewals for the large number of cars in service. The blown glass was purchased in two thicknesses, 5/32 in. for areas under 5 sq. ft. and 3/16 in. for areas more than 5 sq. ft.

Although the first cost of the blown glass was about three times that of the double-strength, the saving made in cost of renewals at the close of the test was 80 per cent, or \$271.42 for forty-four cars. In addition to the saving in money the blown glass which remained in the cars gave no evidence of any sand-blast action, which could be seen very plainly in the double-strength cast glass.

Before drawing definite conclusions as to the economy to be obtained in changing to the higher priced glass, the question of car weight reduction and cost of hauling was investigated. It was found that when cost of replacement,

TABLE SHOWING THE COST OF GLASS REPLACEMENT DURING A YEAR'S TEST

Forty-four Cars					Forty-four Cars				
Ordinary	Double-Strength	Cast Glass	Broken.	Forty-four Cars	Imported	Cylinder-Process	Blown Glass	Broken.	Forty-four Cars
No. Pieces	Size	Cost	Labor Resetting	Total Cost	No. Pieces	Size	Cost	Labor Resetting	Total Cost
34	14x38	\$6.12	\$8.50	\$14.62	8	10 x24	\$2.21	\$2.00	\$4.21
2	18x30	.38	.50	.88	2	10 x28 5/8	.66	.50	1.16
44	18x36	10.56	11.00	21.56	5	11 3/4 x38	3.15	1.25	4.40
9	20x36	2.34	2.25	4.59	2	16 x33 1/2	1.07	.50	1.57
444	24x24	92.00	111.00	203.00	5	18 x23 1/2	3.10	1.25	4.35
9	24x26	1.97	2.25	4.22	5	18 x35 5/8	4.27	1.25	5.52
84	24x30	21.25	21.00	42.25	1	21 1/2 x23 1/2	.71	.25	.96
37	24x38	12.95	9.25	22.20	5	22 1/2 x38	7.70	1.25	8.95
2	26x30	.55	.50	1.05	26	23 1/2 x24	20.30	6.50	26.80
2	30x30	.64	.50	1.14	6	28 5/8 x34 5/8	8.72	1.50	10.22
37	30x36	14.80	9.25	24.05					
Totals..	704	\$163.56	\$176.00	\$339.56	Totals..	65	\$51.89	\$16.25	\$68.14

type cars from the Cincinnati Car Company. The specifications covering this rolling stock required that the cars be glazed with a special quality of imported blown glass. The master mechanic had heard of the advantages claimed for this material but wanted to verify the claims to his own satisfaction. After these forty-four cars had been in service for some time his attention was called to the almost negligible amount of breakage, as compared with cars glazed with ordinary double-strength glass, as well as to the clearness of the glass after considerable service. On receipt of this information forty-four more cars of the same design were selected and glazed with the ordinary double-strength cast glass. To make the test conclusive these cars

interest on investment at 5 per cent and cost of hauling at \$0.05 per pound per car per year was considered, the total cost of the special glass was \$0.90 per year in excess of the double-strength glass. This small difference could not be considered to offset either the charges coming from the claim department due to broken glass or the advantages of the clear condition of the blown glass after long service. Another item which had to be taken into account was the time consumed in selecting perfectly clear double-strength glass of a uniform thickness for vestibule sashes. In view of these indirect savings it was decided that the special glass would be more economical and should be adopted as standard.

News of Electric Railways

Pacific Electric Railway Development Plans

Paul Shoup, president of the Pacific Electric Railway, Los Angeles, Cal., has addressed a letter in part as follows to the Public Utility Commission of Los Angeles in reply to the letters from the commission published in the *ELECTRIC RAILWAY JOURNAL* for Jan. 4, 1913, page 48, recommending the addition of cars for use in the city:

"This company has the following equipment, due in Los Angeles, according to the latest advices from the factories, in January or February: Forty-five interurban cars, latest improved type, similar in general design but seating eight more passengers than our present Pacific Electric Railway interurban cars; ten center-entrance, all-steel type, seating fifty-two passengers, suitable for short suburban runs; ten pay-as-you-enter, end-entrance type, seating forty passengers, our present standard city type. We have also ordered for delivery within six months twenty center-entrance stepless cars, similar to type in use in New York City. As soon as these cars are received and we determine whether they are satisfactory we will order an additional thirty, or if we evolve a better type, will order thirty of the latter.

"Further, we are about to order twenty long-distance interurban cars, superior, we think, to any interurban cars heretofore designed, for use on long-distance runs, which we expect to have by the time our line is completed from Los Angeles to San Bernardino and Riverside. Within ninety days a further order of twenty-five interurban cars similar in type to those we expect to receive during the next two months will be placed. The cost of the above equipment will be about \$1,600,000. The foregoing does not include any of the investment in new electric locomotives and freight cars which we are ordering or have recently ordered. I trust this will satisfy you that we are keeping abreast of the progress of Southern California. The Pacific Electric Railway is trying so to do in the matter of new extensions, of adding to its equipment and in the reconstruction and betterment of existing tracks through replacing light rail with heavier rail, ballasting tracks, etc.

"Our earnings show that during the first five months of the present fiscal year beginning July 1, compared with the corresponding months of last year, we have been providing 4.4 per cent greater car mileage than has been the increase in our revenue—in other words, on the whole, we are giving 4.4 per cent greater accommodation for the same number of passengers. With the Pacific Electric Railway the difficulty is not so much one of car shortage as it is one of street congestion, and your board is quite familiar with the co-operative efforts of the city and of the railway made during the last six or eight months to work out this problem. Increasing the number of cars will not aid materially if they cannot be got through the streets promptly at rush hours, but I am hopeful that the use of San Pedro Street will materially lessen this rush-hour congestion.

"However, this is not a measure of permanent relief, and that can be secured only by the co-operation of the city through liberal franchise provisions in connection with interurban railways on private rights-of-way which will justify the exceedingly heavy investment necessary to make and keep easy of access to the business heart of Los Angeles the surrounding territory within the radius of Pacific Electric Railway service. Indeed, with such co-operation from the city, I think we may reasonably expect the territories so served to be with Los Angeles one great urban and suburban community. So fully has this subject been discussed that it is perhaps hardly necessary again to point out that if the electric railways serving Los Angeles and the surrounding territory are to be enabled to promote and keep pace with the growth of this city and its tributary country, the policy of the city toward investments made and yet to be made must be one that will assure protection since the railways must, in securing their funds, compete with all other forms of possible investment and they will be able to secure funds in such competition only as they, in proportion, can demonstrate assurance of safety for the investment and a fair return thereon to the investor."

Re-routing Plan in Operation in Cleveland

Under the re-routing plan put into operation at Cleveland, Ohio, on Jan. 1, 1913, the interurban cars were forced to stand on Prospect Avenue while awaiting passengers for their regular trips. This was found to be very inconvenient for both the companies and the passengers, and Street Railway Commissioner Witt has consented to permit the cars to stand on Champlain Street, which is nearer the Public Square. In departing from the city the cars are routed over Superior Avenue for a short distance to pick up passengers who do not desire to go to them on Champlain Street.

Mr. Witt states that fifty new motor cars will be in operation within a few months. It will not be long until the company will have 1200 cars in operation.

Express cars have been put into operation on the Clifton Boulevard line. After leaving the business section of the city they make few stops until they reach the section of the city where most of the passengers reside who patronize the line. Passengers pay their fares as they leave the cars. They enter at the front door and leave by way of the rear platform. In that way it has been necessary to make only a slight change in the location of the fare box.

The Electric Depot Company has purchased about three acres of land fronting on Eagle Avenue and East Ninth Street, in order to be prepared for the increasing package business and the electric freight business, if the interurban lines finally take up that branch of transportation. This will depend upon the action of the City Council in regard to granting the right to haul freight cars over the tracks of the local company. It is believed, however, that some arrangement will be made to that end. The depot company will not make any additions to its buildings now, but will hold the land in readiness for future use.

The G. C. Kuhlman Company, Cleveland, was the lowest bidder on the fifty new motor cars that are to be built for the Cleveland Railway.

It is said that the actual surplus from operation for December, 1912, will be between \$6,000 and \$8,000, while the franchise surplus will be about \$25,000. The total receipts for the month are about \$575,000.

Public Hearings on New York Subway Operating Contracts

The Public Service Commission for the First District of New York has concluded its conferences with the officers of the Interborough Rapid Transit Company and the Brooklyn Rapid Transit Company over the terms and conditions of the proposed operating contracts for the dual system of rapid transit, which is to cost more than \$300,000,000. The law requires that public hearings shall be held on such contracts before they are executed. Accordingly the commission has called for public hearings as follows:

On Jan. 14 at 10 a. m. on the proposed contract with the Brooklyn Rapid Transit Company for the construction by the city, with a contribution by the company, of the Broadway and Centre Street Loop subways in Manhattan, a tunnel under the East River and the Fourth Avenue Subway and its extensions, and the Eastern District subway in Brooklyn, and for the operation of such lines in conjunction with the existing elevated railroad system of the Brooklyn Rapid Transit Company.

Jan. 14 at 2 p. m. on the proposed contract with the Interborough Rapid Transit Company for the construction by the city, with a contribution by the company, of the Lexington Avenue and Seventh Avenue subways in Manhattan, the Steinway tunnel, a new tunnel under the East River to Brooklyn, and the Eastern Parkway and its extensions in Brooklyn; also for the construction by the city of the Corona and Astoria rapid transit lines in Queens, for operation by both companies.

Jan. 17 at 10 a. m. on the proposed certificates to the Interborough Rapid Transit Company and the Manhattan Railway for the right to construct and operate certain ex-

tensions to and third-tracks upon existing elevated railroads in Manhattan and the Bronx.

Jan. 17 at 2 p. m. on the proposed certificate to the New York Municipal Railway Corporation (Brooklyn Rapid Transit) for the right to construct and operate third-tracks upon existing elevated railroads in Brooklyn and Queens.

Jan. 18 at 10 a. m. on the proposed certificate to the New York Municipal Railway Corporation for the right to construct and operate certain extensions of existing elevated railroads in Brooklyn and Queens.

After these hearings are held the contracts and certificates will be put in permanent form, adopted by the commission and transmitted for approval to the Board of Estimate and Apportionment, after which they will go to the companies concerned for acceptance and execution.

The Public Service Commission for the First District has received the report of the commissioners appointed by the Appellate Division approving the Whitehall Street-East River-Montague Street rapid transit route and the order of the court confirming the report. This is the route selected by the commission for the Brooklyn Rapid Transit Company's tunnel to connect the proposed Broadway subway in Manhattan with the Fourth Avenue subway in Brooklyn. Commissioners were appointed by the court on the application of the commission because it had been impossible to obtain, as required by law, the consents of property owners to the extent of a majority in value of the property along the route for the construction of a rapid transit railroad thereon.

Geary Street Municipal Railroad.

The placing in operation of the first section of the Geary Street Municipal Railroad, San Francisco, Cal., on Dec. 28, 1912, was attended with elaborate ceremonies in which practically all of the city officials of San Francisco participated. The first car carried among its passengers the Mayor and the city treasurer, and George Schaver, construction engineer, and C. E. Heise, of the Westinghouse Company. The operation of the property is in the hands of T. A. Cashin, who was formerly superintendent of the Fresno (Cal.) Traction Company. Ten cars are being used at present, but forty-three semi-steel, double-end pre-payment "California" type cars, seating forty-eight passengers each, are under construction by the W. L. Holman Company, San Francisco. The section which is in operation is about 5½ miles long. The carhouse is at Presidio and Point Lobos Avenues. It is constructed of concrete and steel and has a storage capacity for sixty cars. It was built at a cost of \$228,363. A contract has been entered into with the Pacific Gas & Electric Company for the purchase of power, and current is delivered at 600 volts to the feeders of the railway at Kearny and Geary Streets, Broderick and Geary Streets and Presidio and Point Lobos Avenues.

The Geary Street Municipal Railroad is built over part of the route formerly occupied by the Geary Street, Park & Ocean Railroad, the franchise of which expired in 1903. With the expiration of the franchise the first municipal bond issue to build the road was proposed by the Supervisors, but this was defeated as the vote in favor of the plan did not meet the charter provision which required a two-thirds vote in favor of any expenditure of this kind. The second election to effect this purpose was held the following year and the proposition again failed to carry. Nothing more was done in this connection until 1907, when an issue of \$720,000 of bonds was authorized by the Supervisors. Suit was brought to nullify this action, and the Supreme Court upheld the contention that the Supervisors had acted without authority. In June, 1909, the plan to issue bonds to provide funds to construct the road was again defeated by the voters. In December of that year, however, on re-submission of the proposition the proposal was carried. An injunction was secured, but the case was decided in favor of the city, and on appeal the Supreme Court of California affirmed the decision of the lower court. In February, 1911, the Legislature of California passed a bill to insure the legality of the bonds, and in April, 1912, the entire issue of bonds was sold to Adams & Company, Boston.

The contract for building the road was awarded on April 1, 1912, to Bates, Borland & Ayre, but that firm forfeited the contract and new bids were called. On April 17 the

contract was awarded to B. H. Mahoney. He was allowed 180 days to complete the work, with a bonus of \$200 for every day which he saved in carrying out the work. The operation of cars over the route by the Geary Street, Park & Ocean Railroad was suspended on May 5, 1912, and the construction of the municipal railway was begun on May 7, 1912.

Following is a statement compiled by the Board of Works of San Francisco in regard to the expenditures on the road:

Bonds authorized	\$2,020,000
Geary street construction.....	\$1,900,000
Market street extension.....	120,000
Bonds sold	1,900,000
Premium	2,341
	<hr/>
Bonds to be sold	\$1,902,341
	120,000
	<hr/>
Grand total	\$2,022,341
Estimated expenditure to date.....	1,543,721
	<hr/>
Balance	\$478,620

The principal expenditures of construction, right-of-way, buildings and equipment are as follows:

Trolley poles and overhead wires, labor and material.....	\$27,952
Track construction, day labor, Fifth to Thirty-third and Tenth Avenue	97,647
Track construction and paving Kearny to Fifth Avenue.....	267,490
Paving right of way Fifth to Thirty-third and Tenth.....	62,737
*Paving right-of-way Kearny to Devisadero.....	7,244
Purchase of cars	337,725
Carhouse construction, possible extras and bonus.....	228,363
Electric conductors	64,705
Underground conductors, Kearny to Presidio Avenue.....	31,151
General construction, materials, supplies, etc.....	276,701
Lands and miscellaneous.....	114,171

*Balance expended for this purpose included in track construction.

