

# Electric Railway Journal

Published by the McGraw Publishing Company, Inc.

Consolidation of STREET RAILWAY JOURNAL JOURNAL AND ELECTRIC RAILWAY REVIEW

Vol. XLVI

NEW YORK, SATURDAY, SEPTEMBER 11, 1915

No. 11

## SIGNIFICANT MASSACHUSETTS FARE CASE

Although the action of the Bay State Street Railway in seeking to establish a 6-cent fare unit with some modification, on its system of nearly 1000 miles of track in eastern New England was foreshadowed at the close of the arbitration proceedings last June, resulting as they did in a substantial increase in wages, the conduct of the case before the Massachusetts Public Service Commission will be followed with special interest. The system is one of the largest in the world under a single management, in point of mileage of track, perhaps the largest outside of the Chicago surface lines, but more than this, it is headed by one of the foremost authorities in the industry on electric railway economics. This means that the company's case will be presented in a way which will leave little to be desired in breadth, thoroughness and insight. The form of the notification to the Public Service Commission is an earnest of this. In filing its intention to increase fares the company presented a complete tabulation of the existing and proposed rates in different portions of its territory, with complete computations of the resulting cost of transportation per mile for the distances involved, for every part of the system. The growth of the system from many smaller roads has necessarily created inequalities in fares and transfer arrangements which the company now desires so far as possible to equalize in seeking an approach to a fair return on its investment. It ought to be encouraging to the company that since the memorable Lexington & Boston decision of last year, the commission has shown itself disposed to grant some measure of relief in every case where a street railway has demonstrated its need of additional revenue and the soundness of its management.

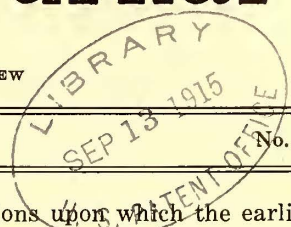
## WHEEL DIAMETER AND MOTOR HEATING

A very interesting and profitable discussion of the subject of the effects of difference in wheel diameter on motor heating has been going on in our columns for some time. The contributions to this discussion have brought out clearly the fundamental principles involved and have indicated the conditions under which overheating from this cause may be expected. While each article published has added something either from theory or practice, or both, the editors felt that if the data necessary for estimating approximately the heating to be expected in any practical case could be put into form for rapid use they would be appreciated. Accordingly W. A. Broomall, who has made an extended theoretical and practical study of the subject, and who is the author of the article published in the issue of the ELECTRIC RAILWAY JOURNAL for July 10, page 70, was

asked to extend the calculations upon which the earlier article was based. He has done so, and the results are given elsewhere in this issue. By plotting the results of numerous calculations in the form of percentage curves Mr. Broomall has made it possible quickly to estimate the effects of any difference in diameter of wheels of any diameter, both within the range of practice. This has been done by assuming average characteristic curves which fit all motors with sufficient exactness for practical purposes. It is obviously impossible to make a simple set of curves which will show the average heating with different schedule speeds, because a given schedule speed can be produced by a great variety in method of handling motors with consequent variety in heating effects. The best that can be done is to furnish information as to the inter-relation of the directly dependent variables as has been done in this case. That is to say, heating depends upon core loss and copper loss which, in turn, depend upon current and speed. Speed and current are, of course, closely related at a given line voltage. Then if the increased heating due to difference in wheel diameter at any speed can be estimated quickly, it is a simple process to calculate the average increase for the varying speeds involved in an actual speed schedule.

## CITY SERVICE FOR VILLAGE TRAFFIC

A correspondent, in commenting upon the difficulties which beset the street railway that tries to operate profitably in a small city and to please the public at the same time, cites a case wherein a ten-minute headway was established in a town of 35,000 inhabitants. Obviously enough, this resulted in earnings of only 15 cents per car-mile, for the city was by no means sufficiently large to support the service. But when the headway was increased to a point more nearly commensurate with the needs of the community a perfect cyclone of opposition arose, notwithstanding the fact that adjacent cities of very much greater size were satisfied with a service that was no more frequent. Of course, the case is not at all unusual. The fact that a community is small does not necessarily deprive it of metropolitan ideals, and unfortunately, these ideals are quite often put into effect only to the extent of hounding the local railway into providing a city service for a village traffic. However, it should not be difficult for the officials of small cities to see that a frequent service cannot be maintained in the face of insufficient receipts, and the fact that they do not seem to see it leads inevitably to the conclusion that much of the trouble stirred up in cities that have just outgrown villagehood originates through motives that are not altogether



straightforward. Certainly, earnings of only 15 cents per car-mile will involve a loss for anyone except a miracle worker, and where such conditions exist it would even seem advisable to publish a detailed list of operating expenses, including in each item the proper proportion of the overhead charges of rent, taxes and interest, as is done in machine-shop accounting. This would at least make some hard questions for peanut politicians to answer, for after all, the general public at heart is essentially fair-minded.

#### ASSESSING BY COMMISSIONS?

Mr. Fletcher in his recent address before the National Tax Association convention, abstracted elsewhere in this issue, raised a taxation question that should be of interest to electric railways—namely, should public utilities be assessed for taxation by public service commissions? Mr. Fletcher feels that as rate and tax problems both require expert analysis of facts and the same set of facts must be used for both rate and tax purposes, the same expert body could well determine both issues. We do not favor such a proposal, for various reasons.

In the first place, although both rate and tax questions require expert analysis of about the same facts, the valuations determined for the two purposes are not equal. Rates are largely based upon the fair value of the property, while taxes are assessed on what is taken out as income. As Mr. Fletcher wisely points out, one is an investment value and the other an income or market value. The theory and practice of making valuations for rate-making purposes, however, are not sufficiently clarified and standardized for public service commissions yet to be burdened with the task of finding distinct rate and tax valuations. In the press of work the too likely tendency would be to use one valuation figure for both purposes, to the detriment of each.

Furthermore, utilities would be unfairly taxed as compared to other properties, unless the entire assessing power of the state were placed in the commission's hands. In most cases, however, the volume of work would make this impossible. There might be two commissions, one the public service body to assess utilities and the other a state tax commission to accept the former's valuations and itself to assess all non-utility property, but such a division of labor with work piled on the public service commission outside its real field would not be advantageous. Aside from the undesirability of having the public service commission attempt to make separate rate and tax valuations, there would be the difficulty of getting the state tax commission to adjust the assessed values of non-utility property to the returns of the public service commission, without being acquainted with the data upon which the latter's tax valuations would be based.

What is really needed for equitable taxation is not the loading of assessment work on already laboring public service commissions, but rather the appointment of a centralized state board that will fix the assessed valuations of all classes of property after care-

ful and impartial scientific investigation. If public service commissions have useful data, such can easily be secured and the tax and rate issues thus kept from clouding each other. If any reform is needed, it is in leading public service commissions more adequately to recognize taxes in rates, as they are reluctant to do now, and in securing higher non-utility taxation. Complete and adequate valuation of general property, on as strict a basis as in the case of utility property, is needed—not merely assessment of lands and town lots, but assessment of goods, merchandise and other forms of personal property, of manufacturing establishments and of natural resource companies. More particularly, in the local transportation field, all jitneys, automobiles and the like should be assessed according to their use of the highways and required to pay proportionate parts of all paving and similar taxes.

Whenever any statement is made concerning the unwarranted increase in utility taxes, the plea is generally made that if certain forms of taxation are discontinued, not enough funds will be secured to conduct the public business. What such pleaders fail to realize is that utilities are as willing to contribute to public revenues as are other corporations and individuals, but they object to paying more than their share. All they desire is an equitable division of the tax burden, and all their opponents wish, evidently, is to keep from under their proper portion as long as it is possible for them to do so.

#### MODERN CLAIM WORK SUCCEEDS

It has been said that the modern business man is a true heir to the old magician, for everything he touches seems to increase tenfold or a hundredfold in value and usefulness. One would have to go far in the electric railway field to find a more striking proof of this statement than the development of the claim department of the Pittsburgh Railways under Cecil G. Rice, described in the issue of July 24 and also in the present issue.

The first article was useful as showing how under Mr. Rice's guiding hand the department with its five bureaus had taken on the most modern form of organization, the co-operatively-functional type, but the present one is just as worthy in view of its delineation of practical business psychology and personal efficiency ideals in claim work. The thoroughness with which the management has analyzed and developed the routine work of the bureaus is fully equaled by the assiduity with which special psychological and efficiency methods have been utilized to bring the department to newer and wider horizons of activity and success. The specific organization and methods employed in Pittsburgh may not be susceptible of exact duplication by many other companies, particularly as regards the matters of size and detail, but the fundamental principles underlying the development of the Pittsburgh department can and should be applied by every claim official in the electric railway field.

Probably, we are sorry to say, there are some claim

agents and company officials who will look upon the joining of business organization and psychology with claim work as utter nonsense, for the old "strong-arm" concept of claim agents has not altogether been destroyed. Where modern theory and practice have failed to convince, however, perhaps results will succeed. A decrease of 50 per cent in suits pending, a drop of \$2,168,866 in the amounts sued for in suits pending, the settlement in one case of ninety-six injuries and in another of ninety-two injuries without the entrance of a single suit, and the decrease of \$140,000 during the last year in all expenditures properly chargeable to the injuries and damages account—these are the results of the application of modern business principles to the work of settling claims. They cannot be secured by the old rough-and-ready methods, and the sooner all claim agents realize this the better.

#### CULTIVATING PERSPECTIVE IN ROLLING-STOCK MAINTENANCE

The technical graduate entering the repair shop or starting in carhouse pit work this autumn is not likely to suffer from insufficient opportunity to master equipment details. He is more likely to be overwhelmed with these than otherwise. If, however, he cultivates a sense of perspective which differentiates tasks of vital importance, when considered from the standpoint of operating safety, from those of less consequence to the traveling public, he will gain much. In every profession the ability to grasp important matters and concentrate attention upon these is something worth seeking with hard labor, and the man who has much to do with the complex equipment of street railroading must learn to separate the essential from the incidental before he can market his judgment most effectively.

Without advising new men to neglect any opportunities to learn the details of rolling stock which come before them, we believe that the extreme importance of putting forth every possible effort to master the lessons of accidents may be emphasized. Often the man fresh from the engineering school goes into the shop with little realization of the part accident prevention work is playing to-day in the industry. He knows, doubtless, that "safety first" has become the slogan of progressive concerns from Maine to California, but his interest in the scientific principles underlying the design and operation of equipment has been so highly stimulated by his college course that to a large extent the tasks before him seem of equal significance. Such a man is likely, when noting a passing car, to observe peculiarities of its truck design or of its lighting arrangements, while perhaps failing entirely to appreciate its passenger load or the lack of it or to think about the relation of vestibule width and step heights to facility of handling traffic. He should not be blamed for overlooking what might be called the transportation side of car equipment through his interest in its physical structure thus early in his career, but with experience and well-directed thought the broader outlook can be cultivated.

All the work of the shop is naturally important in

relation to the service of the road, but it is worth unusual effort to take a specialized interest in the defects and failures of wheels, axles, brake rigging, the results of collisions, ability of equipment parts to withstand derailment shocks and lessons of accidents in which step arrangements play a part, as well as in the methods used to put rolling stock through the shop as quickly as possible after accidents. Few people outside the mechanical department realize the interest such studies inspire in the men responsible for the condition of the equipment to prevent the occurrence of like difficulties in the future. The practice of collecting photographs and sketches of equipment injured in various ways on the road is a good one for the young engineer. To the man of keen insight and broad judgment the repair shop becomes a sort of mechanical clinic, and by putting forth his utmost endeavors to learn everything possible about maintenance problems directly associated with the safety of the service, he can acquire a sort of mental set which is bound to be a factor in his success as a genuinely qualified railroad man.

#### THE FUTURE FOR ELECTRIC RAILWAYS

Of late the remark has been frequently heard—generally from the proponents of the motor bus—that the electric railway has reached its maximum of efficiency. Presumably, this means that further progress is an impossibility, and we are expected to believe that the cost of passenger transportation by electricity is never going to be less than it is to-day. In view of the fact that the unit revenue is certainly not increasing because of fare limitations, the outlook would be hardly encouraging if one accepted the doctrine of present perfection. However, we rather incline to the belief that electric railway operation is just about as subject to improvements in the way of better economy now as it was ten years ago. In the transportation department alone, for example, the field of opportunity for economy seems constantly to broaden, as we consider the possibilities.

It is only yesterday that such opportunities for saving as better popular education in accident prevention, the use of power consumption recorders and scientific fare collection have come to be generally accepted, and even along these lines there remains much untilled ground. Indeed, the matter of increasing the schedule speed without increasing the maximum speed—one of the most important considerations in economical operation—has never yet received any attention that is really worthy of the name, with the result that 8 m.p.h. is an almost universal figure, although the practicability of 10 m.p.h. and over has been demonstrated by a few shining examples. Such an increase, if made by cutting out stops, would alone mean a reduction in operating expenses of some 15 per cent, and until this and the numerous other possible economies have been thoroughly exploited it seems rather futile to accuse the electric railway business of being ready to succumb to the competition of the bus merely because this is alleged to offer such glittering possibilities of future improvement.

# Chicago Elevated First-Aid System

In His Third and Concluding Article the Author Describes the Organization and Equipment of a Complete First-Aid System, and the Method of Maintaining It.

BY H. E. FISHER, M.D., SURGEON ELEVATED RAILROADS OF CHICAGO, ILL.

Two years' experience with a completely equipped and organized first-aid system on the Elevated Railroads of Chicago has demonstrated, beyond doubt, that the installation was warranted and fulfills a purpose much needed on transportation systems. Regardless of the safety-first measures which may be adopted, transportation lines are certain to have accidents in which either the public or the employees are injured. To meet these emergencies in a competent manner when they occur, it is essential that suitable medical and physical equipment be provided and that intelligent first-aid to the injured be administered promptly.

The results obtained by the Elevated Railroads of Chicago show that the installation of a hundred of these first-aid stations was more than justified. This number provides complete first-aid outfits at sufficiently frequent intervals over the entire property to make them convenient for all purposes. It has been found particularly desirable that all transfer stations, shops, towers, yards, junction points, terminals and substations be supplied with this first-aid equipment.

Each first-aid station is designated by a large red cross on a white background, placed in a prominent place on the sides of the towers and shops and at the ends of station platforms, the object being to make them visible from all directions on the elevated structure. These markers indicate to the employees that they can find medical and surgical aid for injuries and sickness. One of these first-aid outfits is shown in an accompanying illustration. Employees are required to memorize the locations of the first-aid stations which they may have occasion to use, so that when an accident occurs little or no time will be lost in securing first-aid material. Each of these stations is in charge of a man who is competent to render intelligent first-aid treatment, and he performs this service in addition to his regular

railroad duties. To fit these men for this work the company surgeon instructs them from time to time so that with the two years' experience most of them have become very proficient in this line of work.

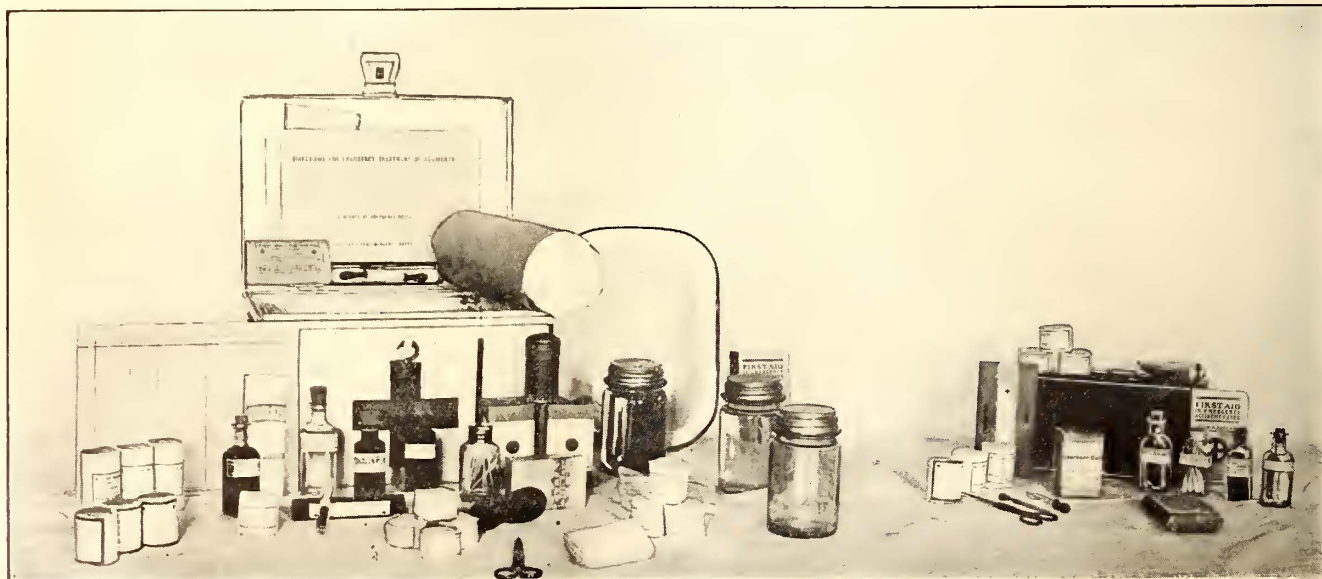
## FIRST-AID STATION EQUIPMENT

All first-aid stations are equipped with regulation United States army stretchers which, on account of their simplicity of construction and ease of portability, have been found to be the most practical for railroad use. With the patient on this stretcher it can be so manipulated that it may be carried up and down stairs without discomfort to the injured person. Moreover, it is readily handled by two men and can be conveniently taken into the cars through the windows or doors without disturbing the patient. Aside from these advantages the stretchers cost nothing to maintain and are easily kept clean, and the brown canvas does not show stains or grease marks. The leg rests enable the stretchers to be quickly converted into cots, thus rendering it unnecessary to lay the patient on the ground. For this reason, also, injured people who are transported in the cars do not complain of the vibration of the train, with its accompanying pain to the injured parts. Each stretcher is folded when not in use and hung on brackets on the walls of the first-aid stations.

At all first-aid stations are located the elevated railroad standard white-enameled first-aid boxes, 3½ in. x 9½ in. x 9 in. in size, and fitted with racks to hold the bottles of drugs and solutions. A set of first-aid rules is pasted on the inside of the cover of each box. The contents of one of these forms is reproduced in the illustrations. Posters showing the method of performing artificial respiration are also prominently displayed at the first-aid stations in all shops, yards, terminals and trainrooms.

The contents of one of these first-aid boxes comprises the following articles: One large, sanitary, white por-

[EDITOR'S NOTE. For preceding articles in this series see issues of June 26 and Aug. 7.]



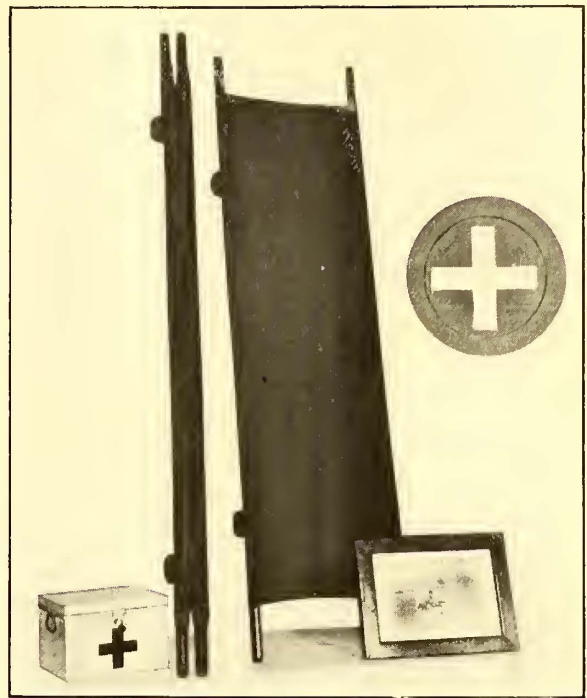
CHICAGO ELEVATED—VIEW OF STANDARD FIRST-AID BOX, SMALL BOX AND CONTENTS OF EACH

celain dish, 7 in. x 10 in. x 2 in. in size, which is used to wash the hands of the employee giving first aid or to prepare the solution for treating burns; one pair of surgical scissors, 5 in. long; one medicine dropper for injecting eye drops into eyes injured by electrical flashes or burns or to allay eye irritation due to foreign matter; one small bottle containing sanitary tooth picks with cotton wrapped on one end, used in the application of iodine to cuts. Formerly camel's air brushes were used for this purpose, but they were found too expensive. They become easily soiled and are liable to carry infection into the wound when used more than once. The brushes also were misplaced and the bristles soon became stiff. The tooth-pick applicators are cheap and after being used are thrown away. The remainder of the equipment includes one yard of 1-in. tape used as tourniquet in case of bleeding; one reel of adhesive plaster, 1/2 in. wide and 5 yd. long; one bar of germicidal soap used to wash the hands of those giving aid; one tube of vaseline used for burns on the face; 2 yd. of sterile gauze in a sanitary carton for wounds and burn dressings, two 2-ounce cartons of sterile cotton; 1/2 lb. of cotton for reinforcing burn dressings; four each of 1-in., 2-in. and 3-in. gauze bandages; a 2-oz. bottle of tincture of iodine which is applied to all cuts or lacerations; 2 ounces of aromatic spirits of ammonia used in stimulating patients in shocks, unconscious or fainting attacks; 2 ounces of boracic acid eye drops; one pint glass jar each of raw linseed oil and lime water, and one empty pint glass jar used in mixing equal parts of lime water and linseed oil to make carron oil for burns.

Carron oil has often been criticised by the medical profession because it is greasy and unsterile and because it becomes rancid, but it is successfully used by the Elevated Railroads of Chicago for treating burns. Hundreds of burn cases have been treated, and we have not yet encountered infection from its use. Carron oil is made fresh each time it is needed and in sufficient amounts to treat the case at hand. No mixed portions of carron oil are left in the first-aid boxes, consequently we have not experienced the disadvantages claimed for this drug by others. Iodine also will give some trouble unless properly handled. The bottle should have a rubber cork because iodine will cause an ordinary cork to deteriorate. This is usually followed by escaping fumes which cause the metal of the first-aid box and scissors to corrode. As an extra precaution in this respect all lost or broken scissors have been replaced with new ones with painted handles which iodine will not attack.

A first-aid manual is placed in each box as an additional guide and ready reference to the employees in giving treatment. Supplies removed from the boxes in treating injuries are replaced by new material immediately so that the outfit is always complete. A card is placed in each box upon which is recorded the date the box was used, the injury necessitating it and the supplies used from it. One of the cards containing a record of one of the first-aid stations is illustrated. It will be noted that each employee having occasion to use the first-aid box gives his name, occupation, the kind of injury and the character of surgical treatment. From these record cards the efficiency of each box is determined. These first-aid stations are regularly examined by a medical department inspector who records the date and his name on the inspection label on the lid of the box.

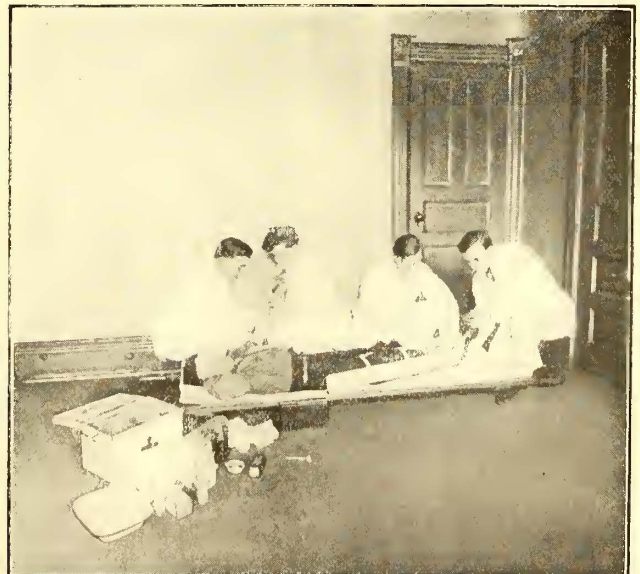
Experience has shown that the secret of an efficient first-aid system is to lay down a set of rules to govern the system and to see that they are closely observed. If at the time of inspection any box is found in a dirty or neglected condition and with supplies missing, the man in charge is reprimanded and warned that a second



CHICAGO ELEVATED—EQUIPMENT OF EACH FIRST-AID STATION

occurrence will merit severe measures. At the time the first-aid boxes were installed the movement was not taken seriously by some of the employees. After a brief experience with these equipments in time of injury, however, their great value was demonstrated and the movement soon won the hearty support of every employee.

A small cedarwood first-aid kit for use where the larger kit is not desired is shown in one of the accompanying illustrations. This box contains 1 ounce of iodine, 1 ounce of spirits of ammonia, one tube of vaseline, one first-aid package of sterile gauze and triangular bandages, one pair of scissors, one bottle of cotton applicators, one 3-in. bandage, one 2-in. bandage, one 1-in. bandage and one box of sterile absorbent cotton. This small kit is for use in various departments of the shop in addition to the larger first-aid box. In the shops and substations wall cabinets are also used to accommodate



CHICAGO ELEVATED—DEMONSTRATION SQUAD AT WORK

the larger quantity of supplies necessary on account of more frequent injuries. A tin first-aid box has been provided at all first-aid stations because it can be taken to the patient, thus hastening the treatment.

The stretchers cost from \$4 to \$6 each, the large first-aid boxes \$4 to \$5 each and the small first-aid kits from \$2 to \$3, depending on the quantity of supplies they contain.

RESULTS OF FIRST-AID WORK

The results from the use of these first-aid equipments have been most gratifying. During the past two years there has not been one fatality due to wound infection as against two before the outfits were installed. In this same period only one case required hospital treatment of an infected shop wound. This case was a new man who did not think his injury was of any consequence and did not use the first-aid treatment. He remained in the hospital five days. Time lost by employees from shop wound infections has been entirely eliminated, and of the numerous cases of shop injuries where the iodine treatment has been used, only 1 per cent have resulted in infections, and these were of a very minor nature. All employees are urged and advised to seek first-aid treatment for all injuries regardless of how trivial they may appear. Close adherence to this custom accounts for the practical eliminating of infections from shop wounds.

Besides being of service to the employees these first-aid equipments have been a wonderful help in ministering to passengers of the elevated railroad. Scarcely a day passes that some box is not used for treating fainting or sick passengers. It seems that women passengers who are inclined to faint, know just where these stations are located, or at least the stations have been happily selected because women invariably faint near them. Aromatic spirits of ammonia serve in cases of this kind. The author has equipped several other street railways with these first-aid outfits and has advised and superintended the organization of their first-aid systems. Re-

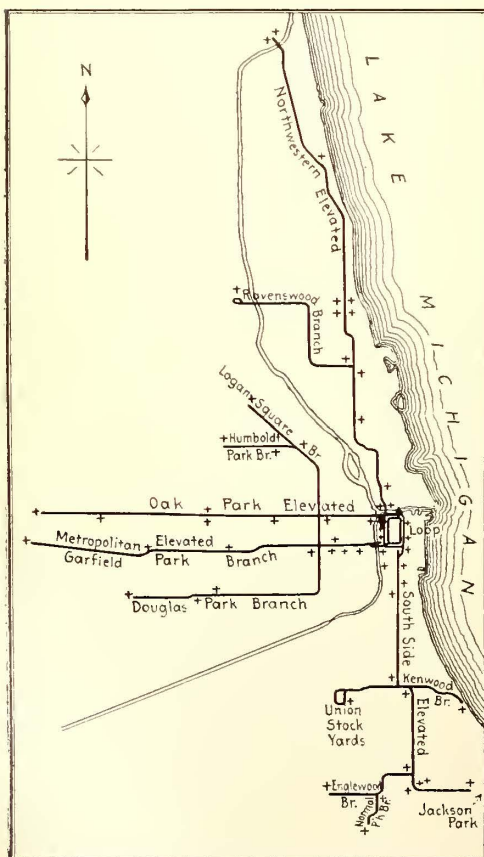
ports from these companies indicate results equal to those experienced on the Elevated Railroads of Chicago.

ORGANIZATION OF FIRST-AID INSTRUCTION

After the first-aid equipment is installed it is very important to instruct the employees how and when to use it. If a means of educating the employees regarding the method of rendering first aid is not afforded, the installation is quite certain to prove a failure. An inexperienced man would not be asked to operate a delicate piece of electrical machinery without first being instructed. Lack of instruction in first-aid work is certain to produce just as harmful results, consequently it is vitally important that when these equipments are put into the employees' hands careful instruction is given. Officials of several outside companies have asked how such excellent results in first-aid work were secured on the elevated railroads when their employees would not use the first-aid equipments nor could the employees be interested in the merits of the plan. Inquiry revealed that these companies had installed good first-aid equipment but had failed to instruct their employees how to use them. As a result the employees thought the first-aid outfits were only ornamental and were afraid to use the supplies because they did not know how to go about giving first aid.

The plan of procedure developed for instructing employees has proved entirely satisfactory and will assure success to any other railroad that follows the same system. Owing to the large number of employees it was considered impractical to instruct all of them in a thorough manner, hence the medical department selected six extra trainmen, because they could devote time to the training course without interfering with their regular work. These six men were paid regular wages and received a course of instruction in rendering first aid to the injured. This instruction lasted two hours a day for a period of six weeks. The employees received personal instruction and training under the company surgeon, and when they had become proficient in the work they were called the first-aid demonstration squad. This squad in turn demonstrated first-aid work and instructed other employees in the art. This demonstration squad is shown at work in one of the accompanying illustrations.

Emergency squads of seven men each were then selected by the various heads of departments, and one squad was placed at each terminal, yard and shop on all branches of the elevated railroads. Five of the men selected for each squad were day men and the other



CHICAGO  
ELEVATED—  
LOCATIONS  
OF ALL  
FIRST-AID  
STATIONS  
  
FIRST-AID  
RULES POSTED  
IN EACH  
STATION

Form J B 134 100 8-13.

### DIRECTIONS FOR EMERGENCY TREATMENT OF ACCIDENTS

**GENERAL INSTRUCTIONS:** Before touching burns, wounds, or skin abrasions, the emergency man must wash his hands thoroughly with the blue germicidal soap which is in the emergency outfit.

**BURNS:** Mix equal parts of linseed oil and lime water in empty Mason jar. Shake well and apply freely to injured part, cover with sterilized gauze and apply bandage.

**BLEEDING:** When there is bleeding from legs or arms, apply wide piece of tape tightly above the injury and leave in position until the doctor arrives, or patient is taken to the hospital. In case the bleeding is at a place where you cannot apply tape, cleanse the wound with tincture of iodine, apply sterilized gauze and bandage tightly.

**WOUNDS AND BRUISES:** Paint wound and surrounding skin with tincture of iodine, allow it to dry and cover with sterilized gauze. Cover with adhesive plaster or bandage.

**FAINING:** Place patient on the back, loosen clothes and give plenty of fresh air. Do not give any medicine except on doctor's advice as all cases of unconsciousness are not produced by heart weakness.

**BROKEN BONES FRACTURES:** Fold two or three newspapers together and bind them snugly with a bandage around the broken member. If the legs are injured do not allow the patient to walk.

**SHOCK FROM ELECTRICITY:** Place in reclining position. Administer one-half teaspoonful of aromatic spirits of ammonia in one-third glass of water.

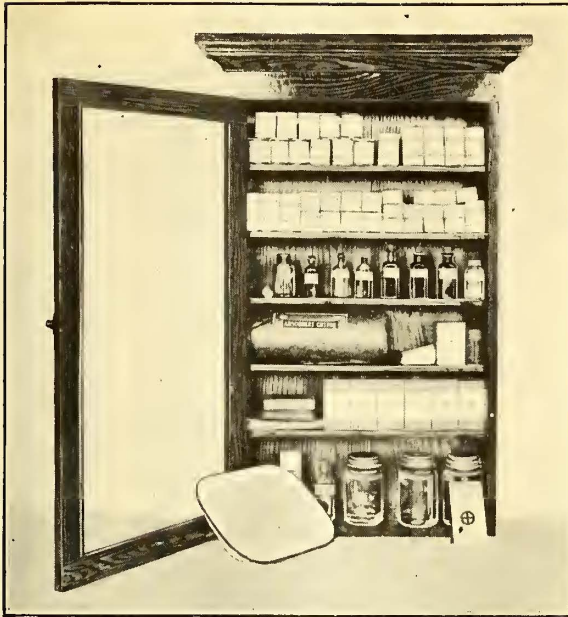
#### CONTENTS OF EMERGENCY BOXES

2 ounces tincture of iodine.	2 1-ounce packages Bauer & Black cotton.
16 ounces lime water, in Mason jar	3 3-inch bandages.
16 ounces linseed oil, in Mason jar	4 2-inch bandages.
1 tube vasoline.	1 ounce aromatic spirits of ammonia.
1 3-yard package sterilized gauze—Burroughs & Wellcome.	1 ounce eye water.
1 bar germicidal soap—McClintocks.	1 package zinc oxide 1/2-inch adhesive plaster
	2 feet linen tape, 1 1/2-inch.

#### UTENSILS FOR EMERGENCY BOXES

1 porcelain dish.	1 pair small scissors.
1 wide mouth Mason jar for mixing lime water and linseed oil.	

Box and utensils must be kept in a clean and sanitary condition.  
When box is used see that supplies are ordered promptly to keep full supply at all times.