New Jersey Gas Decision

On Jan. 6 Thomas N. McCarter, president of the Public Service Corporation of New Jersey, announced that the Public Service Gas Company would accept the order of the Public Utility Commission to establish a 90-cent rate for gas beginning on Feb. 1, 1913. This order was published in abstract in this paper last week. The company reserved to itself, however, the right to test at its convenience the legality and constitutionality of the board's valuation of its property upon which the order was based. The company will also establish the same reduced rate for gas on May 1 for the other divisions of the company's business, to remain in force, unless changed by the commission, pending the termination of the litigation of the principle of valuation upon which the order in the Passaic division case was made.

The Board of Public Utility Commissioners has accepted this date of May 1 as reasonable. It also adds that "the board approves the desire of the Public Service Gas Company to test the legality and constitutionality of the principles of valuation on which the board's order was based. The public, the company and the board should welcome a definitive adjudication of this matter."

President Brown of the New York Central Favors Permanent Arbitration Body

W. C. Brown, president of the New York Central & Hudson River Railroad, is reported by the *Evening Post* of Chicago to have declared himself emphatically in favor of action by Congress at the earliest possible date to make compulsory the arbitration of all public service labor troubles, with the public recognized as one of the three main groups at interest. Mr. Brown is quoted in part as follows in regard to the labor situation as it affects the railroads:

"One of the most significant and important results of the arbitration of the controversy between the locomotive engineers and the Eastern railroads is the emphasis that is placed upon the fact that the public is a party, and a very important party, to all controversies of this character. When public service corporations and the labor organizations are a unit in recognizing the public's right in these disputes we shall have come to a basis where controversies of this character will be less frequent and more easily settled. The report of the arbitration board is one of the most able and exhaustive that have been made, and I should like to see Congress take up the recommendations in regard to some permanent form and method of arbitration of labor

troubles between employees of all public service corporations and the corporations themselves and express them in a statute which will clearly define the rights of the three parties to all controversies of this kind, so as to prevent interruptions of the orderly conduct of the business of these concerns, which are so closely related to the public and upon which the public depends for light, water, heat, power and transportation."

The Yonkers Strike

Up to Jan. 9, 1913, no attempt had been made to operate the cars of the Yonkers (N. Y.) Railroad. The Chamber of Commerce suggested that the employees return to work pending arbitration, but this the men refused to do on the mere assurance of that body. Mayor James F. Lennon of Yonkers sent a letter to President Whitridge on Jan. 5, recommending an arbitration committee of three, one to be selected by the strikers, one by Mr. Whitridge himself, and the other to be mutually agreed upon, or in case this proved impossible the third member to be appointed by the Mayor himself. Mr. Whitridge in reply said in part:

"So far as my willingness to negotiate with the men is concerned, I sent for them and told them substantially what I have told you and what is contained in my published statement, and I emphasized particularly that, while in the nature of things there could not be any binding agreement with Mr. Sutherland in respect to these matters, I had not the least intention of replacing them, or of interfering with Mr. Sutherland's settled policy, which is as stated, and I explained to them, at considerable length, the reasons why the person they objected to had been appointed, and at the time of their interview with me they seemed to recognize the justice of what I said and quite to understand that this man's appointment was not in any way to be regarded as a precedent or a breach of any understanding. I thought my interview with them was entirely satisfactory to them, and I was greatly disappointed to find that they should have twisted it, after some hours, into something quite different from what I said."

Mr. Whitridge also said in his communication to the Mayor that he had not received any specific statement of the reasons why there was a strike. From the public press he understood that after the strike took place the men formulated objections to certain rules and thereafter adopted resolutions adding to their demands so that at the time of his letter to the Mayor he did not know whether he was dealing with the first thought, the second thought or the third thought of the men. He suggested to the Mayor that the men state the cause of the strike in writing. At the same time Mr. Whitridge addressed a communication to the men in which he said that he felt sure they did not understand the attitude of the company and that they had been deliberately and grievously misled. He also reviewed the statements which were contained in his communication of Oct. 29, 1912, to the committee representing the men.

On Jan. 8 Mr. Whitridge made public another letter to Mayor Lennon in regard to the strike. He said:

"I believe it is my duty, as a public servant, to see that this strike is settled permanently when it is settled, not in any makeshift fashion which will enable it to be renewed every three or six months. I see only three ways in which this can be done: By the repeal of this pro-strike ordinance, the operation of which is now so disappointing to the men; by a legal decision which will enable me to man the road and run it; by the return of the men to work voluntarily.

"If I find a disposition on the part of the men to resume, I shall then be prepared to state the conditions, in addition to those referred to in my statement on Jan. 1, on which they may come back. I may be permitted to add that what I have said in writing is not to be regarded as a mere form of words, but is a precise statement of facts and my intentions. Finally, I venture to feel quite sure that in demanding a permanent settlement, which will permit discipline to be enforced and prevent a recurrence of these performances, I have the hearty support of the good people of Yonkers, in whose interest as well as that of the company I have taken up my position."

In a statement which he issued at Yonkers on Jan. 2 Mr. Whitridge referred to rules which he had made to prohibit men in uniform from drinking, requiring conductors to stand

on the rear platform, and demanding that all men who desired to be excused for sickness present a doctor's certificate. He said these were requirements in the interest of the public, and that experience had shown that such rules were necessary and that he intended they should be enforced.

A local ordinance of Yonkers complicates matters by requiring men to have fifteen days' instruction on the cars operated in Yonkers before they can qualify as motormen or conductors.

Electric Service to New Haven by July.—Charles S. Mellen, president of the New York, New Haven & Hartford Railroad, is quoted as stating that the completion of the work of electrification between Stamford and New Haven, Conn., should occur about July 1, if everything goes as planned.

New Ohio Road Opened.—The Cleveland, Alliance & Mahoning Valley Railway was placed in operation between Ravenna and Alliance, Ohio, on Jan. 2, 1913. Cars are run on an hourly schedule. As soon as repairs have been made to the bridge over the tracks of the Baltimore & Ohio Railroad the cars will be operated to the business district of Ravenna.

Preliminary Tax Assessments in Wisconsin.—The State Tax Commission of Wisconsin has fixed the preliminary valuation of the twenty-eight electric railways and the light, heat and power companies in Wisconsin at \$55,505,000. This is an increase of nearly \$8,000,000 over the final assessment of these companies last year, which was fixed at \$47,365,000. The largest valuation is that of The Milwaukee Electric Railway & Light Company, the property of which is valued at \$30,500,000. Last year the property of the company was valued at \$26,750,000. The property of The Milwaukee Light, Heat & Traction Company is valued at \$8,250,000 in the preliminary report, as compared with \$6,500,000 in the final assessment last year.

Proposal in Regard to Re-routing Suburban Cars in Cincinnati.—J. C. Ernst, president of the Cincinnati, Newport & Covington Light & Traction Company, Covington, Ky., has informed Mayor Hunt of Cincinnati that the changes deemed necessary for re-routing cars as desired by the city will necessitate the expenditure of about \$32,000 by the company. Since the company's franchise will expire in about three years Mr. Ernst said he did not consider it fair to the company to require it to make such an expenditure at this time. Mayor Hunt has suggested that the City Council grant a special franchise to the company in the streets to be used under the re-routing plan, the new grant to continue in force until the expiration of the original franchise and the company to be reimbursed on the basis of the value of the track if the franchise is not renewed.

Reasons for Activity of Tractions on Change.—The writer of the column "News for Investors," which appears daily in the New York *Evening Sun*, referring to the recent activity in the trading in the traction issues on the New York Stock Exchange, said: "The tractions are neither prosecuted for restraining trade nor threatened with reductions in rates. In the Supreme Court they figure not at all. Their earnings never fall below what they were last year, and if they suffer any radical change it is all in favor of the investor. Public Service Commissioners may make them put in center-door cars and ventilating systems and electric lights, but for every electric light or ventilator there is another new passenger, and the center side doors are not to let people out but to let them in. The crops do not fail along their lines and people do not stop riding on elevated or subway trains when trade happens to be poor—which are some of the reasons why Stock Exchange traders turn to the traction stocks to the neglect of the others in the interim of waiting for a decision in the Minnesota rate case and a solution of the Union Pacific-Southern Pacific puzzle."

Pittsburgh Subway Matters.—At a special meeting of the service and surveys committee of the Council of Pittsburgh, Pa., on Jan. 6, 1913, the report on the subway ordinance with its amendments was presented. This ordinance was referred to the law department recently for an opinion.

Several amendments were added to the ordinance by councilmen. Charles K. Robinson, who appeared for the law department, said that he was not in favor of any company being compelled to pay part of the salaries of the board of supervisors and would leave that proposal to the judgment of the members of the Council. Mr. Burns raised the question of the disposition of the ordinance if the detailed plans were not approved. Mr. Wilkins said that in building subways all of the detail plans could not be agreed upon at the time of the passage of the ordinance. He thought that by adding a clause which would provide for the consideration later on of such detail plans as might be necessary the matter could be advanced. It was finally agreed that the ordinance should become null and void if the Council and the company to which the award was made could not reach an agreement in regard to such details within ninety days after the passage of the ordinance.

Report of New Jersey Board.—The Board of Public Utility Commissioners of New Jersey has submitted its annual report to Governor Wilson. A considerable part of the report is devoted to the subject of the elimination of grade crossings. The work of the year in disposing of rate cases and other matters is also reviewed. Notwithstanding the density of railroad traffic in New Jersey, the large number of trains which are operated and the many passengers carried, the commission points out that there have been no collisions between passenger trains and no derailments of passenger trains during the year in which passengers have been killed. The report concludes with suggesting a number of amendments to the present law, the purpose of most of which is to make clear some of the provisions regarding which questions have been raised. One suggestion is the repeal of the act of 1911 which limits the annual total expenses of the commission to \$100,000. The board expresses the opinion that the Legislature might make more explicit its intent in enacting the provision of 1911 that no franchise granted to any public utility shall be valid until approved by the board. Similar suggestions are made regarding the provisions of the act of 1911 relative to the proposed issues of stocks, bonds or other evidence of indebtedness and the purposes to which the proceeds are to be applied.

New Orleans Company to Build Its Own Cars.—Hugh McCloskey, president of the New Orleans Railway & Light Company, New Orleans, La., is quoted as follows in regard to plans which the company is working out to build in its own shops such cars as may be needed for the operation of the system in the future: "We find with the experience we have had in constructing the cars now nearing completion that the work can be done by home labor with entire satisfaction to us and at a cost considerably less than that spent for cars built elsewhere. Therefore, we have decided to do all of the work at home and with home labor. We have an expert car builder, to whom will be given all the skilled help required to build modern cars. We are in excellent position to get all of the material required to build the cars, and can do the work fast enough to meet the requirements of the operating department of the company." Such car construction as is now done by the company is carried out at the Magazine Street carhouse. According to the same source of information, the engineering and the operating departments of the company are now at work on plans for larger and more complete shops for the company. It is planned, so it is said, to standardize the small cars of the company, and Mr. McCloskey is reported to have said that these improvements will be made known to the public just as soon as the operating and the engineering departments have completed their plans for what the respective heads of these departments consider the best and most serviceable cars for use in New Orleans.

PROGRAMS OF ASSOCIATION MEETINGS

National Civic Federation

The thirteenth annual meeting of the National Civic Federation will be held in New York Jan. 28 and 29, 1913, at the Hotel Astor. The subjects to be discussed include the following: "Workmen's Compensation," "Accident

Prevention," "Pensions for Federal, State and Municipal Employees," "Reform in Legal Procedure," "Regulation of Public Utilities," "Mediation in Industrial Disputes," "Regulation of Industrial Corporations." Model bills for passage by the legislatures of the several States will be considered on all of these subjects.

In connection with the subject of "Mediation of Industrial Disputes," the Federation will consider the recommendation to the several states of a model mediation bill somewhat on the plan of the Erdman federal act. This act, of course, does not apply to intrastate utilities. The chairmen of the four committees which are considering this subject and will report at the meeting are Marcus M. Marks, Charles P. Neill, head of the Federal Bureau of Labor; William C. Rogers, of the New York State Board of Arbitration, and Henry B. F. Macfarland, former Commissioner of the District of Columbia.

In drafting the proposed model workmen's compensation bill the Federation's department, of which August Belmont is chairman, has had the co-operation of the compensation committees of the American Bar Association and the Uniform State Law Commissioners. Its principles have been indorsed by the executive council of the American Federation of Labor, and it is the basis of the federal act for railroad employees, which passed the United States Senate and is now before the House for consideration.

The Federation's model state bill regulating public utilities has already been mentioned in these columns. It has been drafted by a department, of which Emerson McMillin is chairman, and Dr. John H. Gray is director of investigation. In the investigation made by the department the general question was, "How far can public regulation go to be effective and not interfere unnecessarily with management?" Especial study was made of the sliding-scale principle employed by London in dealing with electric light and gas companies, and particular consideration was given to the question of state versus municipal regulation of public utilities, as now in force in California.

The annual dinner of the Federation will occur on Wednesday evening, Jan. 29, at the Hotel Astor.

Program of Wisconsin Electrical Association

The fifth annual convention of the Wisconsin Electrical Association will be held at the Hotel Pfister, Milwaukee, Wis., Jan. 15 and 16. The following is a list of the papers to be presented at this convention:

"The Proposed Revision of Standards of Electric Service Now Under Consideration by the Railroad Commission of Wisconsin," by J. N. Cadby, member of the engineering staff of the commission.

"The Decision in the Milwaukee Fare Case," by Edwin S. Mack of the firm of Miller, Mack & Fairchild.

"Building up a Day Load for Small Central Stations," by W. E. Haseltine, secretary and treasurer of the Ripon Light & Water Company.

"Dispatching and Handling Street Cars and Train Crews," by Edward Hammett, superintendent of the railway department of the Sheboygan Electric & Railway Company.

"The Proper Operation and Maintenance of Arc Lamps," by L. H. Lathrop, general superintendent of the Menominee & Marinette Light & Traction Company.

"A Work Order System Adaptable to Public Utilities: Its Purposes and Method of Application," by George W. Kalweit, auditor of The Milwaukee Electric Railway & Light Company.

"Report and Recommendations on Liability Insurance," by the insurance committee, Ernest Gonzenbach, chairman.

"Construction and Maintenance Problems of the Overhead Distribution System of an Electric Utility," by C. R. Phenicie, general superintendent of the Wisconsin Public Service Company, Green Bay Gas & Electric Company.

"The Standardizing Laboratory of the University of Wisconsin," by F. A. Kartak of the University of Wisconsin.

"Resuscitation from Electric Shock, and First Aid to the Injured," by Dr. Charles H. Lemon, chief surgeon of The Milwaukee Electric Railway & Light Company.

On Wednesday evening, Jan. 15, at 7 o'clock, the annual dinner of the association will be held in the Fern Room of the Hotel Pfister.