NORTHWESTERN ELEVATED RAILROAD CO. Wilson Ave. Box 2

DATE OF USE OF BOX	EMPLOYEE'S NAME	EMPLOYEE'S OCCUPATION	NATURE OF INJURY RECEIVED	MATERIAL USED IN THE TREATMENT OF INJURY
10-13-14	Jerry Kieffon	Salvage	Severate hand left hand	Cleaned alcohol - Iodine - bandage
10-15-14	O. Shurshler	Car Rep	Cut on rt. hand	Iodine + bandage
11-18-14	J. Riley	Car Rep	Blow facial at eye.	Removal - eye drops
11-20-14	Chas. Pugh	Carpenter	Index rt. finger cut	Iodine + bandage
11-20-14	T. Vebie	Carpenter	Blow on middle st. finger	Removal + iodine.
11-23-14	J. Kurz	Salvage	Burn on hand	Caron - oil + bandage
11-23-14	E. Evans	Salvage	Spasm left ankle	Iodine + bandage
11-23-14	H. Wpfer	Mach.	Cut left arm	Peroxide + sterile dressing
11-24-14	Ta. Roy Loh	Mech. Helper	Spasm left wrist	Iodine + bandage
11-24-14	H. Bora	Salvage	Little finger rt. hand cut	Cleaned alcohol, iodine + bandage
11-25-14	H. Blomquist	Elect. Rep.	Face burned	Vaseline + dressing
11-25-14	J. Ferraro	Elect. Rep.	Cut right eye.	Eye drops
11-26-14	L. Graham	Elect. Rep.	Right hand burned	Caron oil + bandage
11-27-14	A. Wash	Switchman	Washed 2nd rt. finger	Iodine + bandage
11-28-14	L. Raymond	Ad. Man	Finger jammed	Peroxide, vasoline + bandage
11-28-14	W. Bohman	Inspector	Little finger rt. hand cut	Iodine + bandage.
11-29-14	A. Hayes	Guard	Mashed index finger	Iodine + bandage
11-29-14	L. H. Albion	Switchman	Abras. rt. elbow	Peroxide + bandage
11-30-14	W. Leonard	Guard	Rt. hand cut	Peroxide vasoline + bandage
11-30-14	E. Rogers	Protector	Blow on rt. leg	Peroxide iodine + bandage

ALL EMPLOYEES USING THIS BOX FILL OUT THIS CARD

CHICAGO ELEVATED—FIRST-AID CABINET FOR SHOPS AND SUBSTATIONS

CHICAGO ELEVATED—RECORD CARD OF FIRST-AID STATION, SHOWING ASSISTANCE RENDERED BY STATION EMPLOYEES

two were night men, so that at least one or two men of each squad would always be present at these various locations and could competently render first aid. These emergency squads were made up of shop foremen, yard foremen, dispatchers, switchmen and other men who had been in the service for a number of years, hence could be relied upon at all times. Moreover, the selection of men of this caliber assured intelligent work and the greatest efficiency.

The company surgeon, with the aid of the demonstration squad, instructed by lecture and demonstration these emergency squads until they in turn were able to administer intelligent first-aid treatment. During the period of instruction these men received their regular pay and accordingly were interested and supported the work. These emergency squads were taught how to bandage wounds, dress lacerations and burns, treat unconscious and fainting cases, perform artificial respiration in cases of electrical shock, give emergency treatment for broken legs or arms, treat heat prostration cases, apply tourniquets in cases of bleeding and give competent surgical service in the case of many other forms of injuries that might occur. The employees comprising these teams entered into the work with much enthusiasm. Their support of the movement and their good work have been instrumental in saving the lives and allaying pain in time of accident of many of their brother employees. To the efforts of these squads also may be attributed the great decrease in the number of infections and the reduction of the period of convalescence of injured employees.

As a text and reference for employees' use in time of injury, a small first-aid manual was compiled. This was written devoid of all technical and medical words so that it could be easily understood. Each employee of the elevated railroad received one of these booklets and was urged to study it. The value of the booklet has since been made evident by the great demand for it by other railroads, manufacturing companies, physicians and the public. A large number of these booklets have been distributed gratis to all who have asked for them.

Mass or group lectures and demonstrations in first-aid work were also conducted, and employees were assembled in classes of twenty or thirty and lectured for

two hours. These lectures met with a hearty response from all the employees, and at the meetings many valuable suggestions were received from them. More than 480 employees of the elevated railroads have received this course of first-aid instruction. When one stops to think what this means in time of accident it will be readily seen what great good is being accomplished. The traveling public is appreciative of this humanitarian work, particularly when, as injured passengers, they receive the benefit of the ministrations of these trained employees.

All the demonstrations are made as nearly as possible like the conditions obtaining at the time of an injury, so that the drill team can give realistic portrayals of the various injuries and the method of caring for them. Some of the supplementary instructions are illustrated by lantern slides, posters and charts. In the first-aid demonstration work the employees are taught how to render first aid for the most common injuries with surgical equipment and ideal surroundings, and also when there is nothing to be had but their own clothing. Considerable publicity has been obtained through the work of this department. The lectures by the company surgeon and demonstrations by the drill team have been given during the past year at private clubs, church societies and public meetings. In one or two instances the drill team has been used to instruct the employees on other electric railways. Beginning last May, the same course of instructions in first-aid work was extended to the old employees as well as the new men entering the service. These courses take the form of quizzes and illustrated lectures.

EXAMPLES OF FIRST-AID TREATMENT

To illustrate some of the benefits derived from this work a few examples of where lives were saved by employees' first aid are given. Many employees have had occasion to apply their knowledge of first-aid work in injuries to members of their own household. In one case an employee, following the knowledge imparted to him, saved the life of a member of his family who was bleeding to death from a severed artery. A conspicuous example of what good can be accomplished by properly instructed employees is shown in the following: An employee fell across the live third rail and was shocked

to unconsciousness. His heart had practically stopped beating, no pulse beats could be detected, all respiration had ceased and the man was apparently dead. The emergency squad at the yard where this accident occurred quickly released him from the electric circuit and resorted at once to artificial respiration. After an hour's unceasing work the squad was repaid for its efforts when the victim began to breathe. The squad then intelligently dressed the burns on his face and arms, and after a brief period in the hospital the injured employee returned to his regular duties in first-class physical condition. It is easy to see in this case what would have been the result if the squad had not been versed in rendering first aid.

Another illustration is a case where a man who had a leg cut off under the wheels of a car received first-aid treatment by employees. They applied emergency tourniquets to stop the bleeding and removed him to a comfortable position four and one-half minutes after the leg was cut off. The surgeon who responded in this case wrote a letter complimenting the employees who gave the first aid, and credited them with prolonging the man's life by the efficient manner in which they applied the tourniquet. Many other examples of the results of this work could be cited, but suffice it to say that the employees have received indorsements from many physicians and surgeons who have seen the results of their first-aid work.

Nothing is more distressing than first-aid given by a man who has not been trained in the work. His efforts frequently cause more infections than cures. Some of the bungling first-aid work done by untrained employees has caused prominent surgeons to discourage the use of first-aid equipment. On the other hand, the medical profession is quick to realize the good to be derived from first aid when the employees have been properly trained.

In closing, I will say that while this work is in its infancy in this country, there will come a time when it will receive greater consideration. The humanitarian nature of first aid to the injured appeals to every man, because every man owes to his fellow men a duty to perfect himself in methods of rendering first aid in time of injury. There is nothing more deplorable, nor a sight more pitiful, than to see a man seriously injured lying prostrate on the ground surrounded by a group of big, strong men who are helpless to aid the sufferer because they do not know what to do or are afraid to give aid for fear it might be wrong. Therefore, I say educate and train your employees in rendering first aid, and the time and money invested in the work will be returned a hundredfold.

### Meeting of Public Service Association of Virginia

The annual meeting of the Public Service Association of Virginia, which includes in its membership the principal street railway, the electric light and power and the gas and water companies of Virginia, was held at Natural Bridge, Va., on Thursday, Aug. 19. Two-thirds of the member companies of the association were represented, and the usual routine business of the association was conducted. No formal papers were read, but topics of interest to the association were presented and discussed.

The officers elected for the ensuing year are as follows: President, E. M. Funkhouser, Roanoke, Va.; first vice-president, J. F. Rison, Danville, Va.; second vice-president, W. G. Matthews, Clifton Forge, Va.; third vice-president, Thomas S. Wheelwright, Richmond, Va.; secretary and treasurer, W. J. Kehl, Richmond, Va.

### Operation by Signals on Baltimore & Ohio

**This Line Is Successfully Operating Mixed Traffic Over Single Track Without Train Orders, a Manual Check on Signal Operation Being Provided**

During the past year the Baltimore & Ohio Railroad has had in operation a 23.5-mile section of main-line single track wherein the traffic is controlled by signal indication alone. This section, which lies between La Paz Junction and Milford Junction in Indiana, couples double-track sections of the main line, but has not been double-tracked itself because of topographical difficulties. Acting, as it has, as a "neck of the bottle" for a frequent and heavy train service, the operation of this section by signal indication only has been a most important step, and the installation has been stated by F. P. Patenall, signal engineer, Baltimore & Ohio Railroad, to have effected the saving of much delay through the elimination of the necessity for issuing train orders.

The single-track section in question is divided into three parts by two passing sidings located at the intermediate stations of Bremen and Napanee, and at each of these points is an electro-mechanical interlocking machine with sixteen mechanical levers and sixteen power levers, thus providing for the operation of all switches at the station from a centralized point. At the stations at the ends of the single track section, La Paz and Milford, are interlocking plants that serve foreign railroad crossings as well as the needs of traffic from the double-tracked main line on to the single-track section and vice versa. Between passing sidings the single track is protected by three-position, Union Switch & Signal Company's style T automatic signals spaced at intervals of approximately  $1\frac{1}{4}$  miles, these giving protection with stop and caution indications for following movements as in double-track operation. Normally these are in stop position, the signals for only one direction being cleared when a train is to be moved over the single-track section.

For opposing train movements protection is afforded by the use of a traffic-directional scheme whereby opposing signals cannot be cleared simultaneously and under which there is imposed the necessity for simultaneous action on the part of the operators at the stations at each end of the opposing block before a train can be advanced into it. The arrangement may be explained in brief by reference to the accompanying partial diagram of the locking circuit between Milford and Napanee, the operation in this case being typical of that of the other parts of the single-track section. In the interlocking machines at each of these two stations there is installed a traffic-direction lever, whose locking circuit is controlled by a push button at the opposite station, and the controlling relays for the intermediate signals obtain energy only when one of these two levers is in normal position and the other one is reversed. When both levers are in normal position or when both of them are in reversed position the circuits in both directions will be open and all signals will indicate stop.

Both levers are held in normal position by locks whose locking wire is controlled by the above-mentioned push buttons, as well as by all intermediate track-circuit relays, by all signals, both east-bound and west-bound, and by the traffic-direction levers themselves (both levers must be in normal position before current can be given to unlock either one). The locking between signals 27 and 29 east of Milford Junction and signals 16 and 18 just west of Napanee, for example, is effective through traffic control levers A and B in the interlocking machines, respectively, at each of the two towns named. Each of these levers is locked in normal position only, and the locking circuit governing them for



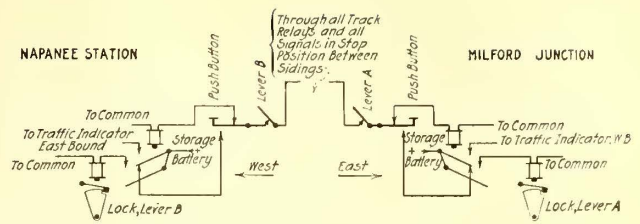
a train movement from Napanee to Milford may be traced as follows: From battery at Milford through back contact of a traffic-direction relay (which is in series with the lock for lever A but which is not energized in this operation); through push button at Milford (when this is depressed by the operator upon telephone advice from Napanee); through lever A, normal; through lightning arrester, etc.; thence breaking through all track relays and through all signals (in the stop position only) and then into the interlocking tower at Napanee. In the tower the circuit continues through various relays to traffic lever B, normal; thence through push button (which is not depressed); through coils of lock relay for traffic lever B and to the common return wire.

The energizing of this lock relay permits traffic lever B to be reversed, and this in turn permits the semi-automatic signals 16 or 18 east of Napanee to be cleared, allowing the train to enter the block. On the other hand, in case it is desired to run a train west-bound from Milford, the operator at Napanee must (upon advice from Milford) push the button at his station to complete the circuit that unlocks lever A at Milford, and this permits signals 27 or 29 to be cleared.

The levers A and B serve to release the mechanical locking in their respective machines, thus permitting the reversal of signal levers to cause proceed indications for the signals which govern movements to the single-track between stations. They serve also as controlling levers for all signals governing into or through the block in an assigned direction. For example, when it is desired to cause signal 18 to indicate proceed for an east-bound train at Napanee, the operator at Milford must give release by pressing a push button that unlocks lever B at Napanee, as previously outlined, and the operator at Napanee must accept the release by unlocking and reversing lever B at the same time. A simple combination of signal controlling circuits through lever A normal at Milford and B reversed at Napanee completes a series of line relays which are located at each of the intermediate west-bound signals 20-26 together with one in the tower at Napanee.

When the relays at intermediate signals are energized they cause the respective signals to indicate proceed, and the series relay in Napanee tower likewise controls signals 16 or 18 when the respective levers of those signals are reversed. Notwithstanding the fact that either of these levers may be reversed whenever lever B is reversed, signals 16 or 18 will not clear unless the controlling circuits are effective through the combinations above mentioned.

Throughout the installation the passing sidings are track-circuited, so that when a passing siding is occupied by a train nothing but the low-speed permissive signal can be used to advance a following train into the



OPERATION BY SIGNAL INDICATION—PARTIAL DIAGRAM OF LOCKING CIRCUIT

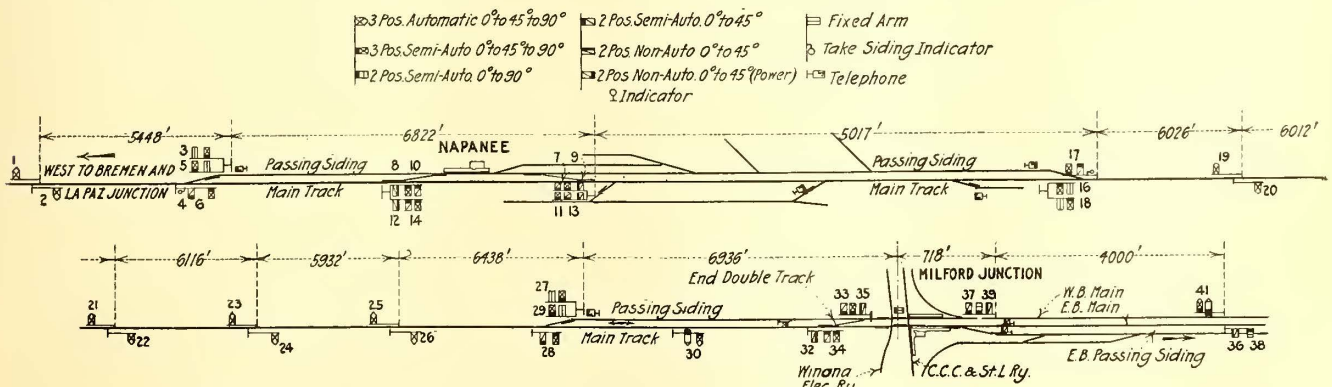
siding at the interlocking plant entrances. The low-speed signals and take-siding indicators are not semi-automatic and consequently can be used to transmit instructions to trains even though the tracks are occupied.

Take-siding indicators are installed on the rear home block signal masts for both east-bound and west-bound movements at Napanee and at Bremen. With the exception of these and the above-mentioned low-speed signals all signals are semi-automatic in their operation and assume the stop position in the rear of the train.

Intercommunication between the stations is established by means of the telegraph and a combination circuit for telephone and tap bells, both of these being used over the same wire. Telephones for the use of trainmen are located at the outer ends of passing sidings and at the facing switches which are not within convenient distance of the offices. Trains leaving outer ends of passing sidings first obtain permission to move by telephone, and when taking the sidings, report themselves in the clear.

A notable feature in this territory is the absence of separate train order signals, these having been eliminated in accordance with the company's standard practice because of their tendency to produce complex signal indications. If it should become necessary to issue instructions to trainmen at a station, the home interlocking signals are retained in the stop position and a red flag by day and a red lamp at night are displayed. This system of signaling, it may be said, is quite similar to that installed in 1912 between Germantown and Washington Junction, Md., on the Baltimore & Ohio Railroad, the trains being operated entirely under signal indication in both territories. The cost of the more recent installation was approximately \$2,700 per mile, of which about \$500 was for labor. The cost per signal, including interlocking, was roughly \$1,000.

A Swiss journalist says the streets of Belgrade are practically deserted, the city looking as if visited by a plague. Street car tracks are rusting away, the parks ruined, shops and houses deserted, and the university building and king's palace almost wrecked by shells.



OPERATION BY SIGNAL INDICATION—TYPICAL SIGNAL ARRANGEMENT USED BETWEEN PASSING SIDINGS ON THE BALTIMORE & OHIO RAILROAD FOR ELIMINATING TRAIN ORDERS

# Pittsburgh Railways Claim Department

## Description of Application of Psychological Principles and Personal Efficiency Ideals to the Work of Handling Claim Employees and Settling Claims—General Results of Pittsburgh System

As stated in the *ELECTRIC RAILWAY JOURNAL* of July 24 in a descriptive article on the claim department of the Pittsburgh (Pa.) Railways, that organization merits description on account of its employment of the most modern type of organization and its recognition of the value of psychology, fixed principles, definite policies and unit efficiency in every-day claim work. The particular form of organization used, the co-operatively functional, was described in the issue just mentioned, while the psychological and similar features will be discussed in this article.

### NAME OF DEPARTMENT CHANGED

Before proceeding with a discussion of these features, however, it will be well to call attention to a change in the name of the claim department that occurred after the first article was published. With the appointment of Cecil G. Rice as assistant to the president, as published in the *ELECTRIC RAILWAY JOURNAL* of Aug. 14, his former position of superintendent of the claim department was abolished, and the work theretofore handled by the claim department was divided among the "Associated Bureaus," comprising the five bureaus described in the previous article—clerical, inspection, medical, adjustment and litigation. The chief of each one of these bureaus handles his work under his own name and title, but uses Mr. Rice's letterhead. Mr. Rice directs the work of all the bureaus in addition to looking after such other matters as are assigned to him by the president. With this organization the bureaus can handle any problem, whether arising in connection with claims, accidents, workmen's compensation, welfare, prevention or any other line.