Financial and Corporate

Stock and Money Markets

January 8, 1913.

Trading on the New York Stock Exchange continues indifferent. The sales to-day totaled only 200,312 shares. From Jan. 1, 1913, the total transactions amounted to 1,512,290 shares as compared with 3,290,977 shares for the same period last year. Trading in the bond list, however, continues active. The sales of bonds to-day totaled \$2,746,000, par value. Rates in the money market to-day were: Call, 2 $\frac{3}{4}$ @3 per cent, with the last loan at 3 per cent; sixty days, 3 $\frac{3}{4}$ @4 per cent; ninety days, 4@4 $\frac{1}{4}$ per cent; four months, 4@4 $\frac{1}{2}$ per cent; five and six months, 4 $\frac{1}{4}$ @4 $\frac{1}{4}$ per cent.

Trading was broad and active on the Philadelphia exchange to-day, with a goodly volume of sales. Bond transactions totaled more than \$60,000.

The Chicago market was broad to-day, but the volume of transactions was small. The only electric railway issue dealt in was Chicago Railways series 2's.

In the Boston market the tone was firm. Boston Elevated Railway stock and rights were in good demand.

Trading in Baltimore to-day was narrow, but the volume of transactions was fair. The bond market continues very active, sales to-day totaling \$107,000.

Quotations of traction and manufacturing securities as compared with last week follow:

	Dec. 31	Jan. 7.
American Brake Shoe & Foundry (common).....	95	96
American Brake Shoe & Foundry (preferred).....	135 $\frac{1}{2}$	136
American Cities Company (common).....	47 $\frac{1}{2}$	48
American Cities Company (preferred).....	78 $\frac{1}{2}$	78 $\frac{3}{4}$
American Light & Traction Company (common).....	400	430
American Light & Traction Company (preferred).....	108	108
American Railways Company.....	41	40 $\frac{3}{4}$
Aurora, Elgin & Chicago Railroad (common).....	40	40
Aurora, Elgin & Chicago Railroad (preferred).....	86	86
Boston Elevated Railway.....	113	112 $\frac{1}{2}$
Boston Suburban Electric Companies (common).....	10	5
Boston Suburban Electric Companies (preferred).....	75	67
Boston & Worcester Electric Companies (common).....	7	7
Boston & Worcester Electric Companies (preferred).....	40	40
Brooklyn Rapid Transit Company.....	92 $\frac{1}{8}$	91 $\frac{3}{4}$
Capital Traction Company, Washington.....	122	125
Chicago City Railway.....	150	150
Chicago Elevated Railways (common).....	27	28
Chicago Elevated Railways (preferred).....	92	89
Chicago Railways, ptepte., ctf. 1.....	86	90
Chicago Railways, ptepte., ctf. 2.....	26 $\frac{1}{4}$	22
Chicago Railways, ptepte., ctf. 3.....	8	6 $\frac{1}{2}$
Chicago Railways, ptepte., ctf. 4.....	3 $\frac{1}{2}$	3 $\frac{1}{4}$
Cincinnati Street Railway.....	122 $\frac{1}{2}$	122 $\frac{1}{2}$
Cleveland, Southwestern & Columbus Ry. (common).....	*6 $\frac{1}{2}$	5 $\frac{1}{8}$
Cleveland, Southwestern & Columbus Ry. (preferred).....	*34	33
Cleveland Railway.....	103 $\frac{1}{2}$	103 $\frac{1}{2}$
Columbus Railway & Light Company.....	55	60
Columbus Railway (common).....	82	80
Columbus Railway (preferred).....	81	81
Denver & Northwestern Railway.....	*121	118
Detroit United Railway.....	70	76
General Electric Company.....	186	185
Georgia Railway & Electric Company (common).....	120	122
Georgia Railway & Electric Company (preferred).....	83	83 $\frac{3}{4}$
Interborough Metropolitan Company (common).....	18 $\frac{1}{2}$	18 $\frac{1}{2}$
Interborough Metropolitan Company (preferred).....	64	62 $\frac{3}{4}$
International Traction Company (common).....	*39	38
International Traction Company (preferred).....	*92	99
Kansas City Railway & Light Company (common).....	18 $\frac{1}{2}$	18 $\frac{1}{2}$
Kansas City Railway & Light Company (preferred).....	40	40
Lake Shore Electric Railway (common).....	*6	9
Lake Shore Electric Railway (1st preferred).....	*89	91
Lake Shore Electric Railway (2d preferred).....	*25 $\frac{1}{2}$	25 $\frac{1}{2}$
Manhattan Railway.....	129	129
Massachusetts Electric Companies (common).....	17	16
Massachusetts Electric Companies (preferred).....	75	76
Milwaukee Electric Railway & Light Co. (preferred).....	100	100
Norfolk Railway & Light Company.....	*26	25
North American Company.....	79	81
Northern Ohio Light & Traction Company (common).....	80	80
Northern Ohio Light & Traction Company (preferred).....	100	100
Philadelphia Company, Pittsburgh (common).....	50	49 $\frac{1}{2}$
Philadelphia Company, Pittsburgh (preferred).....	44	44 $\frac{1}{2}$
Philadelphia Rapid Transit Company.....	27 $\frac{1}{2}$	27 $\frac{1}{2}$
Portland Railway, Light & Power Company.....	*66	68 $\frac{1}{2}$
Public Service Corporation.....	117	117
Third Avenue Railway, New York.....	40 $\frac{1}{2}$	38 $\frac{3}{4}$
Toledo Railway & Light Company.....	234	234
Twin City Rapid Transit Co., Minneapolis (common).....	105	105
Union Traction Company of Indiana (common).....	*6 $\frac{1}{2}$	4 $\frac{1}{2}$
Union Traction Company of Indiana (1st preferred).....	*80	81
Union Traction Company of Indiana (2d preferred).....	*34	34
United Rys. & Electric Company (Baltimore).....	24 $\frac{1}{2}$	23 $\frac{3}{4}$
United Rys. Inv. Company (common).....	35	34
United Rys. Inv. Company (preferred).....	63 $\frac{1}{2}$	62 $\frac{1}{2}$
Virginia Railway & Power Company (common).....	51	51
Virginia Railway & Power Company (preferred).....	90	90
Washington Ry. & Electric Company (common).....	88	88
Washington Ry. & Electric Company (preferred).....	90	89 $\frac{3}{4}$
West End Street Railway, Boston (common).....	80	80
West End Street Railway, Boston (preferred).....	96	98
Westinghouse Elec. & Mfg. Company.....	79 $\frac{1}{4}$	78
Westinghouse Elec. & Mfg. Company (1st preferred).....	115	119

*Last sale. a Asked.

Receivers' Sale of Chicago & Milwaukee Electric Held Invalid

As a result of the suit brought against the receivers of the Chicago & Milwaukee Electric Railroad by the Investment Registry, Ltd., Judge Landis, of the United States District Court, has rendered a decision declaring the sale of the Illinois Division invalid. Objections were filed by a bondholder who urged that the price bid for the property was inadequate and that the purchasers suppressed competition at the sale. It will be remembered that in 1908, as a result of proceedings by creditor's bill, receivers were appointed in Illinois and Wisconsin. The two receivers were necessary, as the divisions of the road, which operates between Evanston, Ill., and Milwaukee, Wis., had been chartered and built by separate companies.

During 1912 decrees of sale were rendered in both States, and the Wisconsin division was bid in at \$1,600,000 and the Illinois division at \$1,650,000. The successful bidders represented the reorganization committee, which had deposited, subject to its control, over 95 per cent of the bond issue under foreclosure. As no other bids for the property were offered at the sale, the court recommended acceptance of these.

The objecting bondowner holds twelve bonds of the Illinois company, which he refused to deposit with the reorganization committee. In arguing the case before the court three separate issues were involved, i. e., an alleged suppression of bidding by means of which certain Milwaukee interests were induced, in consideration of the payment to them of \$1,122,000, to sell their holdings of bonds in the Illinois company, for which they paid approximately \$770,000. As a part of the sale of such bonds, it was alleged that these interests agreed to refrain from competing with the reorganization committee at any foreclosure sale of the property. The second issue was the inadequacy of the price bid, it being contended that the properties were worth at least \$5,000,000, whereas the amount bid plus the amount of underlying bonds aggregated only \$2,800,000. The third objection raised was to the plan of reorganization, which was considered unfair and inequitable. Judge Landis said:

"The general rule is that the public shall be free to bid for property offered at a judicial sale, and the law prohibits the making of any bargains, or the doing of anything which takes from any part of the public this liberty of action. The term general public, as used in this connection, does not include persons who by virtue of lien or ownership, or otherwise, have an existing interest in the property to be sold. Such persons may combine to protect their interests and may even expressly agree not to bid against each other, in furtherance of a plan mutually agreed upon as calculated to conserve their interests, but in so doing their activities must not operate to exclude any part of the general public as purchasers at the sale. Therefore the first question here is whether or not the agreements mentioned amounted in fact only to a combination between bondholders for the protection of their interests, as such, or whether those agreements kept away from the sale persons who, while they did not have an existing interest in the property as holders of bonds, were in reality so circumstanced that they must be classed with the general public."

The court held that the Milwaukee interests mentioned purchased their securities in the property after the receivers were appointed and that their sole purpose in doing so was to use the bonds as an instrumentality in acquiring the property; that is to say, to turn them in as a part satisfaction of the bid to be made by them at the judicial sale. Their relation to the property was, therefore, that of a prospective bidder. This attitude made it hazardous for other persons seeking the property to bargain with the Milwaukee interests for their elimination. In such case there was a burden on the beneficiaries to show clearly that the parties selling out had altogether lost interest as intending purchasers of the property prior to the beginning of the negotiations resulting in their elimination.

As to the inadequacy of the price bid, Judge Landis said:

"On the question of value of the property the court had evidence as to physical condition, earnings, past, present

and prospective, franchise conditions and other matters thoroughly entitled to be considered under this head. It is my opinion, on the showing made, that the Illinois property is reasonably worth approximately \$4,500,000. The bid of the company and the obligations which the purchase must assume aggregate in the neighborhood of \$2,800,000 as the cost of the Illinois property to the committee. The bids on both divisions, as has been shown, total \$3,250,000. Add to this the amount of the underlying bonds and all the other expenses estimated by H. M. Byllesby & Company, on behalf of the reorganization, as necessary to be incurred in adjusting and discharging liens and rehabilitation of the property, including extensions and betterments, and the total cost to this committee of the entire line in Illinois and Wisconsin, including a connection with the elevated road in Chicago, approximates \$6,700,000."

In discussing the third point raised, Judge Landis said: "Now it is declared the purpose of the reorganization committee, if it gets this property, to turn it over to a new company which the reorganization committee proposes to organize. Then it is the committee's plan that this new company shall be authorized to issue securities as follows: First mortgage bonds, \$10,000,000; second mortgage bonds, \$4,500,000; third mortgage bonds, \$6,000,000; capital stock, \$6,000,000.

"Of this total of \$26,500,000, it is the committee's purpose that the new company shall put out \$21,000,000 to use in effecting the reorganization. This appears from the committee's plan which it has distributed to the bondholders. It is very plain from these figures that a great mass of these securities, if issued, really will represent no investment whatever, by anybody, at any time. And this is proposed to be done in the face of the public utility law of Wisconsin and the constitution of Illinois. Fundamental law contains the following provision: 'No railroad corporations shall issue any stocks or bonds except for money, labor or property actually received and applied to the purposes for which such corporation was created.'"

In conclusion, the judge said:

"In the present case this court will enable the members of the committee and its counsel to consider, before the property shall be offered for sale again, whether it would not be well to adopt a program authorized by law. There will be another sale, at which time there will have to be a higher bid."

It is understood that as a result of this unfavorable decision counsel for the reorganization committee will take an appeal.

Reorganization of International Traction System

The details of the plan for the reorganization of the companies included in the International Traction System, Buffalo, N. Y., as approved by the Public Service Commission of the Second District of New York, are now being carried out. As noted in the *ELECTRIC RAILWAY JOURNAL* of Dec. 14, 1912, page 1210, the commission authorized the merger of the Crosstown Street Railway and the Electric Street Railway, but owing to legal difficulties the Crosstown Street Railway cannot be merged until next April. Pending the actual merger the commission has authorized the lease of the Crosstown Company to the International Railway for 999 years. As soon as the merger takes place this lease will become void. The commission has also authorized the International Railway to make a mortgage for \$60,000,000 and to issue bonds secured thereby to the amount of \$19,817,500 in accordance with the plans previously noted in the *ELECTRIC RAILWAY JOURNAL*. In furtherance of this plan the company filed on Dec. 31, 1912, with the county clerk at Buffalo a mortgage for \$60,000,000 in favor of the Bankers' Trust Company, New York, N. Y., as trustee. On the same date Thomas Penney retired as president of the International Traction Company and the International Railway, and E. G. Connette, who had been vice-president of the International Railway, was elected to succeed him with that company, and Rodman E. Griscom was elected to succeed him with the International Traction Company. Mr. Connette was also elected vice-president of the International Traction Company. Mr. Penney, however, continues as a director of the company, and T. E. Mitten will continue as chairman of the executive committee.

Nelson Robinson, who has long been a director of the International Traction Company and the International Railway and has had a prominent part in the financial undertakings of the companies, issued the following statement:

"The new mortgage, which has the approval of the Public Service Commission, now provides for the additional capital necessary to the further development of the property. This reorganization, involving the surrender of over \$18,000,000, par value, of bonds, has been accomplished without the appointment of a receiver, which very satisfactory result has been largely due to the painstaking and persistent work of the president, Thomas Penney, who was elected to the position some four years ago because of his especial fitness for this work.

"I have now disposed of my interest in the company and am therefore retiring from the situation. Mr. Penney will also sever his connection as president of the International companies at an early date, this being necessary because of the responsibilities devolving upon him in the management of the Near-Side Car Company and other commercial undertakings which are now directed by him. Mr. Penney will be succeeded as president by E. G. Connette, who for some time past has been acting as his assistant in the operation of the property.

"Bertron, Griscom & Company, bankers, New York, N. Y., who represent the new financial interest in control, have a very thorough knowledge of the results secured by T. E. Mitten, both here and in Philadelphia, and have prevailed upon him to remain with the property as chairman of the executive committee, in which position he will continue to direct the operating policy of the company. Mr. Penney has also been prevailed upon to remain with Mr. Mitten as a director of these companies, his intimate knowledge of the companies' affairs making his services especially to be desired in this connection."

Simultaneously with the announcements which were made in regard to the changes in the company, Bertron, Griscom & Company, New York, N. Y., offered for subscription at 97½ and interest \$3,832,000 of the refunding and improvement 5 per cent gold bonds of the International Railway dated Nov. 1, 1912, and due Nov. 1, 1962. With this offering of the bonds of the company for subscription there was published the official report of the earnings of the company for the year ended June 30, 1912, and a general statement in regard to the property owned and controlled by the company and the prospects of the territory in which the company operated prepared from a letter from Mr. Penney in regard to the affairs of the company.

New directors have been elected as follows: S. Reading Bertron, Rodman E. Griscom, John S. Jenks, Jr., Marshall J. Dodge, Francis T. Homer and Edward G. Connette. The retiring directors are as follows: G. L. Boissevain, Morris Cohn, Jr., James O. Moore, Oliver H. Payne, Nelson Robinson and George I. Seney.

New J. G. White Companies Organize

The plan to conduct the engineering-construction department and the operating department of J. G. White & Company, Inc., New York, N. Y., separately has been approved and the new corporations, The J. G. White Engineering Corporation and The J. G. White Management Corporation, elected officers and directors on Jan. 6, 1913. The directors of The J. G. White Engineering Corporation are as follows: Harry Bronner, of Hallgarten & Company; James Brown, of Brown Brothers & Company; F. Q. Brown, of Redmond & Company; Douglas Campbell, of Campbell, Harding & Pratt; George C. Clark, Jr., of Clark, Dodge & Company; Bayard Dominick, Jr., of Dominick & Dominick; A. G. Hodenpyl, of Hodenpyl, Hardy & Company; T. W. Lamont, of J. P. Morgan & Company; Marion McMillin, of Emerson McMillin & Company; J. H. Pardee, president of The J. G. White Management Corporation; E. N. Potter, of Potter, Choate & Prentice; Frederick H. Reed, vice-president of J. G. White & Company, Inc.; Charles H. Sabin, vice-president of the Guaranty Trust Company; Frederic Strauss, of J. & W. Seligman & Company; Moses Taylor, of Kean, Taylor & Company; George H. Walbridge, of Bonbright & Company; E. N. Chilson and C. E. Bailey. The officers of the company are: J. G. White, chairman of the finance committee; Gano Dunn,

president; E. G. Williams, A. S. Crane, H. A. Lardner, vice-presidents; H. S. Collette, secretary, and R. B. Marchant, treasurer.

The J. G. White Management Corporation announces as directors Cecil Barret, of Spencer Trask & Company; F. Q. Brown, of Redmond & Company; P. M. Chandler, of Chandler Brothers & Company, Philadelphia; Arthur Coppel, of Maitland, Coppel & Company; Gano Dunn, president of The J. G. White Engineering Corporation; George E. Hardy, of Hodenpyl, Hardy & Company; R. G. Hutchins, Jr., vice-president of the National Bank of Commerce; R. L. Montgomery, of Montgomery, Clothier & Tyler, Philadelphia; John T. Pratt, of Campbell, Harding & Pratt; Frederic Strauss, of J. & W. Seligman & Company; H. R. Tobey, of N. W. Halsey & Company, and J. G. White, president of J. G. White & Company, Inc. The officers are: J. H. Pardee, president; F. H. Reed and S. L. Selden, vice-presidents, and T. W. Moffat, secretary and treasurer.

The business of the management company was established some years ago as a department to supervise the operation of properties in which J. G. White & Company, Inc., were interested. This department, which has now been formed into a separate company, was, on Dec. 31, 1912, acting as operating or consulting operating manager of the Manila Electric Railroad & Lighting Corporation, the Helena Light & Railway Company, the Eastern Pennsylvania Railways, Pottsville, Pa.; the United Light & Railways Company, the Associated Gas & Electric Company, the Augusta-Aiken Railway & Electric Corporation, the Pacific Railroad of Nicaragua, the Kentucky Public Service Company and other properties.

The parent organization, J. G. White & Company, Inc., controls the new companies and will continue as an active financing and owning company.

General Merger Proceedings in Chicago

Very little progress was made during the week ended Jan. 4, 1913, toward arriving at the satisfactory valuation of the Chicago elevated properties by the local transportation committee of the Chicago City Council in its negotiations to bring about the general merger of the elevated and surface lines. As noted in the ELECTRIC RAILWAY JOURNAL on Jan. 4, a report was made to the general committee by a sub-committee in which it announced that the statement presented by the representatives of the Chicago Elevated Railways had been verified. At a meeting of the transportation committee held on Jan. 7, the attorneys for the Chicago Elevated Railways advised the committee concerning the purpose of the merger of the elevated lines in July, 1911, the securities which had been issued and the liabilities assumed by the new organization. The representatives of the company and the committee appear to agree that the total amount invested by the new organization is \$82,285,750.39. There is still some question, however, as to the itemized statement going to make up this total, as well as certain amounts which must be eliminated from these negotiations. At the conclusion of a very lengthy discussion the committee instructed the company's representatives to prepare statements showing an itemized account of the cost of the properties to the new organization as of July 1, 1911, Jan. 1, 1912, and Jan. 1, 1913. These statements will probably be submitted at an early date.

Birmingham Railway, Light & Power Company, Birmingham, Ala.—The common stock of the Birmingham Railway, Light & Power Company, most of which is held by the American Cities Company, has been increased from \$3,500,000 to \$3,900,000.

Brooklyn (N. Y.) Rapid Transit Company.—The Brooklyn Rapid Transit Company has filed at Albany a certificate of the increase in its capital stock from \$45,000,000 to \$90,000,000, the new shares to be issued from time to time prior to July 1, 1914, exclusively for the conversion of the 4 per cent bonds of 1902, dollar for dollar, if presented by the holders for that purpose. Of these bonds \$34,750,000 are outstanding in the hands of the public. The New York Municipal Railroad Corporation has applied to the Public Service Commission of the First District of New

York for permission to issue \$1,000,000 of its \$2,000,000 authorized capital stock, the proceeds to be used for working capital. At the same time the New York Consolidated Railroad applied to the commission for permission to purchase the entire capital stock of the New York Municipal Railway Corporation. The New York Municipal Railroad Corporation was formed by Brooklyn Rapid Transit interests entering into a contract with the city of New York to build and operate portions of the dual system of rapid transit. The New York Municipal Railroad Corporation, to carry out its contract with the city, is to make the Central Trust Company trustee of its mortgage to secure its first mortgage 5 per cent sinking fund gold bonds, to be issued from time to time to provide the capital required by the contract with the city. The Consolidated company is to guarantee these bonds. At the same time the Brooklyn Heights Railroad and the New York Municipal Railway Corporation submitted to the commission for approval a contract made between them by which the Municipal company obtains the right to use the lines of the Lutheran Cemetery elevated road from a connection with the Myrtle Avenue line to Fresh Pond road and from that point to Metropolitan Avenue. The contract is for eighty-five years and the New York Municipal Railroad Corporation is to pay \$25,000 a year for the privilege.

Chicago, Ottawa & Peoria Railway, Ottawa, Ill.—The Chicago, Ottawa & Peoria Railway has increased its capital stock from \$500,000 to \$1,500,000.

Columbus Railway & Light Company, Columbus, Ohio.—The Columbus Edison Company, the property of which was leased to the Columbus Railway & Light Company in 1903, has applied to the Public Service Commission of Ohio for permission to issue \$250,000 of preferred stock and a similar amount of common stock.

Dedham & Franklin Street Railway, Westwood, Mass.—Eugene H. Mather, receiver of the Dedham & Franklin Street Railway and the Medfield & Medway Street Railway, has asked the court for instructions in regard to continuing the roads in operation between Dedham and Franklin. Mr. Mather says that, although the closest economy has been practised, the earnings of the roads have not been sufficient to cover the operating expenses, and he is doubtful whether the roads would pay even if the fares were to be increased. The question of discontinuing operation will come up before the court on Jan. 28, 1913.

Illinois Traction Company, Champaign, Ill.—Notices of increases in the stock of subsidiary companies of the Illinois Traction Company have been filed as follows: St. Louis, Springfield & Peoria Railroad, from \$7,850,000 to \$8,250,000; Bloomington, Decatur & Champaign Railroad, from \$3,525,000 to \$3,650,000.

Interborough Rapid Transit Company, New York, N. Y.—To provide funds for the financing of its part in the construction and equipment of the dual subway system, as well as for refunding all outstanding bonds and for funding short term notes, the Interborough Rapid Transit Company has asked the Public Service Commission of the First District of New York to approve a proposed bond issue not to exceed \$170,000,000. The petition states that the company has arranged to have J. P. Morgan & Company purchase the entire issue at 93½ and accrued interest, the bonds to be issued in such quantities as will net the company \$150,622,900, and the further sum of \$174,600 to pay off prior liens or encumbrances. The Public Service Commission has extended to May 1, 1913, the time in which the Interborough Rapid Transit Company may issue \$17,123,611 in bonds, permission for which was given in a previous order of the commission.

Ironwood & Bessemer Railway & Light Company, Ironwood, Mich.—The Ironwood & Bessemer Railway & Light Company has filed with the Secretary of State an amendment to its articles of incorporation increasing its capital stock from \$700,000 to \$900,000.

Irwin-Herminie Traction Company, Irwin, Pa.—There are now being offered for subscription at 99 and interest by the Dominion Trust Company, Pittsburgh, Pa., \$250,000 of first mortgage sinking fund gold bonds of the Irwin-Herminie Traction Company. The bonds are dated Nov. 1, 1912, and are due Nov. 1, 1937. They are redeemable all or

in part at 105 and interest at the option of the company, except such as shall be paid \$6,000 yearly from the sinking fund.

Little Rock Railway & Electric Company, Little Rock, Ark.—Interests identified with the Little Rock Railway & Electric Company are reported to have obtained control of the Garland Power & Development Company, which controls water power on the Ouachita River, 45 miles from Little Rock. It is proposed to extend \$3,000,000 in developing power and for transmission lines.

Mansfield Railway, Light & Power Company, Mansfield, Ohio.—S. N. Ford, president of the Mansfield Railway, Light & Power Company, has been appointed receiver of the company and has been instructed by the court to sell the property of the company within four months.

Monongahela Valley Traction Company, Fairmont, W. Va.—An initial dividend of 2 per cent has been declared on the \$5,000,000 of common stock of the Monongahela Valley Traction Company, payable on Jan. 11, 1913, to holders of record of Jan. 8.

Norwood, Canton & Sharon Street Railway, Canton, Mass.—The property of the Norwood, Canton & Sharon Street Railway has been acquired by M. A. Cavanagh, Boston, Mass., and Joseph B. Murphy, Thomas F. Cavanagh, James T. Dunn and P. Corr, Taunton. New officers have been elected as follows: M. A. Cavanagh, president; Joseph B. Murphy, treasurer, and Dennis G. Trayers, superintendent.

Railway & Light Securities Company, Boston, Mass.—The Railway & Light Securities Company has declared a semi-annual dividend of 3 per cent on its common stock, an increase of ½ of 1 per cent. The usual semi-annual dividend of 3 per cent has been declared on the preferred stock. The dividends are payable on Feb. 1 to holders of record Jan. 15.

Springfield & Xenia Railway, Springfield, Ohio.—The Springfield & Xenia Railway has declared a dividend of 1½ per cent on its preferred stock and also an additional 1½ per cent, making 6½ per cent, on its preferred stock this year, the same as last year. The 1½ per cent extra is on account of accumulated dividends. There is still unpaid 2¾ per cent accumulated dividends.

Third Avenue Railway, New York, N. Y.—The Third Avenue Railway has issued its annual report for the calendar year 1912. It contains a consolidated income account for the eleven months ended Nov. 30, 1912, which shows a surplus of \$1,209,429 over charges, including depreciation of \$355,000. F. W. Whitridge, the president, says that estimating December earnings at \$110,000, the net for the year ended Dec. 31, 1912, was about \$1,319,000. He continues: "The company has sufficient funds on hand to meet all the expenditures for the current year as well as to pay \$350,000 on account of the purchase of the New York City Interborough Railway, and it has upward of \$100,000 which it will be necessary to expend upon the Mid-Crosstown Railroad in case the owners should conclude to accept our offer to purchase that property. It may be desirable to apply to the Public Service Commission for consent to issue 4 per cent refunding bonds for part of these capital expenditures. It will not be necessary to market such bonds, and it should be our policy, so far as possible, not to increase our fixed charges. Finally, I think it may be said notwithstanding the large expenditures shown in this budget, and which will probably hereafter be shown in similar budgets, that the outlook for the owners of Third Avenue Railway securities is encouraging."

Toledo Railways & Light Company, Toledo, Ohio.—H. L. Doherty & Company, New York, N. Y., will not take over the operation of the Toledo Railways & Light Company until Jan. 15, and possibly not until Feb. 1. The exchange of securities is progressing satisfactorily and most of the stockholders have paid their assessment of \$7.50 per share. It is stated that negotiations are pending for the sale of \$6,000,000 of first lien 6 per cent five-year collateral trust notes of the Toledo Light & Railways Company, which is to succeed the Toledo Railways & Light Company, to Harris, Forbes & Company, New York, N. Y.

Union Traction Company of Indiana, Indianapolis, Ind.—The directors of the Union Traction Company of In-

diana have decided not to pay a dividend at this time on the \$3,000,000 of second preferred stock. The net earnings for 1912, with December estimated, are reported as exceeding \$75,000, after providing for the dividend on the first preferred stock.

Valdosta (Ga.) Street Railway.—The Valdosta Traction Company has been incorporated in Georgia with a capital stock of \$125,000 as the successor to the Valdosta Street Railway.

York (Pa.) Railways.—The York (Pa.) Railways has declared a semi-annual dividend of 2½ per cent on the \$1,600,000 of 5 per cent cumulative preferred stock, payable on Jan. 30, 1913, to holders of record of Jan. 20. This payment compares with 2 per cent in July and January, 1912, and the initial payment of 1 per cent in July, 1911.

Dividends Declared

Athens Railway & Electric Company, Athens, Ga., 2½ per cent, preferred.

Fort Smith Light & Traction Company, Fort Smith, Ark., quarterly, 1¾ per cent, preferred.

Holyoke (Mass.) Street Railway, 4 per cent.

Manchester Traction, Light & Power Company, Manchester, N. H., quarterly, 2 per cent.

Monongahela Valley Traction Company, Fairmont, W. Va., 2 per cent, common.

Omaha & Council Bluffs Street Railway, Omaha, Neb., quarterly, 1¼ per cent, preferred; quarterly, 1¼ per cent, common.

Ottumwa Railway & Light Company, Ottumwa, Ia., quarterly, 1¾ per cent, preferred.

Puget Sound Traction, Light & Power Company, Seattle, Wash., quarterly, 1½ per cent, preferred; quarterly, 1 per cent, common.