### CHOICE OF EMPLOYEES

To take up now the points covered by this article, the first subject is the choice of employees. To show how thoroughly at present the principles of psychology and personal efficiency are used in connection with this work, it may be said that as a result of study into the factors that should be considered in the selection of the staff, the types of acceptable men have been divided into the motive, the mental and the vital. In considering these types or in choosing between them for particular kinds of work, attention is paid to nine fundamentals with various subdivisions, as shown by the analysis in the accompanying table.

### METHODS OF CONTROL AND DEVELOPMENT

Reference was made in the preceding article to the methods used in compensating, promoting and developing the employees. Looking along this same line but rather from the psychological point of view, the management has analyzed the methods to be followed in the control and development of the employees into nine divisions, as follows: Imitation, competition, compensation, stimulation, commendation, relaxation, education, loyalty and love of the business. All of these are important by virtue of their influence on the minds of the employees.

1. To train the men through imitation, a new employee, for example, is sent out with the best men in the bureau to which he is assigned and learns from these

the correct procedure to be followed. The men are taught that imitation of a worthy subject is commendable.

2. Competition is used as a spur to greater efficiency. No publication is made regarding the salaries of particular men, on account of possible jealousy, but the employees are kept informed in the abstract as to whether other men are doing more units of work.

3. The compensation method, of course, is the unit system of payment, which, as stated above, forms the basis also for competitive work. This system was described in the preceding article.

4. By stimulation is meant the direct personal efforts of the management to spur the employees on to better work. Each man in the associated bureaus is paid by check. Each month Mr. Rice calls them in one by one on pay day, hands out the checks and asks them how the work is going. These friendly talks are encouraging

TABLE SHOWING NINE FUNDAMENTALS USED IN CHOOSING TYPES OF EMPLOYEES

1—Health .....	{	a—Body		
		b—Mind		
2—Appearance .....	{	a—Pleasing		
		b—Dignified		
		c—Confident		
3—Education .....	{	a—Mental	{ 1—General	
		b—Moral	{ 2—Special	
		a—Thought		
4—Honesty .....	{	b—Speech		
		c—Action		
		d—Conduct		
5—Sobriety .....	{	a—Habitually temperate		
		b—Dispassionate		
		c—Self-controlled		
		d—Unprejudiced		
6—Environment .....	{	a—Surrounding conditions (home)		
		b—Surrounding conditions (society)		
		c—Surrounding forces (business)		
7—Loyalty .....	{	a—Faithful	} to {	
		b—True		1—Persons
		c—Sincere		2—Principles
		a—Tact		
		b—Decision		
8—Judgment .....	{	c—Discernment		
		d—Discrimination		
		e—Intelligence		
		f—"Common sense"		
		a—Ability ..	1—Initiative	
			2—Reasoning	
			3—Energy	
			4—Application	
			5—Experience	
9—Capacity .....	{	b—Power ..	1—Intuition	
			2—Determination	
			3—Resourcefulness	
			4—Enthusiasm	
			5—Confidence	
		c—Character	1—Quality	
			2—Character	
			3—Temperament	
			4—Ambition	
			5—Pride	

to the men and also enable the management to touch quickly upon any dissatisfaction that may have arisen.

5. In applying the commendatory method, the management follows the general rule that every employee who does a good piece of work should be made to know this fact has come to the attention of Mr. Rice. For example, a note of thanks is often sent to the chief of the bureau for the man who accomplishes any unusual or especially commendatory act.

6. As to relaxation, the company attempts to have the men work as little as possible in the evening. During the summer they are granted a two weeks' vacation with pay, according to a definitely prearranged schedule. In this connection the management has developed a novel "vacation award" voucher, whose purpose is to show definitely the date allotted, to state in dollars and cents

the actual cost of the vacation to the company and to suggest the management's appreciation for services rendered rather than the mere regarding of the vacations as a matter of routine. The employee indorses this voucher and upon his return delivers it to the superintendent in exchange for the payroll voucher. If any employee happens to be going to some place where he can do work for the department, the company pays part of the expenses.

7. The point of education is covered by the meeting papers, the library and the like. The employees are encouraged to read different books, such as the efficiency books of Walter Dill Scott, and various inspirational books, and they are all required to read the newspapers in order to keep informed on current events. They must, however, avoid the subjects of religion, politics and the war in their conversation with others.

8. The management makes a special effort to inspire loyalty in all the employees and to create a spirit of steadfast allegiance to Mr. Rice as an officer and as an individual, to the chief of the bureau, to the bureau, to all the associated bureaus and to the company. The honor system is applied in handling the men, they being assured of opportunity to prove their worth as men without distasteful espionage. They are assured a fair hearing and the support of the management.

9. In order to create a love for the business, the men are not allowed to do secret service work but must always use their own names and titles. Each one bears a finely lithographed card, stating that he is a duly accredited representative of the associated bureaus. This card is signed by the president as well as by Mr. Rice, and also by the director of the Pittsburgh department of public safety, granting the bearer the courtesy of that department. The care taken in these matters places the calling upon a higher plane in the minds of the men and those with whom they come into contact. The management guarantees to fulfill any promises made by employees, but they are especially taught that the old "strong-arm" claim agent is extinct and that in every act they must be so dignified, honorable, polite and above-board that no act of theirs will cast discredit upon the modern form of claim representative, their own officers or the department. They are made to see that the work is perfectly honorable and dignified, a feeling which is a necessary and most important foundation for the inculcation of a similar feeling on the part of the public. The theory that confidence and fairness beget confidence and fairness is developed.

#### EMPHASIS ON FIXED PRINCIPLES

As stated in the preceding article, the management has made up six fixed principles to govern the work of the employees. These are as follows:

1. *Maximum Accuracy*—Incontrovertible facts unearthed from all available sources.
2. *Utmost Expediency*—The promptest action in accord with propriety and correctness.
3. *Absolute Fairness*—A fixed, irrevocable policy of dealing with justice to all concerned.
4. *Persistent Courtesy*—Constant politeness combined with kindness.
5. *Minimum Consistent Expenditures*—Disbursements proportionate to all the facts.
6. *Perfected Co-operation and Efficiency*—Working in harmony to produce the most satisfactory results with the least expenditure of time and effort.

The management takes great care to impress these principles upon the employees on account of the benefit to be derived by the employees and by the department if they are always kept in mind. In each office of the

bureaus all the principles are printed, framed and posted. When a new man comes into the office, he is made to understand that there are high ideals in claim work, and both he and the old men are constantly reminded that these principles are the fundamental rules that must guide their every act.

Moreover, each outside man has a black leather pocket case which on one-half inside contains his lithographed identification card and on the other his name and a list of the six principles, with this statement: "Issued as official instructions for your guidance." This has a beneficial effect not only upon the bearer but also upon all to whom the identification case is presented for inspection.

#### FUNDAMENTAL PSYCHOLOGICAL PRINCIPLES

In developing the use of psychology in claim work, the management has analyzed for the convenience of employees the various methods of arriving at decisions and essentials governing the procedure, as follows:

1. How decision is arrived at:
  - a—Reasoning pro and con by elimination.
  - b—Reasoning and choosing by result of effect on mind.
  - c—Intuition.
  - d—Hazard.
  - e—Suggestion.
2. Essentials governing procedure:
  - a—Overcome prejudice:
 

Show by logical argument and analogy that which is true and right and thus conciliate those who prejudge without knowledge of the facts.
  - b—Inspire confidence:
 

Give life to trust and reliance, causing others to believe in you and to realize that you are sincere, honest and desirous of dealing equitably.
  - c—Analyze and reduce to a business basis:
 

Separate into component parts and prove by calculation and weight of the evidence the value of what is being purchased.
  - d—Create a desire:
 

Bring into existence a longing for the possession of that which will reasonably compensate for the loss sustained, considering the degree of responsibility for such loss.
  - e—Cause a determination:
 

Bring about a condition of mind that will result in the principal resolving to end the matter at once by exchanging that which he controls for that which you as a representative of the company possess.
  - f—Satisfactorily close the transaction:
 

When you have relieved the mind of doubt and animus and created a feeling of gratification by having set aright and made amends for possible wrong or injury done, then only have you most satisfactorily terminated the matter in hand.

These six psychological essentials have been thoroughly explained with particular reference to their application to the work of adjusting a claim. Adjusters in particular clearly recognize the worth of psychology in their daily work and tend more and more to develop their cases along correct psychological lines. It has been proved that these essentials are the successive steps taken in effecting a settlement, whether consciously or unconsciously.

#### APPLICATION OF PSYCHOLOGY

The fundamental facts underlying the Pittsburgh Railways' application of psychology to claim work are:

1. The department does not settle the "claim" but "with the claimant," his personality often being more

important than the facts and circumstances surrounding the accident.

2. Results are achieved by either logical argument or suggestion, or both.

3. A statement must of necessity be accepted as true unless a negative thought arises in the mind.

4. To inhibit a negative idea a positive one must be developed, and vice-versa to develop a positive idea the negative must be inhibited.

With these fundamental facts and the further explanation that psychology is the science of the mind and science is but the orderly arrangement of relative facts, the application of psychological principles is simplified for the employee by such elementary illustrations as the following:

For a "claim agent" to address a person injured in an accident as a "claimant" suggests a claim, but to approach him as a "safety inspector" and refer to him as the "principal" inhibits the idea of a "claim."

To attempt to secure a "statement" from a principal suggests an act associated with law or litigation. To ask him for a "description of the occurrence" avoids any suspicion before it is aroused. Similarly, it is better to call witnesses "observers." To say "just write your name here, please" will bring a compliance (particularly if it is accompanied by a tender of the principal's own pen casually picked up from his desk) more often than to request him to "sign" his name.

To ask a principal to "allow," "submit" or "undergo" an examination immediately suggests the principal's right to refuse and brings to his mind the embarrassment and possible irrelevant discoveries from an inspection by a doctor. Merely saying, "Our doctor will arrange with your physician for an examination at your convenience" not only inhibits the negative idea but prevents any thought of embarrassment.

To say "It is more dignified and safer to face forward when alighting" will appeal to a woman more readily than the command "Don't alight from a car backward."

As an extreme example of the negative idea, the following incident of the boy who applied for a position is related to the employees. The boy approached the prospective employer with the words, "I don't suppose you don't know about no man that don't want to hire no

kid to do no work for nothing fer him, do you, or don't you?" "Yes," answered the man thus eloquently addressed, "I don't."

SUGGESTION BY FRAMED CARTOONS

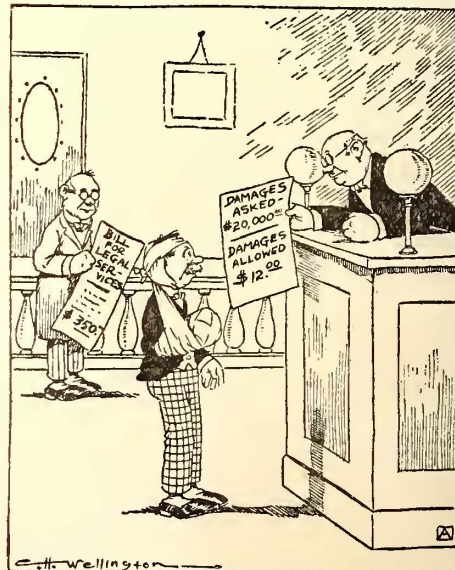
That suggestion may be by inanimate objects as well as by words or acts is strongly developed in the reception room. On the wall between the entrance door and the desk of the reception clerk are hung various enlarged, colored and framed cartoons clipped from the daily newspapers. These cartoons, some of which are shown in the accompanying illustrations, all refer to street railway operation. The first ones include cartoons showing "Mutt and Jeff" consulting a lawyer; an outburst by "Everett True," who becomes incensed at a teamster holding the track; a couple trying to convince the conductor that their 150-lb. son is under five years of age; the chronic complainer airing his views to the helpless conductor, and the result of an automobile driver failing to heed a danger sign. All of these possess that inimitable and striking humor so cleverly expressed in cartoons. Farther along and arranged to catch the eye of the caller at the psychological moment, are other cartoons showing an injured man, with the assistance of all the members of his family, telling his story to a claim agent and having the whole fabric of it spoiled by his talkative son; the claimant who sued the "company" but found himself indebted to his attorney even after recovering damages; the well-known portrayal of the "lawsuit," wherein the litigants are pulling at the head and the tail of a cow while the attorney does the milking; the red tape attending litigation, and other subjects.

There are also displayed pictures of ex-President Taft and other notables at a local ball game before and after a home run by Wagner was declared a two-base hit on account of ground rules, and photographic illustrations of the advance in electric railway equipment. To add a fine touch of mutuality a caricature of Mr. Rice is also exhibited. Unless the visitor to the reception room is a "shyster" lawyer, these silent arguments never fail to make a good impression. The fact that cartoonists are seeing the humorous futility of "suing the company" rather than acting as any sane business man would do in properly presenting any evi-

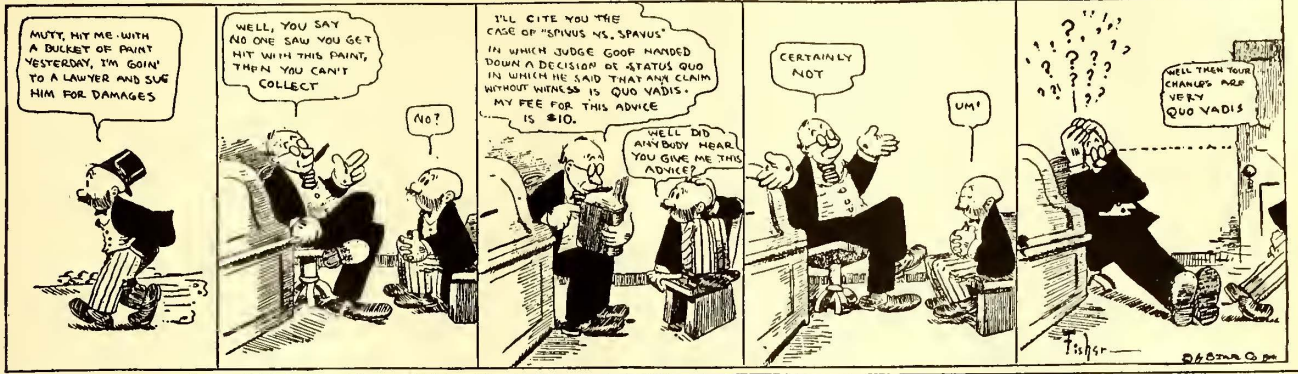
:-: INDOOR SPORTS--By Tad :-:



--and the Worst Is Yet to Come



Mutt and Jeff--The Little Fellow Also Knows Some Law and Proves It By "Bud" Fisher



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CARTOON DISPLAYED IN RECEPTION ROOM OF ASSOCIATED BUREAUS PITTSBURGH RAILWAYS

dence of indebtedness, is in the opinion of the management an evidence of the trend of public opinion.

DEFINITE POLICIES

As a matter of fact, the six fixed principles summarize the policy of all the bureaus. In dealing with attorneys, doctors and the public, however, still more specific positions are outlined.

It has come to be understood by the profession that any reputable attorney who properly represents a legitimate claimant will be received with all due regard for the ethics of his profession. If an attorney enters suit after having given the department an opportunity to adjust the claim and if the claim was not solicited by or for him, no settlement will be made directly with the plaintiff. If, however, suit is entered without any attempt to effect an adjustment or if the case was solicited, the management openly declares its right to deal directly with the principal if it so desires.

Doctors are made to understand that in any case the department is interested in the injured person receiving such treatment as will result in the best possible recovery from the injuries sustained. If the doctor gives the department a report, a reasonable first attention fee will be paid. If later a settlement is made, the doctor's bill for subsequent treatment, if reasonable, will be included in the amount of the settlement but paid directly to the doctor by the company. It is made plain that the doctor is expected to be fair and neutral in his attitude and must not act as an adjuster. If he believes that the department is fair in its dealings with principals and that his patient can secure what is due him without the expense of litigation, the doctor is asked to suggest to his patient, if the opportunity affords, the advisability of dealing directly with the company. The doctor is also told that the payment of his bill directly to him is a courtesy and not a necessary cancellation of a debt. Out of a list of 3000 doctors less than fifty are openly antagonistic to the department, and most of them without being requested will make reports of any cases treated by them. At a recent meeting of the local medical society the speakers on the subject of the "medical witness in court" voluntarily stated that in all their experience they had never been asked to report or testify to anything except what they thought to be the facts or to do any other thing which was not wholly proper.

The public is told that the company never seeks to evade any responsibility resulting from an accident, that it uses all honorable means to prevent litigation, that injured persons are received as friends and not as enemies, and that claimants are dealt with in an open,

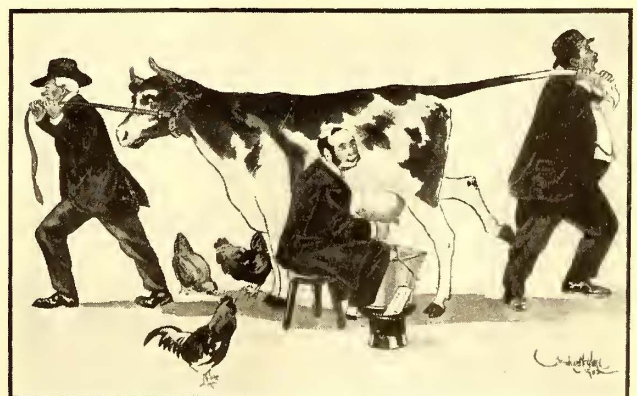
honorable way without any underhanded or sleuthing methods being used. The point is made clear, however, that if any claimant seeks to defraud the company, its entire resources are used to defend its best interests. The public is told that an inquiry regarding an occurrence is not made on a claim basis always but in connection with a very sincere endeavor to prevent accidents, that such inquiry is merely for the purpose of securing the facts in the case and that in seeking facts the company is asking only for that to which any person is entitled.