Rio de Janeiro Tramway, Light & Power Company, Rio de Janeiro, Brazil, quarterly, 1¼ per cent.

Sao Paulo Tramway, Light & Power Company, Sao Paulo, 2½ per cent.

United Traction Company, Pittsburgh, Pa., 2½ per cent, preferred.

West Penn Traction Company, Pittsburgh, Pa., quarterly, 1½ per cent, preferred.

York (Pa.) Railways, 2½ per cent, preferred.

Youngstown & Ohio River Railroad, Youngstown, Ohio, quarterly, 1¼ per cent, preferred.

ELECTRIC RAILWAY MONTHLY EARNINGS

ATLANTIC SHORE ELECTRIC RAILWAY, SANFORD, ME.

Period.	Gross Earnings.	Operating Expenses.	Net Earnings.	Fixed Charges.	Net Surplus.
1m., Nov., '12	\$22,756	\$22,475	\$282	\$465	†\$183
1 " " '11	21,365	20,428	936	581	355

AURORA, ELGIN & CHICAGO RAILROAD, CHICAGO, ILL.

1m., Nov., '12	\$155,313	\$96,360	\$58,853	\$32,050	\$26,803
1 " " '11	140,050	86,803	53,247	31,728	21,519
5 " " '12	895,032	497,298	397,734	160,395	237,339
5 " " '11	839,757	456,790	382,977	157,216	225,761

CLEVELAND, SOUTHWESTERN & COLUMBUS RAILWAY, CLEVELAND, OHIO.

1m., Nov., '12	\$100,446	\$59,617	\$40,829	\$31,746	\$9,083
1 " " '11	90,196	54,137	36,059	29,000	7,059
11 " " '12	1,086,456	633,965	452,491	341,047	111,444
11 " " '11	1,042,341	587,373	454,969	329,863	125,106

KENTUCKY TRACTION & TERMINAL COMPANY, LEXINGTON, KY.

1m., Nov., '12	\$1,005,816	\$647,363	\$356,454	\$175,942	\$180,512
1 " " '11	862,243	543,812	318,431	177,132	141,299
11 " " '12	10,866,927	7,044,613	3,822,314	1,945,832	1,876,482
11 " " '11	9,518,443	6,009,717	3,508,726	1,943,259	1,565,467

NORTHERN OHIO LIGHT & TRACTION COMPANY, AKRON, OHIO.

1m., Nov., '12	\$239,141	\$145,324	\$93,817	\$52,610	\$41,207
1 " " '11	214,563	125,304	89,359	43,729	45,630
11 " " '12	2,736,156	1,551,988	1,184,168	520,668	663,500
11 " " '11	2,454,651	1,359,562	1,095,089	487,120	607,969

PHILADELPHIA (PA.) RAPID TRANSIT COMPANY.

1m., Nov., '12	\$2,008,406	\$1,196,259	\$812,142	\$761,838	\$50,304
1 " " '11	1,881,976	1,136,722	745,254	740,631	4,623
5 " " '12	9,860,294	5,865,245	4,995,049	3,798,281	196,768
5 " " '11	9,380,136	5,690,194	3,689,942	3,688,821	1,121

TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN.

1m., Nov., '12	\$700,676	\$347,885	\$352,791	\$153,574	\$199,217
1 " " '11	633,968	317,628	316,340	148,079	168,261
11 " " '12	7,485,614	3,796,657	3,689,157	1,581,366	2,107,791
11 " " '11	7,141,998	3,530,330	3,611,667	1,548,871	2,062,796

†Deficit.

Traffic and Transportation

Profit Sharing in Washington, D. C.

The Washington Railway & Electric Company, Washington, D. C., on Jan. 3, 1913, distributed \$19,123.02 among 801 employees, including motormen, conductors, starters and depot clerks. Profit-sharing checks were sent to each employee coming under the categories named who had been with the company for one month or more. The profit-sharing plan was suggested to the directors of the road by President Clarence P. King and those associated with him in the management and was adopted by the board. Mr. King last April, while addressing the men in the club rooms of the relief association, said that the adoption of such a plan was being considered by the company, but as no further suggestion of the idea was made, the receipt of the checks, with a personal letter from Mr. King explaining the company's attitude toward its employees, was a surprise. Many of the men who shared in the distribution, having been with the company for a year or more, received checks for \$28.72 each. The others received a proportionate amount, based on the length of service. In the letter which accompanied each check Mr. King recalled the fact that he had mentioned the subject before, and said that the company in adopting his suggestion did so with a desire that the conductors and motormen should share in whatever improvement could be effected in the results of the year 1912 over and above the final showing made in 1911. He explained that in 1911 26 per cent of the company's earnings, after the deduction of 4 per cent had been made to meet the District tax, had been expended in wages and the payment of accident claims. With these results as a working basis, he added, the directors agreed to set aside 26 per cent of the receipts, exclusive of the tax fund, to cover wage and accident payments for 1912. If this sum was not required for these purposes, the directors agreed that any balance should be devoted to a profit-sharing plan and distributed among the men at the end of the year. The following table shows the results as disclosed at the conclusion of the year and the manner in which the residuary fund was distributed:

Gross passenger receipts, less 4 per cent government tax.....	\$2,552,479
26 per cent appropriated for trainmen's wages and accidents..	663,645
Accidents	\$89,337
Wages	555,185
	644,522
Profit-sharing fund	\$19,123

This amount was distributed among 801 men, as follows:

584 men in service one year or more, each \$28.72.....	\$16,772.48
17 men in service 11 months, each \$26.34.....	447.78
4 men in service 10 months, each \$23.94.....	95.76
6 men in service 9 months, each \$21.54.....	129.24
18 men in service 8 months, each \$19.15.....	344.70
14 men in service 7 months, each \$16.76.....	234.64
20 men in service 6 months, each \$14.36.....	287.20
18 men in service 5 months, each \$11.97.....	215.46
19 men in service 4 months, each \$9.57.....	181.83
26 men in service 3 months, each \$7.18.....	186.68
20 men in service 2 months, each \$4.79.....	95.80
55 men in service 1 month, each \$2.39.....	131.45

801 \$19,123.02

The following suggestions, embodied in a folder, have been made to the men as to the best means to be followed by each man to increase the fund for 1913:

"CONDUCTORS

"A large responsibility rests upon the conductor. He has charge of the car, and our common interests are vitally in his hands. While his chief duty is to collect fares he should constantly strive to avoid accidents. A careless signal has frequently caused an accident costing the company thousands of dollars. It is hardly necessary to say that the indifferent, careless or dishonest conductor is our common foe, for either carelessness or dishonesty reduces revenue, and therefore bonus.

"MOTORMEN

"To this end motormen can do much by keeping their cars on time and guarding constantly against accidents. A delayed service forfeits both revenue and good will, while an accident plunges the company into expense, no matter who is at fault. All of us are losers, since an impaired service means a smaller bonus.

"DEPOT CLERKS AND STARTERS

"Results accomplished by conductors and motormen depend largely upon co-operation and concerted effort on the

part of depot clerks and starters. Fairness and impartiality in their dealings with trainmen should be their motto. It is the duty of trainmen to keep their cars on time, consequently the most essential thing is to start on time; this cannot be done unless the conductor is promptly furnished by the clerk with tickets, transfers, etc., necessary for his day's work.

"While the conductor is getting his 'traps' the starter should assign a car to the motorman and see that it is clean, properly equipped with fender, sand, etc.; that destination signs, ventilators, head and light switches are in working order and properly adjusted. Start a crew out on time and in a good humor and they will in ninety-nine cases out of a hundred stay that way during their tour of duty. It is needless to say that their work will be much better than that of the crew that starts out with a 'grouch.' Don't think your duties end when the runs have been put out. Far from it. Constant attention to schedules and equipment only will make the day's work end as it was started. If the right man is in the right place, depot clerks and starters can do more than can be estimated toward increasing the profit-sharing fund.

"GOOD WILL

"The great point is to win favor with the traveling public, and aside from good service no more certain factor exists than unflinching politeness."

P. T. Haller, secretary of the Washington Railway & Relief Association, addressed the following communication to the members of the association with the profit-sharing checks:

"Just a word about your check. Don't 'blow it in' hastily because it has come to you almost unexpectedly. How about the 'rainy day' that is sure to come? It may be sickness, injury or death in the family. Your profit-sharing check or at least a part of it would make a nice start toward a savings fund. The relief association has a savings department and will keep your money safely and allow 5 per cent interest, compounded semi-annually."

Grievance Committees in Providence

The Rhode Island Company, Providence, R. I., has recently addressed the following communication to its motormen and conductors in regard to a plan to establish grievance committees to promote a more harmonious feeling among the men:

"On page 5 of the rule book there is a clause which reads, 'Grievances, etc., also suggestions as to betterment of service, will always be received for consideration by the superintendent of transportation or the general manager.'

"It occasionally happens that a suspended or discharged employee, acting in accordance with the above-mentioned clause and being particularly interested in his own favor, is not in a position to take an impartial view of the circumstances responsible for his grievance, and after the interview regarding the same he is not fully satisfied with the final decision.

"Therefore, in order to promote a more harmonious feeling, you are requested to appoint a committee of three from among the employees stationed at your respective carhouses, one member to be selected who has been in the service of the company one year or less, one member to be selected who has been in the service of the company more than one year but less than five years, and the third member to be selected to be one who has been in the employ of the company five years or over, this committee to confer with the superintendent of transportation and the general manager relative to any grievance which a motorman or conductor may have and which he has failed to adjust satisfactorily through his own efforts."

The men in the employ of the Rhode Island Company are not organized, but whenever the wages of the men in the employ of the other systems in New England which are controlled by the same interests are increased the management of the Rhode Island Company raises the pay of its men to correspond. The employees of the company are members of a benefit association, and the company felt that the formation of grievance committees from the various divisions would stimulate greatly the *esprit de corps*. The company has always paid men for their time during the investigation of accidents where the men have been found not to have been

at fault. The communication to the men was addressed to them over the signature of R. Roscoe Anderson, superintendent of transportation, with the approval of A. E. Potter, general manager.

Special Dairy Train Proposed.—The Chicago, Ottawa & Peoria Railway, Ottawa, Ill., contemplates running a dairy special over its lines to furnish scientific instruction to farmers in the territory through which it operates.

Automatic Ticket-Vending Machine in Hudson River Tunnel Station.—An automatic ticket-vending machine has been installed in the concourse of the terminal of the Hudson & Manhattan Railroad at Church and Fulton Streets, New York, N. Y.

Merit System in Washington, D. C.—A merit and demerit system patterned after the Brown system was established by the Washington Railway & Electric Company, Washington, D. C., on Jan. 1, 1913. Folders showing merits and demerits were distributed among all motormen and conductors with instructions to carry the booklets while on duty.

Free Coffee to Portland Employees.—Under the direction of Gus Rowden, superintendent of the welfare department of the Portland Railway, Light & Power Company, Portland, Ore., every employee who carries his lunch to work will be served free a cup of hot coffee, cream and sugar at the Hawthorne Building, Hawthorne Avenue and Water Street, Portland, every noon.

The "Webfoot" Route.—L. A. MacArthur, who is assistant general manager of the Pacific Power & Light Company, has been awarded the prize of \$25 in gold offered for the best popular name for the Portland, Eugene & Eastern Railway, which is constructing 340 miles of interurban electric railway through the Willamette Valley. The title "Webfoot" won the prize and will be adopted officially by the company.

New Station at Jamaica.—The new station of the Long Island Railroad at Jamaica, Long Island, has been completed and it is expected to move the headquarters of the officers of the company connected with the administration of the general superintendent, most of which are now in Long Island City, to Jamaica on Feb. 22. The only department which will stay at Long Island City will be the Long Island Express Company.

Suspension of Service During the Winter Approved.—The Public Service Commission of the Second District of New York has consented to the discontinuance of a part of the electric railroad of the St. Lawrence International Electric Railroad & Land Company in Alexandria Bay. The portion is from the top of an elevation known as Church Hill, and operation during the winter months is considered dangerous. The president of the village of Alexandria Bay has consented to the granting of permission by the commission.

Increase in Wages by Massachusetts Northern Street Railway.—The Massachusetts Northern Street Railway, operating in the district between Fitchburg and Athol, has announced an increase of wages dating from Jan. 1, 1913. All employees of more than four years' standing with the company will receive 24 cents per hour, and all work will be performed hereafter on a nine-hour basis. Motormen and conductors will receive 20 cents per hour for the first year, 21 cents for the second year, 22 cents for the third, and at the end of the fourth year 24 cents per hour.

Award of Gold at Boston.—The Boston (Mass.) Elevated Railway made its annual distribution of awards on Jan. 1, 1913, to car service men who had been in its employ at least six months and who had made satisfactory records during 1912. In determining the standing of the men the company eliminated all records included during June, July and August, and covering the recent strike period, and based the payment of the awards upon their service during the remainder of the year. About 4000 men received a reward of \$15 each, this total exceeding that of 1911 by about 400. The payment was made in gold and distribution was effected as usual at the division headquarters offices throughout the system.

Skip-Stop Idea in Portland, Ore.—At a recent meeting of the special committee of the City Council of Portland, Ore.,

appointed to take up with the management of the Portland Railway, Light & Power Company the question of improving street railway traffic conditions in the city, the officers of the company expressed themselves as in favor of the suggestion to eliminate certain stops and announced that beginning on Jan. 6, 1913, if agreeable to a majority of the people affected, the plan of stopping cars at every other block, instead of every block, would be put into effect on the Mount Tabor line. The company is also favorably disposed toward the suggestion that hereafter all stops made on paved streets be at the near side of the crossing instead of at the far side.

Increase in Wages in Fitchburg.—W. W. Sargent, president and general manager of the Fitchburg & Leominster Street Railway, Fitchburg, Mass., had the following notice posted recently in the carhouses of the Fitchburg & Leominster Street Railway: "A general raise in pay for conductors and motormen will take effect Jan. 1, 1913, as per schedule below: First six months, 20 cents an hour; second six months, 21 cents; second year, 23 cents; third year, 24 cents; fourth year, 25 cents; fifth year, 27½ cents. A new timetable going into effect on the same day will adjust runs to new requirements for a day's work as passed by the last session of the Legislature. The directors wish to thank the employees for the courteous, careful and efficient service rendered during the past year and trust the same will continue."

Differences Between Management and Employees Adjusted.—The differences between the employees of the East St. Louis & Suburban Railway, East St. Louis, Ill., and the management over the discharge of three motormen concerned in recent accidents have been adjusted. The representatives of the employees demanded that the men who had been discharged should be reinstated in their former positions and should receive twenty days' pay for the time which they lost owing to their discharge. The management of the company insisted that the records of the men involved precluded their re-employment by the company in their former capacities, but offered one of the men a position as a special officer, another a position as a shop worker and the third a position as a lineman, with fifteen days' pay. The men agreed to accept these terms.

Accident on Chicago Elevated Loop.—At 6.50 a. m. on Jan. 8, 1913, as a train of the Chicago & Oak Park Elevated Railroad, Chicago, Ill., consisting of three coaches was rounding the loop curve from Van Buren Street to Fifth Avenue, the rear coach was derailed, mounted the outer third rail and fell to the street. Only a few passengers were on the train and no passengers were in the rear coach. The car fell to the street on the west side of the structure in front of the Fifth Avenue station of the Aurora, Elgin & Chicago Railroad. One pair of trucks left the structure with the coach, but the other pair of trucks remained on the structure although derailed. Pending an investigation into the accident the only explanation for the mishap seems to be that the crew took the curve from Van Buren Street at an excessive speed which whipped the rear coach from the train.

Communication in Regard to "Stop Signals."—On Dec. 30, 1912, the Railroad Commission of Indiana addressed the following communication in regard to "stop signals" to all the steam railroads and the interurban railways which operate in Indiana: "Information has come to the commission that many steam and interurban railroads operating in this State have not required strict compliance with Rule No. 27, Book of Rules, Standard Code for Steam Railroads, and Rule No. 103, Standard Code for Interurban Railroads. These rules are identical and read as follows: 'A signal imperfectly displayed, or the absence of a signal at a place where a signal is usually shown, must be regarded as a stop signal, and the fact reported to the proper official.' The proper construction of this rule is that when switch signal lights are found to be out the train or car shall stop, the switch shall be examined and the light relit. Trains or cars should stop in all cases where the lights are out; not slow down, but stop. The commission recommends that this strict construction of the rule shall be enforced by all companies. These companies will advise the commission within thirty days from the date of the receipt of this circular that they will so construe and enforce the rule."

Personal Mention

Mr. G. A. McNamee, for several years assistant secretary-treasurer of the Montreal (Que.) Tramways, has resigned.

Mr. Rodman E. Griscom has been elected president of the International Traction Company, Buffalo, N. Y., to succeed Mr. Thomas Penney, resigned.

Mr. J. P. Ross, who has been secretary of the Birmingham Railway, Light & Power Company, Birmingham, Ala., has also been appointed assistant treasurer of the company.

Mr. Theodore H. Rabe, who has been treasurer and auditor of the Birmingham Railway, Light & Power Company, Birmingham, Ala., has been made treasurer and assistant secretary of the company.

Mr. J. T. McNamara, Jr., has been appointed auditor of the Jackson Railway & Light Company, Jackson, Miss., to succeed Mr. A. C. Powell, who has become connected with the McClelland Banking Company, Jackson.

Mr. Frank McCoy has resigned as general manager and purchasing agent of the Allegheny Valley Street Railway, Tarentum, Pa., and as manager and contract agent of the Allegheny Valley Light Company, New Kensington, Pa.

Mr. John Cash has resigned as superintendent of city lines and roadmaster of the Evansville & Southern Indiana Traction Company, Lafayette, Ind., after a continuous service of twenty-seven years with that company and its predecessors.

Mr. E. E. Vreeland, who has been assistant to Mr. T. H. Tutwiler, president of the Memphis (Tenn.) Street Railway for the last seven years, has resigned to devote himself to his private interests. Mr. Vreeland went to Memphis from Nashville in 1904.

Mr. Charles E. Fife, who since August, 1910, has been superintendent of the Pittsburgh, McKeesport & Greensburg Railway, Greensburg, Pa., has been appointed general manager of the Allegheny Valley Street Railway, Tarentum, Pa., to succeed Mr. Frank McCoy, resigned.

Mr. M. A. Cavanagh, Boston, Mass., who with his associates has purchased the property of the Norwood, Canton & Sharon Street Railway, Canton, Mass., has been elected president of the company to succeed Mr. Dennis G. Trayers, who continues with the company as superintendent.

Mr. J. D. Maxwell has resigned as electrical engineer of the Spartanburg Railway, Gas & Electric Company, Spartanburg, S. C., to become connected with the Anderson Electric Carriage Company, which manufactures the "Detroit" electric vehicles. He will be attached to the Philadelphia office of the company.

Mr. A. D. Furlong, who has been general superintendent and electrical engineer of the Springfield (Ill.) Consolidated Railway, the entire stock of which is owned by the Springfield Railway & Light Company, has been appointed general manager of the company to succeed Mr. A. A. Anderson, resigned.

Mr. V. T. Bary, who has been dispatcher with the Pittsburgh, McKeesport & Greensburg Railway, Greensburg, Pa., has been appointed superintendent of the company to succeed Mr. Charles E. Fife, who has been appointed general manager of the Allegheny Valley Street Railway, Tarentum, Pa.

Mr. Daniel Reidel, Jr., formerly with the Cincinnati & Columbus Traction Company and before that with the Cincinnati, Newport & Covington Light & Traction Company, has been appointed superintendent of motive power and maintenance of way of the Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio.

Mr. Franklin K. Lane, of California, has been elected by the Interstate Commerce Commission to serve as its chairman for the year beginning Jan. 13. As chairman, Mr. Lane will succeed Commissioner Charles A. Prouty, of Vermont. Mr. Lane has been a member of the commission since 1905, and now is serving his second term.

Mr. Alfred Anderson, formerly purchasing agent of the Panama Railroad, Panama Steamship Line and Isthmian Canal Commission, and later with the Metropolitan Street Railway, New York, N. Y., in the same capacity, has been

elected president of the Transit Manufacturing & Materials Company, Inc., recently organized with offices in New York.

Mr. A. A. Anderson has resigned as general manager of the Springfield (Ill.) Consolidated Railway, the entire stock of which is owned by the Springfield Railway & Light Company. Mr. Anderson was formerly general manager of the Indianapolis, Columbus & Southern Traction Company and before that was general manager of the Indianapolis & Louisville Traction Company, Louisville, Ky.

Mr. H. R. Domby has been appointed general storekeeper of the Birmingham Railway, Light & Power Company, Birmingham, Ala., in charge of the department of general stores, which has been established. Mr. Domby has been in the employ of the company since September, 1906, all of his work being in connection with the purchasing and stores department, which he entered as a clerk. Before becoming connected with the Birmingham Railway, Light & Power Company he was with the Birmingham Ledger, and before that he was connected with newspapers in Los Angeles, Cal.

Mr. James W. Dunbar, who was superintendent of the Gas, Light & Coke Company, New Albany, Ind., years ago and later accepted a position with the United Gas & Electric Company in that city, affiliated with the Insull interests which own the Louisville & Northern Railway & Lighting Company and other properties in southern Indiana, has been appointed general manager of the New Albany utilities. It is announced by the Insull interests in Chicago that the electric railways of the syndicate in southern Indiana will be managed hereafter from the Chicago office, under the general charge of Mr. F. E. Cole.

Mr. R. O. Launey has been appointed auditor of the Birmingham Railway, Light & Power Company, Birmingham, Ala., to succeed Mr. Theodore H. Rabe, formerly treasurer and auditor of the company and now treasurer and assistant secretary. Mr. Launey has been connected with the company since April 1, 1904. He entered the service as a clerk and occupied various positions in the accounting department until July 1, 1911, when he was appointed assistant treasurer and assistant auditor. Before becoming connected with the Birmingham Railway, Light & Power Company Mr. Launey was connected with the public utilities at Savannah, Ga., where he was born.

Mr. Henry A. Nettleton, manager of the local lines of the Connecticut Company in Manchester, Conn., which include the line to Stafford Springs, and the oldest employee in point of service now connected with the company in Manchester, was presented with a gold watch recently by members of the crews which work under him. Mr. Nettleton has been in the employ of the Connecticut Company as superintendent at Manchester since the Hartford, Rockville & Manchester Tramway was taken over by the Connecticut Company and previous to that was auditor of the Hartford, Rockville & Manchester Tramway. He has been connected with that company and the Connecticut Company for seventeen years.

Mr. Ivy L. Lee has been appointed executive assistant to the president of the Pennsylvania Railroad. Mr. Lee was born at Cedartown, Ga., on July 16, 1877. He was graduated from Princeton University in 1898 with the degree of A. B., and did post-graduate work at Harvard and Columbia Universities. He then engaged in editorial work until his appointment as press representative of the anthracite coal operators, the Pennsylvania Railroad and other corporations. From 1908 to 1909 he was in charge of the publicity bureau of the Pennsylvania Railroad, and since 1910 he has been general European manager of Harris, Winthrop & Company, bankers. Mr. Lee will have his office at the Broad Street station of the Pennsylvania Railroad in Philadelphia.

Mr. E. Lowndes Rhett has been elected second vice-president and a director of the Federal Utilities, Inc., New York, N. Y. Mr. Rhett entered the banking house of Brown Brothers & Company in April, 1891, as a clerk, and remained with that firm for more than ten years, latterly as manager of the bond and stock department. He then engaged in the bond business with his brother, after which he entered the Stock Exchange firm of Dominick & Williams, where he remained for about three years. Mr. Rhett then became manager of the New York office of

the Boston bond house of E. H. Rollins & Sons, from which position he resigned in 1911, when he was elected vice-president and a director of the Smith-Tevis-Hanford Company, dealer in public utility securities. He continued with the Smith-Tevis-Hanford Company until he was elected second vice-president and a director of Federal Utilities, Inc., on Dec. 30, 1912.

Mr. Joseph D. Evans, whose appointment as construction manager of the Electric Bond & Share Company, New York, N. Y., was noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 4, 1913, was educated in the schools of Lowell, Mass., where he was born, and was graduated as a civil engineer from the Massachusetts Institute of Technology. He went south to do work in the engineering department of the proposed Nicaraguan canal and was subsequently associated with the United States government engineers in the preparation of the original estimates for the Panama Canal. He next engaged in railroad construction in Ecuador. After this Mr. Evans engaged in electric railway work in Pennsylvania, Massachusetts and Connecticut and a little later was appointed general superintendent of construction of the Great Northern Power Company at Duluth, Minn. Subsequently he was connected with the construction of the Buffalo, Lockport & Rochester Railway, which operates an electric railway between Rochester and Lockport. He was then appointed engineer in charge of construction of the Canada Light & Power Company, and at the completion of the plant at St. Timothée he accepted the position of chief engineer of the Montreal Tramways. Mr. Evans will have charge of plants under construction in Utah and Idaho by the Electric Bond & Share Company.

Mr. E. G. Connette, who since May, 1912, has been vice-president of the International Railway Company, Buffalo, N. Y., has been elected president of the company to succeed Mr. Thomas Penney, resigned, and has also been elected vice-president of the International Traction Company, the holding company for the electric railways which are operating in Buffalo, Niagara Falls and Lockport. Mr. Connette has been connected with electric railway properties in Nashville, Syracuse, Worcester and other cities, and previous to his election as vice-president of the International Traction Company he was transportation engineer of the Public Service Commission of the First District of New York. He is very well known in electric railway circles and has taken an active part in the affairs of the American Street Railway Association and its successors, the American Street & Interurban Railway Association and the American Electric Railway Association. He was third vice-president of the American Street Railway Association in 1897-8 and was president of the Street Railway Association of the State of New York in 1903-4. A biography and a portrait of Mr. Connette were published in the *ELECTRIC RAILWAY JOURNAL* of May 11, 1912. In a statement which he issued at the time Mr. Connette was elected vice-president of the International Railway Company, Mr. Penney said: "The development of traffic in Buffalo and the adjacent cities of Niagara Falls and Lockport and on the interurban lines which connect these cities presents many problems which require broad experience and expert knowledge to solve, and it was, therefore, concluded that it was necessary to procure the very best talent obtainable. The directors believe that they have found a man who will ably assist the president in solving the problems attendant upon the situation."

Mr. Thomas Penney has resigned as president of the International Traction Company and the International Railway Company, Buffalo, N. Y., but will continue as a director of the companies. Mr. Penney intends to devote his time principally hereafter to the management of the Near-Side Car Company and other interests of Mr. Nelson Robinson and his associates. Mr. Penney was elected president of the companies to succeed Mr. Henry J. Pierce in September, 1908. He is a member of the firm of Norton, Penney & Sears, counsel for the International Traction Company, and became intimately acquainted with the affairs of the company through his membership in that firm. Mr. Penney was born in London, England, and came to this country when a boy. He prepared for college at Williston Seminary, East Hampton, Mass., and after completing the academic course at Yale he took a law course of two years, graduating with

the degree of bachelor of arts and bachelor of laws and was admitted to the bar of Connecticut. In 1889 he began the practice of law in Buffalo and in 1895 became first assistant to the district attorney, which position he occupied for four years. A vacancy then occurred in the office of the district attorney and Mr. Penney was appointed to fill that office by Theodore Roosevelt, at that time Governor of New York. The following year he was elected to the office for a term of three years. As district attorney of Buffalo Mr. Penney prosecuted the assassin Czolgosz. At the expiration of his term of office Mr. Penney declined a renomination and resigned, having become a member of the firm of Norton, Penney & Sears. Commenting editorially on the retirement of Mr. Penney as president, the *Buffalo Courier* said: "Four years ago Thomas Penney was made president of the company on account of his peculiar fitness for the direction of its affairs in a period requiring the most skilful management. Mr. Penney is a brilliant lawyer and also has the administrative quality highly developed. To his talent is credited the accomplishment of the reorganization without necessity for a receivership. Now he will retire from the presidency in order that he may give time to other large undertakings with which he is identified, but he will continue a director of the company."

OBITUARY

George W. Stoddard, who was president of the Citizens' Railway, Baltimore, Md., died at Atlantic City, N. J., on Dec. 27, 1912, at the age of seventy-three years. Mr. Stoddard was born in Allegheny County, Md., and early in life entered the service of the Baltimore & Ohio Railroad. During the Civil War he was superintendent of the division of the company between Baltimore and Cumberland. Soon after the war Mr. Stoddard took up his residence in Baltimore and subsequently became connected with street railway development work in that city. He retired from the Citizens' Railway following the sale of the property of the company some twenty years ago to the Baltimore Traction Company, which is now controlled by the United Railways & Electric Company. Mr. Stoddard went from Baltimore to Pittsburgh. He had long been a resident of Atlantic City.

Another Communication to Employees in Regard to Holiday Traffic

The Public Service Railway, Newark, N. J., took occasion to address its trainmen recently in regard to the handling of the increased traffic on account of the holidays. The communication, addressed to the men over the signature of Newton W. Bolen, superintendent of transportation, follows:

"In the excitement of holiday shopping some persons are likely to be less careful than usual, or in their hurry take reckless chances in boarding or leaving cars or crossing in front of them. Nobody wants an accident to happen. This is just as true of motormen and conductors as it is of passengers or pedestrians. Accidents are bad enough at any time; they are particularly distressing when, in addition to hurting some one, they spoil the Christmas of many others. Therefore, it is urged that more than the usual care be exercised in the operation of the cars to the end that no suffering shall be caused and that your record shall be clear during the holiday season.