A committee of the staff is now at work on the complete standardization of all arguments to be used by representatives of the bureaus. All such arguments are censored by Mr. Rice and his staff members with a view of educating the public to a proper understanding, of preventing harmful and incorrect statements, of gaining believers, of securing the most desirable results, both present and future, and above all of preventing any act or omission that might result in encouraging the filing of claims. This latter point is never lost to sight.

At present Mr. Rice and his staff are working on an analysis of the essential points to cover in each class of accidents, the compilation of company economics, an organization chart with a standardization of clerical and routine matters and also a concrete "code of ethics" to govern bureau employees, similar to that long since adopted by doctors and lawyers.

"DESIRABLE PUBLICITY FACTS"

It is assumed that any prejudice or mistrust on the part of the public against a claim department is the result of unfair acts on the part of others or an inherited



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CARTOON DISPLAYED IN RECEPTION ROOM OF ASSOCIATED BUREAUS PITTSBURGH RAILWAYS

erroneous conception of the business of adjusting claims. Furthermore, it is taken for granted that when a principal calls at any of the offices of the bureaus, he is a probable "claimant." In order to prepare him properly for a logical consideration and discussion of his complaint, therefore, he is greeted at the desk in the reception room and later in any office of the department by a framed printed placard which contains not only the six fixed principles, which are applicable to any business, but also eight additional paragraphs of "desirable publicity facts." The placard is signed by Mr. Rice and the president of the company. The desirable publicity facts, which are dwelt upon by outside representatives, particularly No. 6, are as follows:

1. Street railway transportation companies do not insure passengers or pedestrians against injury or damage. It is wholly unreasonable to suppose that all persons injured in connection with a street car are entitled to damages.

2. If an accident occurs, the principal should not depend solely upon the conductor to make a report but should secure the number of the motorman or conductor, the exact location and the exact time.

3. If any personal injury or property damage results for which the principal was not to blame and feels justified in making a claim, he should frankly report the details of the occurrence to the associated bureaus, together with the names of the witnesses, and give every possible assistance in making an unprejudiced investigation of all the facts and circumstances. Only dishonest claimants object to a thorough inquiry being made to corroborate the facts.

4. A claim is purely a business proposition, not a matter of law, and should be presented and handled on the same basis as any other allegation of indebtedness. Proving a claim is the same as proving a bill for work done or goods furnished.

5. Any legitimate claimant making a reasonable request for reimbursement can secure a satisfactory disposition of his claim without the expense of assistance. Since a claim is the same as a bill, it is bad judgment for a claimant to employ an attorney or enter into the embarrassment, delay and uncertainty of a suit without first presenting his proof of indebtedness direct to those he believes owe him.

6. Only three classes of people bring suits for damages against these companies, viz.:

a—Prejudiced persons unacquainted with our principles governing the handling of claims.

b—Persons entitled to something but who want more than they are entitled to.

c—Persons entitled to nothing but who want something regardless of their right to it.

7. Citizens who encourage litigation, whether "ambulance chasers," neighborhood gossips, misinformed friends or someone seeking to profit from another's misfortune, should remember that in so doing they add a burden to every taxpayer, as the expense of the courts is assessed against them.

8. Remember, we seek your co-operation to prevent accidents to yourself and others.

#### BASIS FOR GOOD RESULTS

Members of the bureaus have been shown that best results can be obtained by understanding the following:

A loud-voiced controversy is not a logical argument. Never get angry when the other fellow is mad.

Don't let your personal feelings influence your official acts.

Try to see the other fellow's point of view. Put yourself in his place. Be sympathetic.

Make it easy for the other fellow to change his decision.

Expect hostility and prejudice but be prepared to overcome it.

Be more considerate of the ignorant, the poor and the dependent than the well-to-do and independent.

Success is obtained by the one who does what is assigned him better than anyone else has ever done it.

Reason; learn not only what is desired, but also why it is the most desirable.

Study the forms of expression that arouse resentment and avoid their use.

#### EPIGRAMS USED

The management has made up some epigrams which are furnished in copies to all the employees. These give concrete and pithy expression to the psychology and efficiency basis underlying all the departmental work. They are expressed in the following way:

- 1.—Criticism unreserved and appreciation unflinching is assured.
- 2.—Liability depends upon the circumstances.
- 3.—A cure for hard luck is hard work.
- 4.—Imitation of a worthy subject is commendable.
- 5.—Mastery of details eventually brings achievement.
- 6.—Science is but an orderly arrangement of relative facts.

- 1.—Freedom from personal prejudice favors fairness.
- 2.—Assiduous application assures accomplishment.
- 3.—Concentration consists of continuous contemplation of facts.
- 4.—To-morrow is too late to record facts of to-day.
- 5.—Some facts are better than none, but all the facts are best.

- 1.—System lessens work.
- 2.—Your work is honorable—honor it with system.
- 3.—Systematic accuracy produces profitable proficiency.
- 4.—Troublesome details disappear before system.
- 5.—Efficiency demands a systematic elimination of non-essentials.
- 6.—Manifestly, then, system becomes a necessity. This is a fact.

#### SAFETY WORK

The associated bureaus participate in the safety work that is carried on by the company to the extent of having safety lectures delivered by the officers. The men in the medical bureau are particularly active in this respect. Last year at the Pittsburgh exposition a game invented by a member of the department called "Pla-Safe" was widely distributed, and this same policy was pursued in the schools this year. This game is cleverly devised to show the dangers of and the penalties for carelessness that may arise between leaving home and returning at night. Special blotters are also sent out with every inquiry blank about accidents. These blotters play up various safety slogans, and all lay particular stress upon the last plank of the associated bureaus public platform. Other conservative and fundamentally educational plans are systematically used.

#### GENERAL RESULTS

A few years ago the company received less than 12 per cent of replies to inquiry blanks relating to accidents. To-day 65 per cent are returned with more or less detailed information, many of them carrying suggestions which are acknowledged by a personal letter from the "safety always" inspection bureau. This is accepted as proving the increased respect of the public toward claim department work.

Despite the fact that a county, or small claims court, has been in operation for two years, in which court a claimant may bring a suit up to \$1,500 with or without the services of an attorney and with or without a jury trial, there has been a decrease of exactly 50 per cent in suits pending against the Pittsburgh Railways. Moreover, out of ninety cases heard in the county court during 1914, forty-five of them resulted in verdicts for the defendant.

By far the largest accident in the history of the company occurred on Oct. 3, 1912, when a car ran wild on a heavy grade, derailed and was destroyed. One man was killed and ninety-five other persons were severely injured. This occurred at 8 a. m. By 11 a. m. each bureau was handling its end of the problem and twenty adjusters had been assigned. By 11 p. m. that night every injured person or some of his relatives had been seen by a representative of the claim department. During the day numerous solicitors for attorneys had sought to secure the claims of the injured. Notwithstanding the almost unbelievable activity of these solicitors, some of whom continued their efforts until the last claim was settled a year and nine months later, not a suit was entered. This record was duplicated during 1914, when ninety-two claims arising from one accident were similarly handled on the Beaver Valley line. Other collisions and derailments involving fifty or more persons have been disposed of in the same way.

During the fiscal year ended in March, 1915, the total expenditures of the Pittsburgh Railways covering disbursements of every kind properly chargeable to the injuries and damages account were less by \$140,000 than the amount for the corresponding previous year. In addition there was a decrease of \$2,168,866 in the amount sued for in suits pending, the number of suits being lower than at any time during the last ten years.

## A Simple Work-Order System

The System Described Is Particularly Adapted to Roads with Revenues of Less than \$1,000,000 a Year

BY M. W. GLOVER, SECRETARY AND AUDITOR MOBILE LIGHT & RAILROAD COMPANY

The principal trouble with accounting systems devised for keeping accurate cost records is the expense necessary to produce the desired results. This is a problem especially interesting to lines whose gross revenues are less than \$500,000 per year. Of 382 lines reported in 1914, 259, or 68 per cent, represented companies with gross revenues under \$500,000 per year.

A complete work-order system, such as has been so admirably described by G. W. Kalweit, auditor Milwaukee Electric Railway & Light Company, in a paper presented at the 1913 Accountants' Association Convention, and published in the *ELECTRIC RAILWAY JOURNAL* for Oct. 15, 1913, may be used by any company, but many smaller companies have not found it possible to use this system on account of the expense necessary to carry it out in detail. Other "A. F. E." "job order" or "work-order" systems have been described from time to time, but most of them have been devised for the use of large companies, and the smaller lines have been getting along without any definite system of cost accounts. This is an unfortunate condition, as the information regarding costs, which can be furnished through a satisfactory work-order system, cannot be overestimated.

The management of every property, however small, should be in a position to know the exact cost of each specific job undertaken. If three city blocks of track are to be reconstructed, it is important to know just

what a similar job cost on some other property, or at some other time or place on the same property. The direct charges made to operating expenses or to road and equipment accounts do not represent the entire cost of the work, and if no cost accounting system is in use it is impossible to compare the cost of similar jobs. What contractor would build a structure conforming to certain specifications without having access to the cost statements of similar buildings, and he would revise such cost statements to meet any changes caused by altered conditions. Yet railway companies are extending their lines, improving existing properties and expending large sums without providing a proper record of the actual costs of the improvements and in many cases, even where records are kept, they fail to include charges which rightfully belong to the improvement. When the cost of these improvements are to be paid from the proceeds of a bond issue, or are charged to capital accounts, this failure to include all proper charges becomes a serious matter.

Many persons think that it is sufficient to keep accounts in accordance with classifications prescribed by the Interstate Commerce Commission or state railway commissions, to determine properly the cost of any work. This is an error, as a cost accounting system is entirely distinct from the regular system of accounts, but such system should be handled in connection with the regular system of accounts to prevent erroneous charges entering into the cost of any job, as well as to prevent the omission of proper charges from the cost statements.

It is generally admitted that no company is so small that it should not have some system of work orders to properly record the cost of improvements undertaken, as well as the cost of work of any magnitude chargeable to maintenance. It should be needless to add that a cost-accounting system should be kept by the accounting department and not by the department doing the work, as has sometimes been suggested. The principal reason for this is that overhead charges, which enter largely into the cost of all work, cannot be accurately determined except from the records of the accounting department.

A simple work-order system designed for the use of smaller companies, but which may be used by companies of any size, is briefly described below.

It is a matter of personal choice whether the name of the system used is "Authority for Expenditures" (A. F. E.), "Job Order" or "Work Order," but the name "Work-Order System" will be used here. This system can be used for work chargeable to additions and betterments, reserve funds or operating expenses, a separate series of numbers to be assigned to the different classes of work orders.

The only book needed is a journal with ten or more columns, according to the number of subdivisions desired for showing details of the work. If subdivisions are not designed, a separation of charges between labor and material only may be used. All work orders should be issued by the accounting office upon the request of the department interested, and they should be consecutively numbered; a separate series of numbers being used for work chargeable to additions and betterments, reserve funds or operating expenses, if desired.

Work orders may be divided into general and specific, or into any other subdivisions desired.

General work orders apply to charges for certain general work over a stated period of time.

Specific work orders cover the work on a specific job.

When a work order is requested, if the work is to be charged to additions and betterments or reserve funds, the authority for doing the work should be furnished;

if the work is chargeable to operating expenses it is not necessary that executive authority be furnished. In all cases the request for a work order should specify the exact nature and extent of the work, and the subdivisions which it is desired to keep of the charges.

When a work order is issued a copy should be furnished all officials interested and the accounts to be charged should be shown; the work-order number must be shown against each charge, in addition to the road and equipment or operating expense accounts chargeable. Thus, no matter where the charge originates, whether from the voucher record, payroll or material distribution, both the accounts and the work-order number should be shown. There are several reasons for this; one being to guard against errors; another, to familiarize all employees with the accounts chargeable for certain work. With other work-order systems it is customary to make all charges to the work order only, and at the end of the month, or when the work is completed, to clear the work-order account and distribute the charges to the proper road and equipment, reserve funds or operating expense accounts. This often results in an incorrect distribution of the charges, caused by the necessity of obtaining the figures before closing the accounts at the end of the month.

The following illustrations show how the system would be handled upon a request from the department preparing to do the work, the first work order being chargeable to road and equipment expenditures; the second being chargeable to operating expenses:

(1)

WORK-ORDER NO. 278.

Charge to the above work order all expenses in connection with the construction of 1 mile of track on Government Street, from Georgia Avenue to Houston Street.

Charge these expenses to the proper road and equipment accounts, and show the above work order number in addition against each charge.

Subdivide charges to this work order as follows:	
A—Grading .....	\$ .....
B—Ballast .....	.....
C—Ties .....	.....
D—Rails, fastenings and special work.....	.....
E—Track and roadway labor.....	.....
F—Paving .....	.....
G—Poles and fixtures .....	.....
H—Distribution system .....	.....
J—Other direct expenses (inc. Eng. and Supt.).....	.....
Total .....	\$ .....
K—Overhead charges .....	.....
Grand total .....	\$ .....

(2)

WORK-ORDER NO. 342.

Charge to the above work order all expenses in connection with repainting car No. 225.

Charge these expenses to operating expense account No. 30 "passenger and combination cars," and show the above work order number in addition against each charge.

Subdivide charges to this work order as follows:	
A—Stripping .....	\$ .....
B—Sand blasting, cleaning and painting outside.....	.....
C—Sand blasting, cleaning and painting inside.....	.....
D—Trimming .....	.....
E—Other direct expenses (inc. Supt.).....	.....
Total .....	\$ .....
F—Overhead charges .....	.....
Grand total .....	\$ .....

Copies of these work-orders should be sent to each official interested. In turning in time for employees engaged on this work the ticket should show the road and equipment or operating expense accounts, and in addition the work-order number. The payroll distribution, requisitions for material, and all other charges for work covered by a work-order, should show the expense accounts as well as the work-order number. The work-order record is kept entirely separate and does not interfere in any way with the other records of the accounting department. During the continuance of the work, a statement may be prepared from the work-order record, showing the charges to date, and this information is of value to the management of the company, as well as to the department doing the work, as

it shows just how the work is progressing. When the work is completed a statement should be made showing the entire cost of the work.

The overhead charges in each case should be added by the accounting department and they should be determined by a careful analysis of the work done, care being exercised to see that all proper overhead charges are included.

Where work is chargeable to road and equipment or reserve fund accounts, the amount of overhead charges should be debited to the proper accounts and operating expenses credited, by journal entry, in accordance with instructions contained in the classification prescribed by the Interstate Commerce Commission, but where the work is chargeable to operating expenses, the charges for overhead expenses will simply be shown on the work-order record for information only, and no journal entry made to cover.

A general work-order may be issued to cover the cost of renewing ties, or for any work extending over an entire year or a portion of a year when it is desired to arrive at the actual cost of such work; in fact, this system can be used to advantage in many ways for determining the cost of small jobs undertaken, as the additional work involved is negligible and can be handled without any additional clerical help.

If more information is desired the unit costs can be determined and additional statements analyzing the work undertaken can be prepared.

There is no statement furnished by the accounting department of more value to the management than statements of costs, and where this can be done without increase in expense there is no excuse for any company, however small, failing to keep such records as will enable the exact cost of work to be determined. In fact, the division of valuation of the Interstate Commerce Commission has already issued orders requiring carriers subject to its jurisdiction to adopt a uniform system of cost accounting for work chargeable to maintenance as well as for road and equipment expenditures, and it will not be long before all lines will be required to keep a cost-accounting system for determining the actual cost of work done, whether chargeable to maintenance or to capital accounts.

The system outlined above is simple, inexpensive and easily handled and can be made to furnish valuable information as to the cost of work undertaken. It is not intended to take the place of work-order systems devised for the use of lines whose revenues amount to more than \$1,000,000 per year, and who can afford the expense necessary for an elaborate system of cost accounts, but a test of the system will prove that it can be used to advantage by all smaller lines.

### Interurban Railway Co-operates with Fair Associations

The lines of the Louisville & Interurban Railway, Louisville, Ky., pass two county fair grounds, at both of which fairs have recently been held. One of these is the Fern Creek Fair of Jefferson County, and the other the Shelby County Fair, at Shelbyville. The company has made a practice for several years of assisting the fair associations in every manner possible in their advertising and in the way of transporting exhibits, supplies, etc. During the days that each of the fairs is under way special service is provided. Most of the traffic is from Louisville out, large numbers of Louisville residents having earlier been residents of the sections where the fairs are held. For both occasions also the company supplies special cars one day at each place to carry delegations representing Louisville commercial organizations.



## Boston versus Glasgow

The September issue of *Concerning Municipal Ownership* contains an illuminating comparison, made by F. G. R. Gordon, the prominent labor man and advocate of private ownership for public utilities, on the subject of street railway operation in Boston and Glasgow, the two cities here and abroad whose local conditions most nearly approximate each other. According to Mr. Gordon, the unusually low cost of operation of the Glasgow municipal street railway system is largely caused by two factors—namely, low wages (the average wage rate being less than half that paid in Boston) and the lower overhead expenses, fewer cars being operated per thousand population. For each passenger fare paid on the privately owned railways of Boston, labor receives 2.04 cents; out of each passenger fare in Glasgow, under municipal ownership, labor receives about  $\frac{1}{2}$  cent.