"In addition to being careful, be courteous. Remember that courtesy pays in good will. Do not be grouchy. Help your passengers all you can, especially the aged and infirm and the children. Keep your car as comfortable as the heating and ventilating facilities will permit. Conductors will not fail to call out the names of the principal streets, stores and stations. It annoys one to be carried too far and there will be many visitors in town. Motormen will be extra careful in handling cars in the crowded districts. They can assist conductors, when necessary, by politely asking passengers to move forward in the cars. Everybody keep in mind the motto, 'Safety, Courtesy, Loyalty.'

"I feel satisfied that if the trainmen will follow the above suggestions they will have less trouble, the patrons will be better pleased and both will do their part in making a merry Christmas for all."

Construction News

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

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

RECENT INCORPORATIONS

***Vancouver Island Hydro-Electric & Tramway Company, Ltd., Victoria, B. C.**—Incorporated in British Columbia with a capital stock of \$500,000. Headquarters, Victoria, B. C.

***Caseyville Railway, Belleville, Ill.**—Chartered in Illinois to build an interurban railway from Caseyville to East St. Louis. Headquarters: Belleville. Capital stock, \$50,000. Incorporators and first board of directors: Joseph E. Gundlach, Aloys Gundlach, A. H. Baer, Louis Opp and William M. Hoppe, all of Belleville.

***Lake Erie & Youghiogeny Railroad, Youngstown, Ohio.**—Incorporated in Ohio to build an electric or gas-line railway between Youngstown and Conneaut. Capital stock, \$3,000,000. Incorporators: A. W. Jones, John H. Ruhlman, William H. Ruhlman, George J. Chapman and George M. Brown, all of Youngstown.

***Gananoque, Perth & Lanark Railway, Gananoque, Ont.**—Application for a charter will be made by this company at the next session of the Legislative Assembly of Ontario to build an electric or steam railway between Gananoque and Lanark, with a branch from near Morton through Lundhurst and Delta to Portland. Incorporators: F. A. Henry, R. A. Sibbitt, J. C. Judd, all of Ottawa, and W. T. Sampson, Gananoque; J. A. Donevan, Toronto; F. B. Morton and D. W. Green, Lyndhurst.

***Nashville (Tenn.) Traction Company.**—Incorporated in Tennessee to build 34 miles of electric railway in Nashville. It will also furnish power for lighting purposes. Capital stock, \$125,000. Incorporators: Walter O. Parker, Nashville, and George N. Hendrie, Russell A. Alger, Henry Ledyard and W. Howie Muir, Detroit.

***San Antonio, Fredericksburg & Northern Railway, Fredericksburg, Tex.**—Application for a charter has been made by this company in Texas to build an interurban railway from within 4 miles of Waring in a northerly direction to Fredericksburg. Capital stock, \$30,000. Incorporators: R. A. Love, Foster Crane, M. H. Trice, F. F. Ludolph, A. L. Cunningham, J. H. Haile, George D. Campbell, W. W. Collier, Frank Richards, H. N. Jones and H. M. Abernathy.

FRANCHISES

Globe, Ariz.—Nathan L. Amster, Boston, and associates have received a franchise in Globe. This is part of a plan to build an electric railway between Live Oak, Globe and Miami. [E. R. J., Dec. 7, '12.]

New Westminster, B. C.—The plans of the proposed yards for the British Columbia Electric Railway in the West End have been submitted to the Council, calling for nineteen separate lines, or 3 miles of track. The city engineer has submitted a report giving his views on the plans and the City Council will visit the site before coming to any decision.

Antioch, Cal.—The Oakland, Antioch & Eastern Railway, Oakland, has received a franchise in Antioch.

Pacific Grove, Cal.—The Monterey & Pacific Grove Railway has received a fifty-year franchise from the Board of Trustees in Pacific Grove.

Stockton, Cal.—The Stockton Electric Railway has received a franchise from the Council for the extension of its Poplar Street line in Stockton.

Canon City, Col.—F. S. Kelsey and F. B. Street, New York, N. Y., have received an extension of time in which to begin the construction of the projected electric line through Canon City and the City Park at the top of the Royal Gorge. [E. R. J., Dec. 30, '12.]

***St. Augustine, Fla.**—The Jacksonville & St. Augustine Public Service Corporation has asked the City Council for a franchise in St. Augustine. The route of this railway has been described elsewhere in this issue.

Ashmore, Ill.—The Central Illinois Traction Company has received a fifty-year franchise from the Council in Ashmore.

***Centralia, Ill.**—G. L. Pittenger, C. E. Stead, Dwight F. Haussler and associates, who propose to form the East Side Electric Railway, have asked the City Council for a twenty-year franchise to build an electric railway on Locust Street, Saline Street and Wabash Avenue in Centralia, Ill.

Hillsboro, Ill.—The Springfield & Central Illinois Traction Company has received a franchise from the Council in Hillsboro.

Shreveport, La.—The Texas-Louisiana Traction Company, Shreveport, has received a franchise from the Council to build terminal properties and use certain streets in Shreveport. This line will connect Shreveport, La., and Jefferson and Longview, Tex. A. B. Blevins, Jefferson, Tex., is interested. [E. R. J., Dec. 7, '12.]

Mount Greylock, Mass.—The Berkshire Street Railway has been granted an extension of time until Jan. 1, 1914, on its franchise for its Mount Greylock extension. Extensions of time for the construction of certain extensions in Pittsfield and North Adams have also been granted the company by the Railroad Commission.

Kansas City, Mo.—A. L. Berger, attorney for T. A. Bigger, receiver for the Kansas City Outer Belt & Electric Railway, holding company of the terminal property of the Kansas City, Mexico & Orient Railway Company, has asked the Kansas City (Kan.) Commissioners for a three-year extension of time for the completion of work in Kansas City, Kan., as provided in the company's franchise.

St. Joseph, Mo.—The St. Joseph Railway, Light, Heat & Power Company has received a franchise from the Council in St. Joseph on Eighth Street from Messanie Street to Edmund Street and from Felix Street to Francis Street.

Cicero, N. Y.—The Syracuse, Watertown & St. Lawrence River Railroad has asked the Public Service Commission, Second District, for permission to acquire and exercise a franchise from C. A. Lux for the construction of an extension of its railway in Cicero.

Utica, N. Y.—The New York State Railways has asked the Common Council for a franchise to double-track its line over the overhead railroad crossing at Genesee Street in Utica.

Nashville, Tenn.—The Nashville Traction Company, the incorporation of which is noted elsewhere in this department, has asked the Council for a franchise over certain streets in Nashville.

Murray, Utah.—The Utah Interurban Electric Company has received a fifty-year franchise from the City Commissioners in Murray City. The line will connect Salt Lake City, Payson, Lehi, Pleasant Grove, American Fork, Provo, Springfield and Spanish Fork. W. C. Orem, Salt Lake City, president. [E. R. J., Jan. 4, '13.]

Tacoma, Wash.—The Tacoma Railway & Power Company will ask the Council for a franchise for an extension across Tacoma's new steel bridge, which will be finished during January.

TRACK AND ROADWAY

Pacific Electric Railway, Los Angeles, Cal.—This company plans to spend \$6,000,000 for improvements and new equipment in southern California during 1913. The new lines and extensions consist of the following: Los Angeles to San Bernardino via Uplands, 21 miles; Riverside to San Bernardino, 10 miles; Santa Ana to Orange, 3 miles; Los Angeles to San Fernando, 10 miles, and Mendocinn Street, North Pasadena extension to Altadena, affording a new route to Mount Wilson, 1½ miles. Other lines are the Lincoln Avenue line in Pasadena, 1½ miles; the San Pedro Street line to be built for the city and for which the Pacific Electric Railway will bid. A short line of double tracking on Avenue Sixty-four will be completed in the near future. Work has been begun by this company along Colton Avenue on the new line to Riverside.

San Diego (Cal.) Electric Railway.—Surveys are being made by this company to determine the route for a new line through the City Heights section of San Diego.

Ocean Shore Railroad, San Francisco, Cal.—It is reported that this company has surveyed and secured right-of-way for a 10-mile extension from Tunitas to the center of the

timber belt. To defray the expenses of the construction of the line the company will apply to the State Railroad Commission for permission to issue \$400,000 of bonds.

Virginia Terminal Company, Washington, D. C.—This company will build a double-track electric railway in Washington from a point on Canal Street, near Chadwick Avenue, in Rosslyn, Va., and the Aqueduct Bridge to the Union Station. Among those interested are A. A. Thomas and H. Wardman, Washington, D. C. [E. R. J., Dec. 28, '12.]

***Jacksonville and St. Augustine Public Service Corporation, St. Augustine, Fla.**—This company has been organized to build an electric railway from South Jacksonville in a southeasterly direction to a point to be known as Beach Junction, and then, taking a more southerly course, to run into St. Augustine. From Beach Junction there will be a direct line eastward to the beach and then a line 11 miles along the beach northward to Pablo Beach. Capital stock, \$2,000,000. Officers: A. W. Corbett, president; John D. Andrea, vice-president, and Alexander E. Baya, secretary and treasurer.

Georgia Railway & Power Company, Atlanta, Ga.—The Georgia Railway & Power Company is grading for an extension of its Decatur line to Stone Mountain, a distance of 16 miles.

Elberton & Eastern Railway, Augusta, Ga.—This company has completed 5 miles of its line from Elberton southward on its 21-mile railway to Tignall. Alexander Wilson, chief engineer. [E. R. J., Dec. 30, '12.]

Chicago (Ill.) Railways.—This company has placed in operation its new North Forty-eighth Avenue extension in Chicago, from Chicago Avenue to Milwaukee Avenue, a distance of 4 miles.

Southern Interurban Construction Company, Terre Haute, Ind.—This company was referred to in last week's issue as the Southern Interurban Company, Terre Haute.

Davenport-Muscatine Railway, Davenport, Ia.—This company has placed in operation its line into the downtown section of Muscatine.

Louisiana Traction & Power Company, Lafayette, La.—Surveys have been completed by this company on its Anneville line. Surveys are now being made near Scott on the way to Lake Charles. J. A. Landry, Lake Charles, president. [E. R. J., Dec. 21, '12.]

New Orleans Railway & Light Company, New Orleans, La.—This company has been asked to consider plans to extend its Claiborne line in New Orleans from Kentucky Street down St. Claude Avenue to Delery Street, a distance of 1½ miles.

***Baltimore, Md.**—Plans are being considered to form a company to build a 10-mile electric railway from Overlea to the Harford county line. No names have yet been given of those interested.

***Washington & Great Falls Railway & Power Company, Rockville, Md.**—Right-of-way for the proposed electric railway from the intersection of Bradley Lane and the Georgetown and Rockville Turnpike, near Bethesda, to Great Falls, has been secured, and a deed conveying the right-of-way from the Chevy Chase & Great Falls Land Corporation to the Washington & Great Falls Railway & Power Company has been filed. A deed of trust to secure a \$500,000 bond issue from the railway company to the Fidelity Trust Company, Baltimore, has also been filed. It is stated that the construction of the line from Bethesda to Great Falls is now assured.

Boston & Providence Interurban Electric Railroad, Boston, Mass.—The certificate of necessity and the other privileges granted to the Boston & Providence Interurban Electric Railroad by the State of Massachusetts expired on Dec. 31, 1912, but the directors of the company, acting through E. J. B. Huntoon, Russell Robb, Frederick S. Pratt and Richard M. Saltonstall, have petitioned the Legislature for the revival of the certificate and the restoration of the rights.

Bristol & Norfolk Street Railway, Boston, Mass.—This company plans to build an extension from Post Office Square, Holbrook, to the railroad station.

Norwood, Canton & Sharon Street Railway, Sharon, Mass.—M. A. Cavanaugh, Boston; Joseph B. Murphy, Thomas F. Cavanaugh, James T. Dunn and Col. Peter Corr, Taunton, the new owners of this railway, plan to develop and improve the property at once. The lines will be extended on both ends, and it is proposed to extend the Sharon Heights tracks through to connect with Taunton and Mansfield.

Fergus Falls, Minn.—S. O. Bridston and N. A. Huss and associates plan to construct an electric railway in Fergus Falls. Power will be obtained from Hoot Lake. [E. R. J., March 16, '12.]

St. Louis-Kansas City Electric Railway, St. Louis, Mo.—Work has been begun by this company at Independence. The contract for building and equipping the line has been awarded to the National Contracting Corporation, Norfolk, Va. The contract for grading has been awarded to Griffith & McMurray, Kansas City, Mo. This 245-mile line will connect St. Louis and Kansas City, via Jackson, Lafayette, Saline, Howard, Boone, Callaway, Montgomery, Warren, St. Charles and St. Louis counties. W. L. Allen, general manager. [E. R. J., Nov. 30, '12.]

United Railways, St. Louis, Mo.—This company has received the approval of the Board of Public Improvements to lay T-rails on eight residence streets and avenues in St. Louis.

Monmouth County Electric Company, Red Bank, N. J.—A 1-mile extension will be built by this company from Rumson to Seabright provided the residents of Seabright will obtain the necessary right-of-way.

International Railway Company, Buffalo, N. Y.—It is reported that this company placed in operation on Jan. 4 its new Hoyt-Seneca crosstown line in Buffalo. The extension of the Clinton and William Street lines across Main Street through Swan Street and returning via Erie and South Division Streets will be built at once.

Elmira Water, Light & Railroad Company, Elmira, N. Y.—Plans are being considered by this company for an extension to the Morrow plant and the residential section in that part of Elmira.

Charlotte (N. C.) Electric Railway.—This company plans to build a double-track line on Central Avenue in Charlotte.

Tulsa (Okla.) Street Railway.—An announcement has been made by this company that extensions and improvements of equipment which will be made during 1913 will cost \$100,000. A line to Bellview, 2 miles long, double-tracking of a large section of the fair ground line, additional double-tracking of other lines and extensions of the Owens Park and North Cheyenne lines are some of the proposed improvements.

Niagara, St. Catharines & Toronto Railway, St. Catharines, Ont.—Grading is being done by this company on its 12-mile extension from St. Catharines to Niagara-on-the-Lake. The entire work, including the grading, trestles, track laying, etc., is being carried out by the company's force under E. F. Seixas, general manager.

Toronto (Ont.) Railway.—This company has been asked to consider plans to extend its Church Street line in Toronto across Glen Bridge, up Glen Road, thence west and south to the bridge again, completing the loop.