The fact that labor is cheap, says Mr. Gordon, serves to reduce both the price of commodities and the cost of operation in Glasgow. For instance, the price of coal is \$1 a ton less in Glasgow than in the average American city. Rents, too, are less, and the cost of building is much lower in Glasgow than in Boston. Thus in 1913\* the cost of material and power on 196 miles of street railway in Glasgow was only \$955,000. In 1914, similar charges in Boston amounted to \$4,050,795.

For 1914 Boston received, directly and indirectly, \$1,394,611 in taxes from the street railway system, or three-fifths as much as the 136 municipal street railway systems of the United Kingdom combined paid to their respective municipalities the year previous. In 1913 Glasgow received \$336,000 in the way of general rates and taxes. Thus the entire sum received, directly and indirectly, from the municipal street railway system aggregated only \$569,000 as compared to more than two and one-third times as much received by Boston from her privately owned street railway system.

Mr. Gordon questions whether the low fares in Glasgow in reality constitute a saving to the people. The British municipal street railways have adopted the so-called zone system. In 1913 the Glasgow street railways carried 311,000,000 passengers at an average fare of a little less than 2 cents. A ride which covers the first zone, a distance of 1.15 miles, costs 1 cent. Beyond this point another fare is paid and so on up to 14 cents, the entire length of the Glasgow tramway system being about 14 miles. In Boston one may ride 20 miles for 5 cents. Moreover, in Glasgow no transfers are given, while in Boston free transfers bring the average fare down to about 3.5 cents.

This system has helped greatly in the formation of the large suburban population around Boston. The zone system in Glasgow, on the contrary, has favored a concentration of the population within a very restricted area. In fact, 30 per cent of the working-class families in Glasgow live in one-room tenements. Only 2 per cent of Boston families occupy only one room.

When the street railway fare paid by Bostonians is measured by the ability of the average citizen to pay for such service, it is found that the average workingman in Boston receives more than twice the pay of the workingman engaged in a similar occupation in Glasgow. In fact a 5-cent fare in Boston assumes the proportions of a 2-cent fare in Glasgow.

Other features mentioned by Mr. Gordon include the following: The Glasgow system has 1 mile of track to each 7000 of population. The Boston system has 1 mile of track to each 2000 of population. Under municipal ownership the employees of the Glasgow street railway

system are not allowed to organize a union, but the employees of the privately-owned street railway system of Boston are allowed to unionize. To Mr. Gordon's mind, all these facts demonstrate, as far as a comparison of street railways in different countries can, the tremendous superiority of private over public ownership of street railways.

## Copper Zones for Shore Line Electric Railway

A Novel Form of Duplex Receipt Provides for Stations Numbered in Accordance with the Fares Charged Between Them, and Is Used for a Transfer to Branch Lines

A change of rates has just been put into effect on the Saybrook and East Lyme divisions of the Shore Line Electric Railway, Norwich, Conn., by which the copper zone system of fares is established on the company's trackage between New Haven and New London. In connection with this the company has developed a cash receipt and transfer which is distinctly novel and which has been made the subject of an application for patent. The illustration on the following page shows the form that this ticket takes.

There are two forms, the one shown in the illustration on page 444 being used for what is called the main line, between Chester and New Haven. This division includes a branch line from Guilford to Stony Creek, and a certain number of stations out on the East Lyme division to which transfer is made at the station known as Ferry Road, No. 64.

### METHOD OF APPLICATION

An examination of this ticket will show numbers opposite the names of the stations, beginning with New Haven at 0. These represent the exact amount of fare from New Haven. Guilford is station No. 28, and consequently the fare from New Haven to Guilford is 28 cents. Chester is station No. 86, and the fare from New Haven to Chester is 86 cents, the fare between any two stations is arrived at by subtracting the number opposite one station from the number opposite the other. A conductor who is not quick at figures may place the 0 of one ticket against the station from which he takes on a passenger and the exact fare may then be read to any other point on the line. For instance, place New Haven, 0, against Guilford Green, 28, and opposite Ferry Road, station 64, appears the number 36. The fare then from Guilford Green to Ferry Road is 36 cents. This figure may also be arrived at by the means described on the ticket, namely, to subtract 28 from 64. The result is the same, 36 cents.

The large figures from 1 to 9 that appear on the ticket have really no special relation to the system except that when a conductor arrives at station 22, going out from New Haven, the large figure 3 calls his attention to the fact that he should collect his Guilford Green checks between stations 22 and 24. Going west, that is from Chester to New Haven, the figure 4 warns him that he should collect his Guilford Green checks between stations 32 and 30. As a large number of people travel back and forth between the Saybrook carhouse, station 62, where steam road connection is made, and Ferry Road, the company's own junction, the figure 7 is placed between these two stations (62 and 64) as the conductor collects there in both directions.

The company is also providing a little clip to attach to the seat or pilaster of the car into which the destination check can be readily placed when folded, and these large figures seen through an opening in the clip. In other words, a conductor going out from New Haven

\* In view of present conditions in Europe, the report for 1913 is taken as offering a fairer comparison.

No 1439

No 1439

Good for one continuous passage between points punched for this date and train only. PATENT APPLIED FOR

Good for one continuous passage between points punched for this date and train only. PATENT APPLIED FOR

DATE	DUPLICATE	THE SHORE LINE ELECTRIC RY. CO. — SAYBROOK DIVISION
Jan	New Haven R. R. St.	0
Jan	State and Ferry St.	2
Feb.	Quinnipiac Ave.	4
Mar.		6
Apr.	Foxon Flag Pole	8
May	River Street	10
June	Totoket	12
July	Hopsons	14
Aug.	40B No. Branford	16
Sept.	38B	18
Oct.	36B West Pond Road	20
Nov.	34B	22
Dec.	32B	24
1-16	30B Long Hill	26
2-17	Guilford Green	28
3-18	30B East Creek	30
4-19	32B Station 27	32
5-20	34B East River P. O.	34
6-21	36B Madison Cem.	36
7-22	38B Madison P. O.	38
8-23	40B Webster Point	40
9-24	Dudleys	42
10-25	Clinton P. O.	44
11-26	Dibbell's Corner	46
12-27	Grove Beach Casino	48
13-28	Hammock	50
14-29	76A Chapman Sch.	52
15-30	74A Stannard Beach	54
31	72A Chalker Beach	56
	70A Oyster River	58
	68A Saybrook P. O.	60
AM 1 PM	66A Car Barn	62
1	Ferry Road	64
2	66A Ayers Point	66
3	68A Gladdings	68
4	70A Essex Square	70
5	72A Essex Station	72
6	74A Behrens & Bush.	74
7	76A Ivoryton Junc.	76
8	Stroms Crossing	78
9	Middlesex	80
10	Deep River Hotel	82
11	Ryans Corner	84
12	Chester	86

ORIGINAL	DATE	THE SHORE LINE ELECTRIC RY. CO. — SAYBROOK DIVISION
0	New Haven R. R. St.	0
2	State & Ferry St.	2
4	Quinnipiac Ave	4
6		6
8	Foxon Flag Pole	8
10	River Street	10
12	Totoket	12
14	Hopsons	14
16	No. Branford	16
18	38B	18
20	West Pond Road	20
22	34B	22
24	32B	24
26	Long Hill	26
28	Guilford Green	28
30	East Creek	30
32	Station 27	32
34	East River P. O.	34
36	Madison Cem.	36
38	Madison P. O.	38
40	Webster Point	40
42	Dudleys	42
44	Clinton P. O.	44
46	Dibbell's Corner	46
48	Grove Beach Casino	48
50	Hammock	50
52	Chapman Sch.	52
54	Stannard Beach	54
56	Chalker Beach	56
58	Oyster River	58
60	Saybrook P. O.	60
62	Car Barn	62
64	Ferry Road	64
66	Ayers Point	66
68	Gladdings	68
70	Essex Square	70
72	Essex Station	72
74	Behrens & Bush.	74
76	Ivoryton Junc.	76
78	Stroms Crossing	78
80	Middlesex	80
82	Deep River Hotel	82
84	Ryan's Corner	84
86	Chester	86

from New Haven to Stony Creek would receive an original destination check, or cash receipt, punched opposite 0 and on the other side of the ticket in the line 40.

If the passenger was going from Chester, or any point between Chester and Guilford, to Stony Creek, he would receive a ticket punched against the station from which he departed, and the 40B that will be found in line 16 would be punched. The number 16 subtracted from the number of the station at which he takes the car gives the rate that he must pay. When used as a transfer the date and hour are punched in order to cover a continuous ride.

OTHER USES

The details of the application of this ticket to the transportation of employees, trackmen and so forth are of interest. All of the company's officers and employees (except trackmen) carry passes, and the conductor punches the two stations between which the employee is traveling, the holder of the pass writing at the top of the ticket, his name and number of the pass. This avoids the use of employees' tickets, of which the company had formerly used a very large number. In the case of trackmen, the conductor punches as before and fills out the number of the men, on the back of the ticket, and the foreman of the gang signs on the front. If no foreman accompanies the gang, and they are not able to write (as is sometimes the case) the conductor, himself, signs on the front so that, in sorting these slips, those used for non-revenue passengers can be instantly thrown to one side.

School tickets are sold in \$3 books, with each ticket representing 1 cent. These are collected at the rate of one for each zone, with a minimum charge of 3 cents. That is, it costs a pupil 3 cents to ride in any part of one or two zones, and the same in three zones, 4 cents in four zones, 5 cents in five zones and so on. In other words, half rate is charged except in the case of a minimum ride, when the charge is 3 cents from a pupil and 5 cents from an adult. These tickets must be purchased through the use of an application blank fully identifying the pupil. The destination check, when used in recognition of a school ticket, is punched in the block "Pupil."

The conductor's daily report is simple. All minimum fares are rung up on the register and the register is not turned back until the end of the trip. The reading of the register each time it is changed is extended in his report, in the zone in which the change takes place, and is thrown back to zero at the end of the trip. Against each trip he sets down the opening and closing number of his destination checks and the other information that is necessary to complete the office records.

It is of interest to note that, some months ago, the company planned to change the rates on the two divisions in question by increasing the zone fares to 6 cents and leaving the zones just as they were, of unequal length and overlapping, in the way common to street railways. However, after serious consideration, it was felt that an increase to 6 cents simply emphasized the faults of the existing fixed unit of fare and varying units of service, and the company has been studying since on the plan that has now been adopted. This, it is believed, will prove to be much fairer, both to the public and to the company. It has the great advantage over an increase to 6 cents in that it effects a saving to at least a portion of the company's patrons who are certain to help make the change go through without serious opposition. Naturally, a flat increase to 6 cents for the old zones would meet with no support from any quarter.

NEW FORM OF PASSENGERS' FARE RECEIPT FOR COPPER ZONE SYSTEM

would fold his Guilford Green checks so that the figure 3 would show through the clip, and, coming in from Chester, he would fold his Guilford Green checks so that the figure 4 would show through the opening in the clip. Whether this feature will be of great value depends upon experience, but it is believed that conductors will make considerable use of it.

There are no overlapping zones, and the zones are somewhat in excess of 1 mile each, depending upon the location of little settlements or groups of houses, as terminals of the zones have been worked out to accommodate the largest number of people and have taken into consideration the direction in which these people most frequently travel. There is a minimum charge of 5 cents, which covers a ride in any part of two zones. A rider passing into the third zone is charged 6 cents; the fourth zone 8 cents, an additional charge of 2 cents being made for each zone.

USE AS TRANSFER

The use of this ticket as a transfer is also novel. The branch line stations are numbered and lettered, although the names do not appear on the ticket. Guilford is the first junction out from New Haven, and it will be noticed in the lines each side of 28, first toward Chester, 30B opposite 30, 32B opposite 32 and so on up to 40B. The station that is indicated by 40B is the end of this branch line, and this is a station that is called Stony Creek. The fare from New Haven to Stony Creek is 40 cents. That is to say, this station 40B appears in the line against 40, and the difference between punched holes governs the rate. A passenger bound

An elaborate public announcement regarding the change has been published in the local newspapers, but the plan was discussed in the papers for some little time previous, and a number of interviews were held with people along the line who were interested. The company has begun the sale of strip tickets in books of \$2 and \$5, each ticket representing 1 cent, similar to the form of a strip mileage ticket. In this way, a passenger can pay with his ticket for a minimum fare, or any other amount, without the use of pennies.

## Should Utilities Be Assessed by Public Service Commissions?\*

BY F. N. FLETCHER, RENO, NEV., FORMER MEMBER STATE TAX COMMISSION

When a commission has the rights and duties of an inquisitorial body for the investigation of all the books, papers and inside information of a public utility for the purpose of determining the reasonableness of its rates and its service, is it proper and fair for such a commission with the information thus obtained for a particular purpose to turn about and, assuming an official character quite distinct, make use of the information for a purpose altogether different? Closely related to the question itself are two co-ordinate questions that will first be briefly discussed.

First the mooted question: Shall public utilities be taxed at all? In the case of those utilities which still exist unregulated by public service commissions, governed in their service and rates only by the faint menace of competition should service become too poor or rates too high, managed largely if not solely for the benefits of the stockholders and charging all the traffic will bear, there is no question that such utilities should be taxed with as near approach to intelligent valuation as the conditions allow. In the quite different case of utilities under the intelligent and continuous regulation of public service commissions it really makes little difference to the utilities whether they are taxed or not. If taxed, the amount of the taxes is added to the expense account, and rates are allowed to cover expenses. In practice it may not work out so exactly as it does in theory, but in general it may be fairly claimed that it matters little to a public utility corporation whether it pays taxes or not provided its rates are fairly and intelligently regulated by a public service commission. The incidence of its taxation is, properly enough, passed on to the consumer.

Yet aside from the interests of the utility, what interest has the public in its taxation? Plainly, the exemption from taxation of a utility properly resulting in decreased rates for service makes to the advantage of those served at the cost of all taxpayers within the taxing unit who are not served. For example, it might easily happen that the property of a power, light and water company might equal 5 per cent of the entire value of a county while it served but one-half the inhabitants. If such property were exempted from taxation and the rates to consumers correspondingly decreased the entire benefit would accrue to the consumers while the entire loss in county taxes would fall on the taxpayers outside the community served by the corporation. The same would be true of the loss of state taxes in the ratio which the value of the exempted property bore to the state's valuation.

On the assumption, therefore, that public utilities should be taxed it becomes a matter of interest to consider whether the valuation used for the determination

of rates should also be used for the assessment of taxes. While trained minds versed in the science of taxation find no difficulty in ascribing different values for different purposes to the same property, it is not so simple to the layman. Rates, however, are largely based on what is put into the property as investment, while taxes are assessed on what is taken out as income. The one is an investment value, the other an income or market value. Under constant and proper regulation of rates, however, the difference in valuation for the two purposes should be slight, and in fact should ultimately disappear, for it is evident that the fixing of the rates is the determining factor in the market value of the utility.

It is clear, then, that if utilities are to be taxed justice to all concerned demands that the assessment shall be based on knowledge derived from expert investigation. It is also clear that whether the rate-making value differs from the taxation value or not, the essential facts on which both are based are the same. In other words, while the rate-making and the assessing powers may, indeed must, use the facts for different purposes, both must use the same set of facts. From the public standpoint, then, in the important matter of investigation there is not only no argument against a public service commission fixing the assessment value of a public utility but strong economic reasons for it.

What shall be said of this procedure from the standpoint of the utilities? In those states where the rate making and the assessing powers are lodged in the same commission there will come moments of grim humor when arguments favoring high rates for a certain utility based on its high cost are compared with arguments for low tax assessment based on its low market value. There seems to be no valid objection to the same commission hearing both arguments and deciding both issues. Indeed, from the standpoint of the utilities, to have valuation for rate making and for taxation determined by one expert commission is theoretically ideal. In practice, however, where utilities are assessed by public service commissions and other property by local assessors, it is almost certain to result in a considerable increase in the assessed value of the utilities without a corresponding increase in the assessed value of other property. This manifestly works injustice either to the utilities or to that portion of the public which they serve. The cure for this injustice lies in placing the entire control of the assessing power in the hands of a single commission, which would either be the public service commission or which would accept the value fixed on utility property by this commission, and would proceed to raise the assessed value of other property to the same basis. Whether a public service commission could perform the duties of a tax commission efficiently depends on local conditions. In a small state a single commission might accomplish the twofold task, but in most states it would be impossible. But in no state should the important work of rate making or of tax assessing be left to ex-officio commissions, which are notoriously inefficient.

Finally, then, it appears that public utilities should be assessed for taxation by public service commissions. Even in states where local assessors are compelled by law to accept the valuations on utilities as fixed by the public service commissions, the method is a big improvement over the old way. It would be a still better method for the public service commission to have the power to assess for taxation all classes of property or to act with a tax commission having such power, which in most states would be the only practical plan. A centralized power which would fix the assessed valuation of all classes of property on the results of careful and scientific investigation offers the only practical solution of the problem of equitable assessment.

\*Address delivered before the ninth conference of the National Tax Association, held in San Francisco, Cal., on Aug. 10-14, 1915.

ANNUAL CONVENTION  
SAN FRANCISCO  
OCTOBER 4 TO 8, 1915

# American Association News

ANNUAL CONVENTION  
SAN FRANCISCO  
OCTOBER 4 TO 8, 1915

Southern California Committees Arrange for Entertainment of Convention Attendants Who Visit Los Angeles and San Diego—Hotel Reservation Committee Organized in San Francisco—Membership Pin

## PROGRAM IN LOS ANGELES AND SAN DIEGO

The southern California committees of entertainment to the American Electric Railway Association and American Electric Railway Manufacturers' Association have arranged a most attractive program for the attendants at the convention and their families when they arrive in southern California. The dates of this program are Oct. 13, 14, 15 and 16, 1915, and the following has been arranged and will be carried out, with possibly some slight changes:

### WEDNESDAY, OCT. 13. TRANSPORTATION DAY AT UNIVERSAL CITY

The guests will be taken from special Southern Pacific trains at San Fernando, transferred to Pacific Electric cars and then taken to Universal City, where a special program has been planned by the Universal Film Company. The party will arrive at Universal City about 11 a. m. In addition to these guests, invitations have been extended to the city officials of Los Angeles, including the Mayor and members of the City Council, representatives of the Chamber of Commerce and prominent electric railway officials of southern California. There will be an augmented band of seventy men, composed of the Pacific Electric Railway and Los Angeles Railway employees' bands, to escort the party through the Universal Film Company's grounds. The Universal Film Company's cowboys will also act as an escort and give their usual Wild West salute. Interesting scenes from important picture plays will be in progress of making, so that those present may get a true and accurate idea of how picture work is conducted. Some of the very best artists will take part in these scenes. The Zoo will be visited and there will be an exhibition of wild animals and jungle scenes.

Following this the party will partake of an elaborate Spanish barbecue under the direction of the famous Joe Romero. There will be about 350 guests in all at the barbecue. During the luncheon addresses will be made by prominent members of the association. The entertainment at Universal City, outside of the barbecue, will be directly in charge of H. McRae, general manager of the Universal Film Company, and M. G. Jonas, publicity manager of the Universal Film Company.

The evening entertainment will consist of a reception and dance at the Hotel Maryland in Pasadena, where the party will be taken by special electric trains.

### THURSDAY, OCT. 14. SANTA CATALINA ISLAND DAY

At eight o'clock in the morning special Pacific Electric trains will leave Hotel Maryland, Pasadena, for San Pedro. Such guests as have headquarters in Los Angeles will leave on special Pacific Electric trains at 8.30 a. m. from the Sixth and Main Street station for San Pedro. Special boats will be provided by the Banning Company, owners of the Wilmington Transportation Company, conveying the party from San Pedro to Santa Catalina Island, where luncheon will be served with famous Catalina Island sea food as a specialty. In addition to this the committee will provide glass bottom boats for viewing the greatest submarine gardens in the world. Members will be accorded the privilege of the Golf Club on the Catalina links, if de-

sired. The return trip through Los Angeles to the Hotel Maryland in Pasadena will be made in time for dinner in the evening.

### FRIDAY, OCT. 15. TRANSPORTATION DAY AT PANAMA-CALIFORNIA EXPOSITION

Special electric cars of the San Diego Electric Railway will meet the train at 7 a. m. at the Santa Fé station and convey the guests to the Coronado Ferry and from the ferry to the Hotel del Coronado. Special events will be featured at the exposition during the day, including an address of welcome by the president of the exposition, a special drill by the United States Cavalry and a special musical program on the famous out-door pipe organ. An informal reception and dance for the ladies of the party will be held at the Southern California Counties Building.

In the evening a visit will be made to the "Isthmus" which is known over the entire world and is one of the most elaborate features at the San Diego exposition. Numerous forms of amusement will be provided, and the party will be entertained at the very interesting attractions that are conducted on the Isthmus.

### SATURDAY, OCT. 16. AVIATION DAY—SAN DIEGO

On Saturday special cars will leave Hotel del Coronado at 9.20 a. m. for the ferry, where they will be met by special launches which will convey the guests to the United States Aviation Field on North Island to witness a special movement of hydroplanes and aeroplanes by the United States Army aviators. Guests will be permitted to visit the hangars and inspect the machines. Following the exhibition they will be taken for a ride over San Diego Bay, returning to Hotel del Coronado at 12.30 p. m. for luncheon. At 2 p. m. a special train will leave Hotel del Coronado for Tia Juana, Mexico, returning at 6 p. m. In the evening a ball will be given in honor of the visitors at Hotel del Coronado, and after the ball they will be conveyed in special cars to the Santa Fé station, where they will board their train.

## CONVENTION HOTEL RESERVATIONS

A local hotel reservation committee has been organized at San Francisco for the convenience of those who will attend the convention of the American Electric Railway Manufacturers' Association. All that is necessary is to send in a request specifying the accommodations desired and the committee will see that suitable reservations are made immediately. Application for reservations may be made either to H. G. McConaughy, 165 Broadway, New York, N. Y., or to Carl Heise, care of Westinghouse Electrical & Manufacturing Company, San Francisco, Cal.

## MEMBERSHIP PIN

Secretary Burritt is making a campaign to induce members to wear the association pin. He recently sent out an attractive order card with some interesting statements bearing upon the wearing of the pin. It appears that nearly 1300 members are already wearing it, and Mr. Burritt gives as a salient reason for doing so the fact that it is likely to afford the opportunity of individual explanation of the problems which the electric railways have to solve.

## COMMUNICATIONS

## Cars at Less than Cost

EMPIRE UNITED RAILWAYS AND ASSOCIATED LINES  
SYRACUSE, N. Y., Sept. 8, 1915.

To the Editors:

Your editorial entitled "Cars at Less than Cost" is a temptation, and I am taking the liberty of "coming back." I have just finished sopping up the tears which have been falling from my eyes in commiseration of the "poor, feeble-minded car builder," mentioned in your editorial, who has been cajoled into accepting orders for cars under ruinous competition. The illustration used, of the selling of transportation in the electric railway business at less than cost, is really hilarious when compared to the selling of electric cars by the car builder. To be sure, all of us complain, with more or less vehemence, as to the burdens we bear and the goods we sell at less than cost, but there is a difference, as pointed out by you in your editorial—only you do not go far enough. You recite the fact that the price at which we sell our goods is stipulated by law, but you fail to mention the fact that the manufacturing cost of the article which we sell to the public, namely, transportation, is dictated to us by outside sources. In the matter of power, the margin of efficiency is rather narrow, and in the matter of wages, the largest item entering into our cost, we are practically in the hands of outsiders. Taxes, paving and other imposts and burdens imposed on electric railways are beyond the control of the management, so the electric railway is not only restricted in selling price but its production cost is practically dictated by persons and circumstances over which the railways have no control.

Take, now, the case of the "poor, feeble-minded car builder," who deserves our commiseration and sympathy. The matter of manufacturing cost with him is principally one of organization, an item even more important than the cost of raw materials. The manufacturer in selling a car body at \$3,000 or \$4,000 no doubt is not making a profit on it, but any automobile manufacturer will give him lessons in how to turn out that body at half the cost and make a good profit. The difference is that the automobile manufacturer has organized and standardized; the electric railway manufacturer has not. As a matter of fact, it will take a 42-centimeter gun to jar the electric railway industry out of the smug complacency of its accustomed methods, and that 42-centimeter gun has actually been fired, and it has been fired by the automobile manufacturers with their organization and standardization. The electric railway industry is really at the dawn of a new era. Why not let the car-body manufacturers and the manufacturers of electrical equipment and accessories get together and borrow a leaf from the book of the automobile manufacturers? Let them produce a standard car at a standard price, based on an output of 100,000 cars a year, or something like that. The individual railway engineer who has such violent prejudices that he cannot accept the standard article is at perfect liberty to purchase some of the old designs or new designs of his own, always assuming the cost of the special design, of course, but if a standard car is put on the market at a price which compares favorably with automobile prices, there will be an immediate and tremendous demand for it. As a matter of fact, the electric car to-day is really what in automobile circles is referred to as an "assembled" car, and in that line of business an assembled car is looked at askance and with suspicion. Why not standardize? For instance, can anybody give any rational or tangible reason why

the electric control and the air control of a car should be segregated and consist of two separate and distinct functions, or why one handle cannot be used to apply the power, and when turning off the power in the reverse direction apply the air brakes? Not only would this simplify apparatus and save weight, but it would make the control practically foolproof. But, because air-brake manufacturers and electric manufacturers have been two distinct breeds, no one has apparently ever thought of combining the two functions. There are a dozen other points in electric car construction which could be similarly combined if the various manufacturers could be properly harmonized. Then the car will cease to be an "assembled" car.

The "poor, feeble-minded manufacturer" who sells his car at less than cost does so of his own free will and accord. He is not forced to do it by anybody or any circumstances over which he has no control. If his overhead charges made the cost of car building prohibitive, it is clearly neither the function nor the duty of his customers to absorb those charges. He is his own master when fixing his selling price, and, unlike his customers, he is largely the architect of his own costs. The car manufacturers have been helpful in building up the electric railway industry, they are individually and collectively a fine lot of men, it is a pleasure to know them and to do business with them, and it is to be regretted that competition among them is so keen as to be ruinous to themselves and harmful to the industry they have helped build up. But, let them haul their own chestnuts out of the fire and let the present crisis in car building be the starting point of a new era in their business as well as in that of their customers.

ERNEST GONZENBACH,  
General Manager.

## Transmission Line Progress

ARCHBOLD-BRADY COMPANY, ENGINEERS  
AND CONTRACTORS

SYRACUSE, N. Y., Aug. 26, 1915.

To the Editors:

I have noted with interest the editorial on transmission line progress which appeared in the issue of the ELECTRIC RAILWAY JOURNAL for Aug. 21, page 300. The experience of this company is in line with the statements made in the editorial, but this experience would lead us to utter a word of caution in regard to the use of excessively small sizes of wire. We do not like to recommend the use of No. 2 wire on spans greater than 400 ft. in length unless the occurrence of sleet is a practical impossibility. No. 4 copper wire should rarely be used on spans of more than 300 ft. length, although under certain circumstances spans as long as 350 ft. are permissible.

Long spans are necessary, of course, with fabricated steel structures, for these must necessarily be reasonably substantial, and as a consequence the cost per unit is too high to permit their use with short spans. Even when certain light types of steel poles are used they must be set in concrete, and the high field cost offsets the saving in pole cost. We have found that it is not wise to ship fabricated steel which can be easily damaged in handling, and we therefore adhere closely to 7-in. channels as the minimum size for the main members of A-frame or laced channel poles.

In regard to the relation of the size of wire to the strength of the towers and insulators, I do not think that there is as much difference permissible in the strength of the towers and insulators as the differences in sizes of wire might seem to indicate. That is the towers and insulators cannot be made much lighter if

No. 2 rather than No. 00 wire is used. It is easily possible to get the design of the line out of proportion by having the wires too small. Bimetallic wires of great tensile strength may become available for transmission lines so that smaller wires can be used on longer spans, but they have not yet been introduced on a scale that their advantages warrant.

W. K. ARCHBOLD,  
President.

### Information for Railway Employees

GALESBURG RAILWAY & LIGHT COMPANY  
GALESBURG, ILL., Sept. 2, 1915.

To the Editors:

I have noted in the columns of the ELECTRIC RAILWAY JOURNAL from time to time references to efforts which are being made to enhance the value of public libraries to employees of electric railways by having on their shelves and tables books which should be of interest and value to such employees.

In Galesburg, at the request of the company, the free public library has purchased a number of practical books on street railway work and has subscribed for a number of periodicals.

We have posted in our carhouse a list of these and also a record of calls for different books. This notice is signed by the writer.

So far the record is somewhat discouraging, there being practically no interest in those books which deal with specific topics relating to railway work.

In the line of instruction classes for employees we have been inviting the salesmen who call upon us to give informal talks to those employees interested in the particular parts of the equipment regarding which they are informed. We hope to go into this matter farther during the coming fall and will be pleased to report the results to you.

FOSTER HANNAFORD,  
General Superintendent.

### Express and Skip-Stop Service in Denver

THE DENVER TRAMWAY COMPANY  
DENVER, COL., Aug. 31, 1915.

To the Editors:

Your editorials on the skip-stop call to mind our experience with this method of operation in Denver. On lines running east and west the stops are very close together. From property line to property line the blocks are 266 ft. long. Adding the width of street, about 60 ft., we have stops 320 ft. apart.

During the period when we were demonstrating the skip-stop plan, we stopped at every other street. Our method was devised so that if a street was missed on the out-bound trip, it was made a stopping place on the in-bound trip. We also managed to sandwich in an express service, stopping at four-block intervals along the same tracks and in the territory of the local cars, without interference from the latter.

The service proved one of the best I ever saw on a city street. Every day we hear people bemoaning the fact that they no longer have this splendid accommodation. In Denver there were no less than 100 of my neighbors who lived along another line three long blocks from the Colfax Avenue line, and about 3 miles out from the business center, who gladly walked the extra distance for the pleasure of riding upon the line having express and skip-stop service.

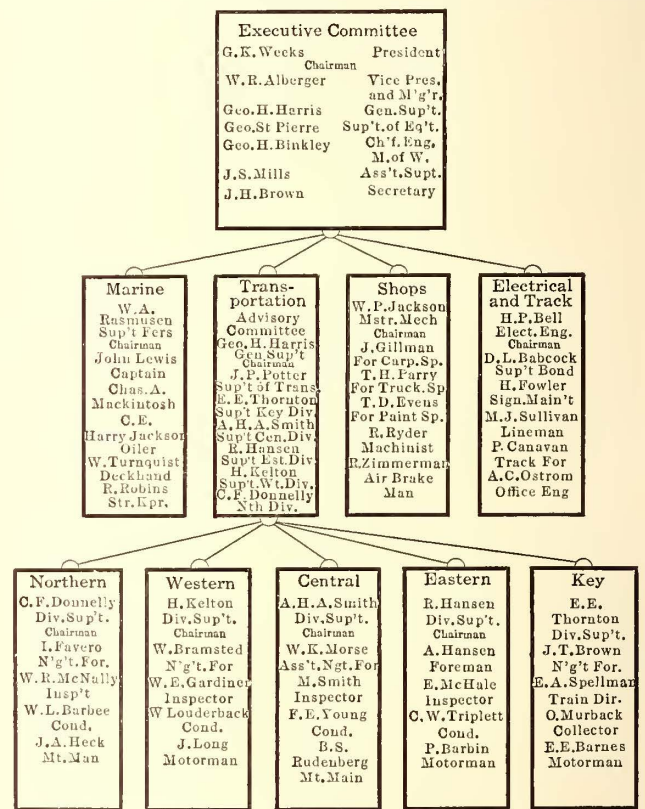
There is much to be said in favor of the skip-stop plan. It brings us nearer to competition with the faster automobile, and it is also a great boon to residents of outlying districts. Having one-half of the stops between his home and place of business eliminated is an obvious advantage to the man living 3 or 4 miles out.

Until one has seen the skip-stop in operation, it is difficult to realize how much pleasanter and smoother the riding is, and how great is the saving in time. Express and skip-stop service along city streets has to be seen to be appreciated. Like the coasting art, we do not recognize all of its many desirable features until we actually give it a trial. From my experience, I believe it to be a prime factor in the solution of the transportation problem. It certainly permits the operation of cars and trains to an infinitely better advantage.

C. B. WELLS,  
Assistant to the General Manager.

### A Safety-First Organization Chart

The San Francisco-Oakland Terminal Railways was among the first electric railways to form safety committees in co-operation with its employees. Changes in committee membership are made semi-annually, but enough holdovers are left to maintain the continuity of committee work. To make the safety organization



OAKLAND SAFETY ORGANIZATION CHART

with its system of sub-committees and divisional committees clearer to all concerned, an organization chart was prepared some time ago. This is probably the first chart of its kind, and is of special interest in showing how the safety movement has brought in all grades of employees. The titles are self-explanatory, except perhaps for "collector," which refers to the fare collectors who assist the conductor of a train.

A number of gasoline-electric cars are being built for the Dublin & Blessington Steam Tramways Company, Dublin, Ireland. They will each accommodate seventy-five passengers, besides hauling one of the existing steam cars as a trailer. With a view to running over the system of the Dublin United Tramways, the gasoline-electric cars will be so fitted that the two motors can obtain current from the trolley wire.

# Equipment and Its Maintenance

Short Descriptions of Labor, Mechanical and Electrical Practices in Every Department of Electric Railroading

(Contributions from the Men in the Field Are Solicited and Will be Paid for at Special Rates.)

## Change of Trolley Wheel Design and Trolley Lubrication

BY W. P. JACKSON, MASTER MECHANIC SAN FRANCISCO-OAKLAND TERMINAL RAILWAYS, OAKLAND, CAL.

In an effort to keep the roofs and fronts of cars free from oil and more presentable in appearance, considerable success has been achieved through the substitution of solidified oil and petrolatum for oil in lubricating trolley wheels and pantograph rollers. At the same time there has been effected quite a reduction in lubrication labor and material costs.

On the Key Division, where the pantograph rollers make about 215,000 miles per month, 30 gal. of oil were required monthly for rollers. The lubrication of these rollers is now taken care of with 10 lb. of petrolatum per month, and the roofs and sides of cars are absolutely free from oil spots.