Toronto & Suburban Railway, Toronto Junction, Ont.—This company has been asked to build two extensions in West Toronto, now known as Ward 7. The total length of the two lines is slightly over 2 miles. The order calls for a single track laid a little to one side of the center line, so as to allow of double-tracking when the traffic warrants it.

Lehigh Valley Transit Company, Allentown, Pa.—Plans are being considered by this company for an extension from Slatington to Palmerton and thence to Lehighton.

Quebec (Que.) Rapid Transit Company.—This company states that it will begin construction in the spring of 1913 a 60-mile to 75-mile line to connect Quebec, Beauport, Charlesbourg, Lorette, St. Ambroise, Cap Rouge, St. Grégoire and the Isle of Orleans. Capital stock authorized, \$1,000,000. A. Tachereau, Quebec, is solicitor for the applicants. [E. R. J., Dec. 14, '12.]

***Moose Jaw, Sask.**—Plans are being considered to build an electric railway between Moose Jaw and Regina. A

syndicate supposed to have the matter in charge has been represented in Regina by a Mr. Friedman, of Seattle, who has had conferences with the Board of Trade and the City Council.

Murfreesboro (Tenn.) Electric Railway.—This company has done a small amount of grading and will begin the construction about April 1 on its 55-mile line to connect Murfreesboro, Readyville, Woodbury, Nashville, La Vergne and Smyrna. The company will obtain power from the Murfreesboro station of the Tennessee Railway & Light Company. J. L. Parkes, Murfreesboro, local representative. [E. R. J., Dec. 28, '12.]

Bryan & College Interurban Railway, Bryan, Tex.—Arrangements have been made and contracts signed for the extension of this company's line into the Brazos section.

Eastern Texas Traction Company, Dallas, Tex.—This company has completed details and has closed contracts for right-of-way franchises for the extension of the Dallas-Greenville Interurban line north from Greenville through Wolfe City to Bonham. The Greenville-Bonham end of the line will be operated for traffic at the same time that the Dallas end is opened, probably not later than Sept. 1, 1913. Three preliminary surveys between Greenville and Bonham will be made soon. J. W. Crotty, general manager. [E. R. J., Nov. 23, '12.]

Denison, Tex.—It is reported that J. R. Cullinan, St. Louis, and associates will begin surveys this month for an electric line between Denison, Tex., and Durant, Okla., via Colbert and Calera. The Field Engineering Company, Denison, will make the survey. [E. R. J., Nov. 30, '12.]

Utah Light & Railway Company, Salt Lake City, Utah.—This company is ready to make track connections with the Oregon Short Line and to extend its Capitol Hill line into the Capitol grounds in Salt Lake City.

Walla Walla Valley Railway, Walla Walla, Wash.—The improvements planned by this company during 1913 will include the construction of new track in Walla Walla and Milton, paving of the right-of-way over Clinton and Whitman Streets and College Avenue, Walla Walla, and a mile extension of the Prospect Heights line as the first step to construct a loop through Russell Creek district, to connect with the East Walla Walla line. An extension to Vincent, a distance of 10 miles, is also being considered by the company.

Tyler Traction Company, Clarksburg, W. Va.—Work is progressing rapidly by this company on its line between Sistersville and Middlebourne. The bridge across Point Pleasant Creek has been completed. H. W. McCoy, president. [E. R. J., Sept. 2, '11.]

Fairmont & Mannington Traction Company, Fairmont, W. Va.—Surveys are being made by this company for a 5-mile electric railway from Annabelle to Mannington. J. O. Watson, general manager of the Monongahela Valley Traction Company, Fairmont, is interested.

Monongahela Valley Traction Company, Fairmont, W. Va.—Announcement has been made by this company that it will build at once its 2-mile line from Gypsy to Lumberport, and that 2 additional miles on the Weston line will soon be placed in operation.

South Morgantown Traction Company, Morgantown, W. Va.—Plans are being made by this company to build an extension of the South Park loop to the Sabraton mills, via Greemont and Marilia.

City & Elm Grove Railway, Wheeling, W. Va.—Plans are being considered by this company to build the View Park loop in Wheeling.

SHOPS AND BUILDINGS

British Columbia Electric Railway, Vancouver, B. C.—Plans are being made by this company to build a new station in Eburne.

Central California Traction Company, San Francisco, Cal.—The general offices of this company, which are now located in San Francisco, will be moved to Stockton during this month and Stockton will become the center of all the activities of the company.

Washington Railway & Electric Company, Washington, D. C.—This company has opened its new carhouse at Four

and One-half Street and P Street, Southwest, Washington. This carhouse and repair shop has been erected to take the place of the former carhouse at Thirteenth Street and D Street, Northeast, which was destroyed by fire last March.

Pensacola (Fla.) Electric Company.—This company plans to build soon new carhouses on the site of the present carhouse between Reus Street and De Villiers Street in Pensacola.

Louisiana Traction & Power Company, Lafayette, La.—This company has purchased property near Lafayette, where it will build its carhouse and repair shops in the near future.

Springfield & Eastern Street Railway, Palmer, Mass.—The offices of this company have been removed to the new quarters in the Holbrook Building in Springfield.

Vicksburg (Miss.) Traction Company.—This company will move its office from the First National Bank Building to the Wilkerson Building at Washington Street and South Street in Vicksburg.

Oregon Electric Railway, Portland, Ore.—This company has opened its new depot in Albany. The structure is 110 ft. x 32 ft. and of brick construction.

Southern Traction Company, Dallas, Tex.—This company has recently purchased property on the north side of the court house square in Dallas to be used for a depot and terminal conveniences for the Dallas-Waco interurban railway. The purchase includes the building on the northwest corner of East Franklin Street and North Waco Street, and this building will be used for a depot for the interurban line.

Walla Walla Valley Railway, Walla Walla, Wash.—This company plans to build new carhouses and a new passenger station at Freewater.

Ohio Valley Electric Railway, Huntington, W. Va.—This company has leased a building on Fifteenth Street in Ashland which is to be remodeled as new offices for the company.

POWER HOUSES AND SUBSTATIONS

Alabama Traction, Light & Power Company, Montgomery, Ala.—Contracts for power-station equipment amounting to approximately \$300,000 have been placed with the Westinghouse Electric & Manufacturing Company by this company, which controls important water-power rights in Alabama capable of developing several hundred thousand horsepower. The order just placed is for the initial equipment of the company's plant at Lock 12 on the Coosa River. It calls for four 13,500-kva, 6600-volt, 60-cycle, three-phase, vertical-type generators for operation at 100 r.p.m. With each is a direct-connected exciter. In addition to this equipment the contract includes twenty 4500-kva, single-phase, 6600-volt to 110,000-volt transformers.

Louisiana Traction & Power Company, Lafayette, La.—This company has purchased 10 acres of land adjoining Lafayette upon which it plans to build its new power houses. J. A. Landry, Lake Charles, president.

Shreveport (La.) Traction Company.—This company has awarded contracts for a 1000-kw generator outfit for its power house in Shreveport.

Tri-State Railway & Electric Company, East Liverpool, Ohio.—This company will soon begin the erection of a \$2,000,000 power house on a plot of ground near Midland, Pa. The company has secured control of several mines in the district, which will insure a supply of coal. The J. G. White Engineering Company, New York, will supervise the work.

London (Ont.) Street Railway.—This company is installing an Allis cross-compound 20-in. x 38-in. x 48-in. Corliss engine and 500-kw generator and is building an extension to its engine room sufficiently large to accommodate this additional unit.

Sandwich, Windsor & Amherstburg Railway, Windsor, Ont.—This company has awarded a contract to the Allis-Chalmers Company for a horizontal, cross-compound Corliss engine, which will be direct-connected to a continuous-current generator of 850-kw capacity.

Walla Walla Valley Railway, Walla Walla, Wash.—This company plans to reconstruct its substation at Freewater.

Manufactures and Supplies

ROLLING STOCK

North Carolina Public Service Company, Greensboro, N. C., expects to purchase four closed 21-ft. city cars during 1913.

Springfield (Mass.) Street Railway has ordered five 40-ft. express car bodies from the Wason Manufacturing Company.

Cleveland (Ohio) Railway has ordered from the G. C. Kuhlman Company fifty motor cars mounted on Brill 27-FE-1 trucks.

Fort Dodge, Des Moines & Southern Railroad, Boone, Ia., is reported to have ordered 200 box cars from the Haskell-Barker Car Company.

Seattle (Wash.) Municipal Street Railway has ordered twelve car bodies from the Cincinnati Car Company. The trucks will be supplied by the Standard Motor Truck Company.

Illinois Traction System has ordered from the St. Louis Car Company four closed interurban trail cars, ten closed interurban motor cars, one sleeper and one observation car, all mounted on St. Louis trucks.

Pacific Electric Railway, Los Angeles, Cal., announces that it will place orders within the next thirty days for thirty stepless cars and twenty interurban cars. Within ninety days the company expects to place a further order for twenty-five additional interurban cars.

TRADE NOTES

International Steam Pump Company, New York, N. Y., has elected H. E. Moller a director of the company to fill a vacancy.

Ohio Brass Company, Mansfield, Ohio, has become exclusive sales agent for the National railroad trolley guard, effective Jan. 9, 1913.

Curtain Supply Company, Chicago, Ill., announces that S. W. Midgley, formerly Western representative, has been appointed Western sales manager, effective Jan. 1.

C. W. Rhoades, salesman for Valentine & Company in the Western territory, has been appointed assistant manager of the railroad sales department which covers all the territory west of Chicago.

Crane Valve Company, Bridgeport, Conn., has elected A. F. Bennett its vice-president and general manager, to succeed F. J. Mulcahy, deceased. Mr. Bennett was formerly secretary of the Crane company.

Henry Hess, Philadelphia, Pa., has disposed of his interests in the Hess-Bright Manufacturing Company to the Deutsche Waffen und Munitions Fabriken, Berlin, Germany, the manufacturers of DWF ball bearings.

Canadian General Electric Company, Ltd., Toronto, Ont., has elected W. R. Brock, for twenty-five years president of the company, its honorary president and chairman of the board of directors. Frederic Nicholls, vice-president of the company for the same period, has been elected president to succeed Mr. Brock.

Bay State Car Wheel Company, Boston, Mass., has been incorporated under the laws of Massachusetts with a capitalization of \$21,000,000, consisting of 90,000 shares of 6 per cent cumulative preferred stock and 120,000 shares of common at \$100 a share. The incorporators are James E. Carroll, John B. Pierce and Edward M. Pickman.

International Pay-as-You-Enter Tramcar Company, Ltd., London, England, announces that the Gateshead & District Tramways, Gateshead, England, has decided to equip its entire service with pay-as-you-enter cars as early as possible. The Gateshead & District Tramways has issued official figures showing an increase in receipts amounting to 7 per cent, attributable to the introduction of pay-as-you-enter cars.

Ford & Johnson Company, Michigan City, Ind., which went into bankruptcy last April with assets nominally \$1,000,000, has had its property sold for \$496,000 at receiver's sale to Harry Wehmer, of Cincinnati. Mr. Wehmer was a trustee for the Second National Bank and Cincinnati Trust Company, bondholders of the Ford & Johnson Com-

pany. Its liabilities were \$3,000,000. It is stated that the property will be operated by the new owners.

Carnegie Steel Company, Pittsburgh, Pa., has appointed James C. O'Neil credit manager to succeed H. P. Howell, resigned. Mr. O'Neil was assistant to Mr. Howell. John P. Collins, who has been appointed to succeed James Scott as superintendent of the Lucy and Isabella furnaces of the company, has received the title of general manager of the city furnaces of the company, with supervision over the Lucy, Isabella, Edith and Neville blast furnaces.

Wheler Condenser & Engineering Company, Carteret, N. J., has acquired the American license to build turbo-air pumps of the A. E. G. type, as manufactured in Europe by the Allgemeine Elektrizitäts Gesellschaft. This air pump is of the rotary water-jet type, for motor or steam turbine drive, air being removed from the condenser by ejector action of a series of small water jets and also by positive entrapment of air between successive small slugs of water. A number of these pumps are now being built.

Western Automatic Fender Company, Seattle, Wash., which manufactures the Nelson automatic fender, will furnish the fenders for the cars for the Seattle municipal railway. The decision to use the Nelson fender was made by the Board of Public Works of Seattle upon the recommendation of A. L. Valentine, superintendent of public utilities. In his report recommending the adoption of the Nelson fender, Mr. Valentine says: "The Public Service Commission for the First District of New York on Oct. 21 and Nov. 5, 1908, test No. 38, gave this fender a rating of 80.3 per cent against all competitors. The qualities required to secure this rating were efficiency and life-saving qualities, cost of maintenance, weight of device, number of parts and materials used in construction. From this and investigations which I have made I feel satisfied that this is the best type of projecting fender on the market, and feeling that the cars of the municipal line should be equipped with the best-known devices for the saving of human life, I recommend that the proposition be accepted."

ADVERTISING LITERATURE

General Electric Company, Schenectady, N. Y., has issued Bulletin No. A4069, which is devoted to the subject of portable and stationary air compressor sets. Bulletin No. A4063 describes the various types of General Electric poly-phase induction motors, and Bulletin No. 4994 describes and illustrates the company's subway transformers.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., has issued Leaflet No. 3511, which fully describes and illustrates Westinghouse box-frame commutating-pole railway motors Nos. 317, 317-A and 317-A2. These motors are adapted for high-speed interurban service, and A2 motor is for use with field control. Folder No. 4245, issued by the company, covers the Westinghouse universal blowtorch, which is adapted to all conditions of service.

Babcock & Wilcox Company, New York, N. Y., has just issued a sixty-four-page book describing the well-known Stirling type of steam boiler. Commencing with a brief discussion of the requirements for satisfactory boiler operation, together with a short history of the Stirling boiler, the book then presents a very complete description of its construction, design and methods of operation. Several pages are devoted to a discussion of the care and management of the boiler, both in service and out of service, and the book concludes with the results of a number of tests of Stirling boilers with various fuels, together with photographs of several installations.

John A. Roebling's Sons Company, Newark, N. J., has reprinted in booklet form an article entitled "The Sea Voyage of a Drydock," by William J. Aylward, which originally appeared in *Scribner's Magazine*. This article describes and illustrates the trip of the drydock *Dewey*, which was towed from Sparrow's Point, Md., to the Philippine Islands. Both wire and hemp hawsers were used for the tow. Among these were a number of Roebling wire hawsers, composed of six strands of thirty-seven wires each and a hemp center. These hawsers, which were 2 in. in diameter, 1760 ft. long and heavily galvanized to withstand the action of salt water, were used on automatic towing machines made by the American Ship Windlass Company (now the American Engineering Works).