In order to lower the first cost of trolley wheels, and also to secure an oil reservoir more suitable for the use of solidified oil as a lubricant, the design of the

trolley wheels was recently changed, as shown in the accompanying illustrations. The old type of wheel weighed 4½ lb. out of the sand, required ½ lb. of brass for the bushing and weighed 4¼ lb. finished. The average cost of manufacture in the company shops was 73 cents each. The new type of wheel has no bushing, weighs 3 lb. 14 oz. out of the sand, and 3¼ lb. when finished. While the new type has not yet been manufactured in sufficient quantities to secure accurate data on costs, it is estimated that the reduction in material and labor will enable the shops to turn out these wheels for 57 cents each.

A five-spoke pattern was adopted on account of the additional support which would be given to the rims which wore thin or were almost worn through at the bottom.

The large grease reservoir and the ¼-in. lubricating slot which runs all around the pin enable this type of wheel to run 1000 miles between lubrications.

## Bolts and Screws

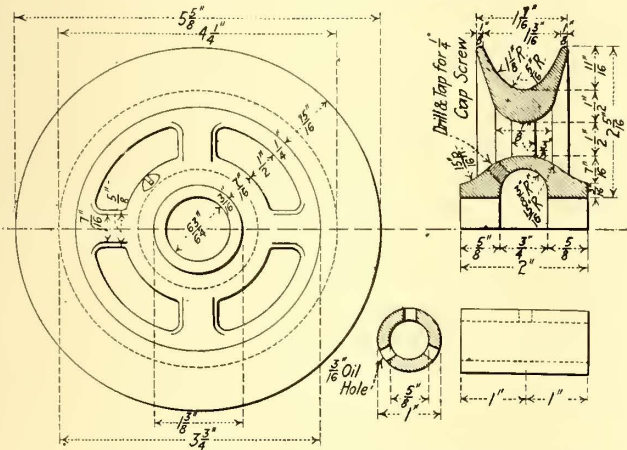
BY "VULCAN," A.M.I.C.E., A.M.I.E.E., ENGLAND

In street railway practice one often finds a difficulty in getting the average maintenance hand to appreciate the importance of paying proper attention to what superficially appear to be small details, and particularly is this the case with the men engaged in overhauling the mechanical parts. The reason for this neglect is probably that such workmen are often of the unapprenticed class, and also because the work is of rough appearance and dirty.

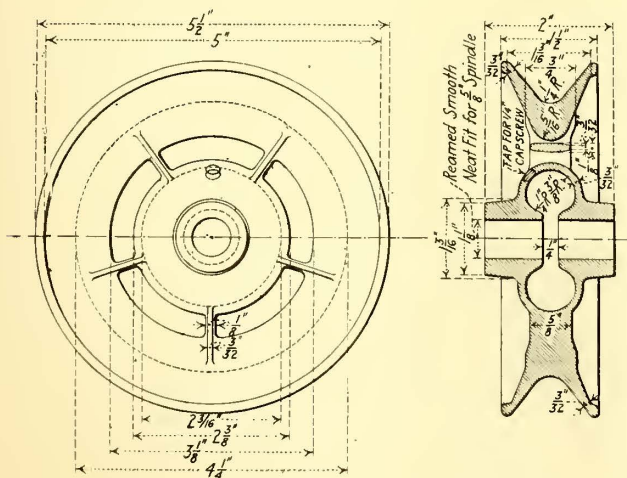
For instance, in the use of bolts and screws, lubrication of the threads with oil or grease is not usually carried out except by the skilled mechanics, who rarely fail in this particular matter. In such instances as in certain truck parts which will probably not be taken apart for many years, the use of dry screws or bolts which quickly rust is perhaps advantageous because the lack of lubrication assists in preventing loosening by vibration. The case is, however, totally different where periodical unbolting or unscrewing is required, because the lack of oil on the bolt or screw causes seizing of the threads to occur; this and rusting cause difficulty in loosening, which in the case of the smaller sizes often results in breakages by twisting off.

To the workman concerned in such fractures, the matter may appear a small one, but nevertheless it is often due to such seemingly small causes that much damage indirectly results, as the following instance will show.

On one system where the writer occupied the position of rolling stock superintendent, the number of faulty field coils and armatures which came to the shops for repair was considerably more than ought to have been the case, and investigation showed that the windings had at some time been wet. A night visit to the various depots and an inspection of the motors from the pits disclosed the fact that a considerable proportion of the motors were without inspection hole covers, which by causing the windings to be exposed to the splash from the car wheels in wet weather, explained the reason for



SAN FRANCISCO-OAKLAND TERMINAL RAILWAYS—OBSOLETE TYPE OF TROLLEY WHEEL



SAN FRANCISCO-OAKLAND TERMINAL RAILWAYS—NEW TYPE OF TROLLEY WHEEL

the excessive number of motor failures. For inspection purposes and for taking armature clearances these covers are removed at frequent intervals, and their replacement is forgotten now and again by careless workmen; but in this case an appreciable number had evidently been left off because one or both of the  $\frac{1}{2}$ -in. screws which ordinarily hold these covers in position had been twisted off. This had probably been done in the operation of removing the covers by means of a spanner.

Seizing of the screws in the tapped holes of the motor cases of course caused the trouble, and as a broken screw on the underside of an installed motor is somewhat difficult to remove it is not surprising, perhaps, that, when discovery was unlikely to occur, the job was shirked in many cases and the covers left off. Failure to oil the screws when they were being installed was, however, the reason for the seizing or rusting fast of the screws.

Street railway car equipment often suffers unnecessarily, and many car defects are brought about by the only too common practice of neglecting thread lubrication. The men responsible for this are generally of the "anti-oil-can" class, and in such cases a sharp lesson or two appears to be the most effective cure.

## Repairing Broken Tubular Iron Poles

BY S. L. FOSTER, CHIEF ELECTRICIAN UNITED RAILROADS OF SAN FRANCISCO

Various methods of repairing broken tubular iron poles have been brought out but the same old method which was in vogue twenty years ago still prevails in San Francisco.

A plan for strengthening such poles that had become weakened at the ground line by corrosion was adopted in an Eastern city, whereby a short iron tube was slipped over the top of the pole, buried a foot or two below the level of the pavement and left projecting a foot or so above it. This tube thus surrounded the pole for about 1 ft. above and below the sidewalk level, and the narrow, angular space between tube and pole was filled in with sulphur, pitch or cement. This plan necessitated stripping the pole before the tube could be threaded over it and was more popular in the city where it was invented, as the feeders were very generally underground there, than in cities where the poles were burdened with feed-wire cross-arms.

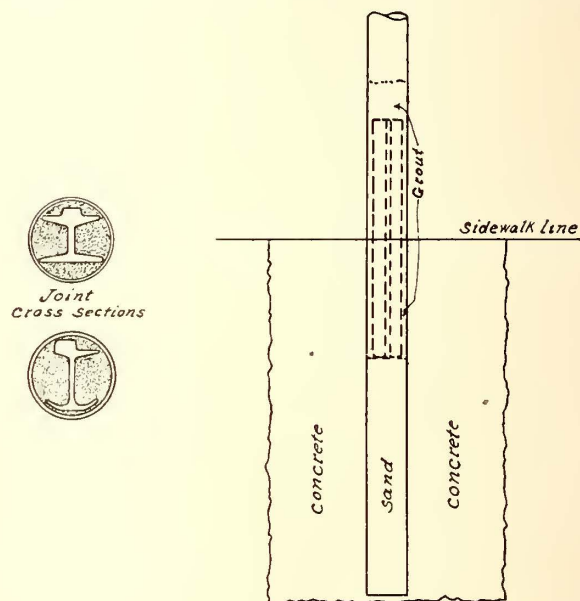
In these other cities two methods were brought out that provided reinforcement without disturbance of the wires, cross-arms, etc., attached to the poles. In one the sleeve was simply supplied in two interlocking halves. This, like the original solid sleeve plan, necessitated digging up the sidewalk, and left the pole base covered with a short length of pipe of a diameter larger than the rest of the pole, giving the pole a patched appearance.

In another plan a long skeleton, springy arrangement of reinforcing rods was inserted in the top of the pole, dropped to the bottom, and then fixed in place by immersion in a liquid mixture of cement and sand pumped into the top of the pole by some form of portable mixer and pump combined. This was not cheaply convenient in cases where single poles broke off and called for prompt attention.

The method used in San Francisco was the result of a house-moving past the location of an iron pole. Instead of digging out the pole and then replacing it after the house had passed the pole was cut off flush with the top of the sidewalk. After the house had passed, the part of the pole in the concrete setting was filled with sand to within 2 ft. of the top. A 4-ft. piece of 70-lb.

center-bearing rail that fitted the interior of the pole closely was inserted and the voids between the rail and pole were filled with a mixture of cement and sand. The upper part of the pole that had been cut off was then set down over the 2 ft. of rail sticking up above the sidewalk, the joint between the upper and lower parts of the pole was sealed by a few wraps of tape or burlap, and a bucket of liquid cement and sand or "grout" poured into the top of the pole to fill the space between the rail and the surrounding pole at the lower end. After the cement had been allowed to set for a day or two this pole was as strong or stronger than before it was cut off. It looked no different than it did before it was spliced, it had cost only a small sum to repair and the ordinary crew of emergency linemen had done all of the work without the use of any unusual appliances beyond a pail in which to mix the cement and sand, and a funnel to guide the mixture into the top of the pole.

This idea has been applied in many ways since then. For example: After the great fire of 1906 we recovered many iron poles, or rather pieces of iron poles, that looked like a lot of junk. They had been broken off or



SAN FRANCISCO METHOD OF REPAIRING BROKEN OR CORRODED TUBULAR POLES

flattened at the ground line or above it by dropping building material that had been thrown down by dynamite or had fallen during the progress of the fire. Equipped with the pole-splicing idea described, a supply of short pieces of old rail of suitable sizes, an assortment of new pipe lengths and some Portland cement, several hundred of these poles were rejuvenated at small cost to look as good as new and be stronger than when new. The splices came not only at the ground line, but in many cases above the ground line, in fact, where the first truly circular cross-section of pipe was to be found.

One more case is worth recounting. In the earliest trolley construction when No. 0 trolley wire was used some rather weak poles were used, being built up of sections of thin boiler tubing fastened at the joint insertions with rivets and "rust-joint" cementing. On a certain 82.5-ft. street with 19-ft. sidewalks, the size of the trolley wire had been increased to No. 00, and it was proposed to reduce the width of the walks to 15 ft. These 1890, 28-ft. tubing poles clearly would never stand this strain, and the expense of moving back



## Converting Open Cars Into the End-Entrance Type

BY A. C. COLBY, MASTER MECHANIC BERKSHIRE STREET RAILWAY

4 ft. the mile or so of double side poles and their concrete settings appeared likely to prove unpleasantly large. The San Francisco pole-splicing idea simplified this job greatly. An 8-ft. length of old rail was set in a block of concrete at the new pole location, leaving 2 ft. projecting above the sidewalk. The pole was cut off at the ground line, the lower part with its inclosing concrete abandoned and the upper part set down over the 2-ft. stump of rail and cemented in place.

As completed the pole was stronger in 1915 than when new—twenty-five years before—the cost of gadding the old pole out of its concrete bed or of trenching the 4 ft. and transporting the pole and setting across this 4 ft. of move was saved at little cost for old rail. These poles were taken up in alternate spans, thus leaving the spans slack on the new construction until the cement hardened.

Of course, in applying this idea the rail should always be set so as to get the best effect from it, considered as an I-beam. The cement will take care of the compression strain, and the part of the rail having the greatest amount of metal should be located in the line of the resultant strain to take care of the tension strain. Generally the head of the rail should be located at the back of the pole. In selecting old rail, also, the rail of greatest height permitted by the pole interior diameter should be selected.

The advantages claimed for this simple, foolproof method of splicing tubular iron poles is that it increases the strength of the pole without altering its external diameter or appearance; that it permits the utilization of very cheap scrap metal, a small amount of cement and the usual simple emergency crew appliances; that the materials for repairs are invariably quickly obtainable; that it necessitates no disturbance or re-establishment of the sidewalk paving; that it is fireproof and that the reinforcing is protected against oxidation inside the pole by the tubular covering of the pole and by the cement filling.

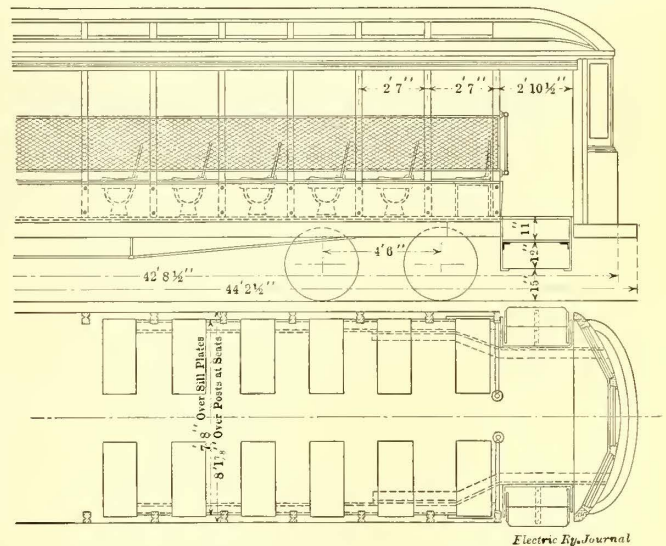
If there had been any iron poles in San Francisco during the great 1906 fire repaired by the outside tube method with the intervening space occupied by sulphur, the sulphur would surely have been ignited and the strength of the pole splice ruined.

In some sizes of poles, in order to get maximum strength in the rail insert or to make the nearest size rail section have a close fit, it was found advisable to heat and bend inward the bottom flanges of the piece of rail used in the splice, the calculated moment of inertia of the rail insert and concrete filling being greater than that of the tubular pole alone when new.

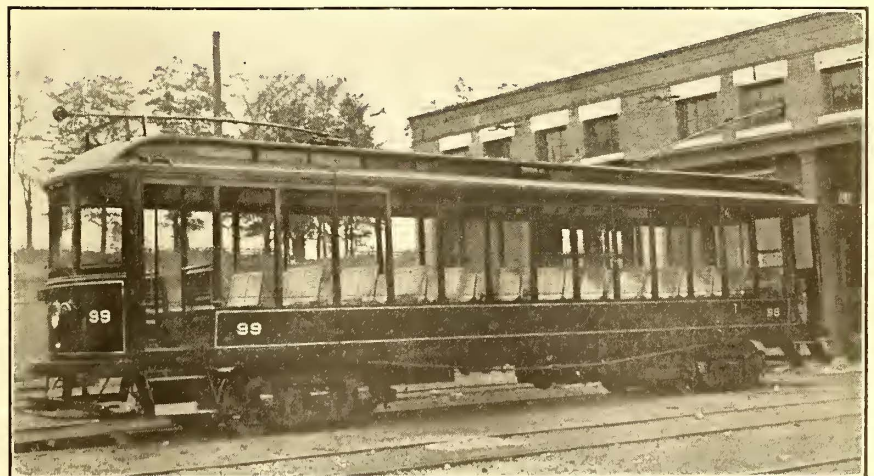
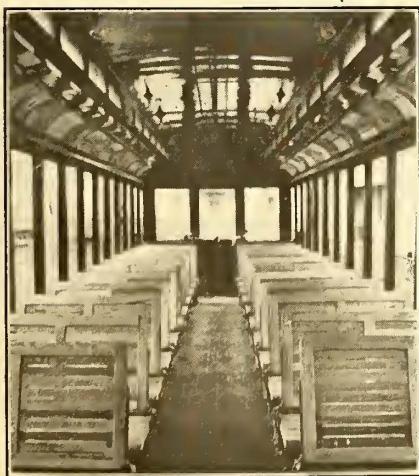
The Berkshire Street Railway, Pittsfield, Mass., has undertaken the work of converting its open cars to the end-entrance type. Ten out of the fifty-three double-truck open cars operated by the company have already been changed over, and it is expected that the new arrangement will greatly reduce the number of accidents that are inevitable with ordinary open cars in high-speed interurban service. At the same time the change will enable the company to meet the requirement of the new regulation inaugurated by the State of Massachusetts which limits the height of open-car steps and thus involves the installation of double running boards. Extensive changes in the clearances along the right-of-way also affected the decision to convert the cars.

The work of conversion has consisted in the removal of the running boards and the inclosure of the car sides with steel plates and screen window guards. The cross benches have been removed and new seats with a center aisle have been provided. An aisle was provided by removing the bulkhead from the ends of the cars, and platform steps on either side of the vestibules installed.

The cars are of the usual fourteen-bench open type, and in place of the benches wood-slab reversible



PLAN AND ELEVATION OF CONVERTED OPEN CAR



INTERIOR AND EXTERIOR VIEWS OF CONVERTED OPEN CARS

seats of standard dimensions have been substituted, there being thirteen seats on each side of the aisle with the new arrangement, giving a total seating capacity of fifty-two. The side sills were cut at the four corners of the car body to provide for the stepways, and two angles extending from the bolster along the inside of the sills to the bumpers were installed with an off-set to accommodate the steps. The step-way construction was reinforced by a 1/2-in. x 8-in. plate outside of the sills, bending in around the stepway and bolting to the head block.

The construction provides for two steps below the car floor with treads 9 in. wide and 34 1/2 in. long. The first tread is 15 in. from the rail, the second and third being respectively 12 in. and 11 in. high. The car sides have been inclosed with a steel plate 8 in. wide, which is bolted to the posts and overlaps the sills 1/2 in. This has a cap of oak that forms a window ledge for the curtain, and above it is a 22-in. guard of steel mesh. It is expected that incidentally the reconstruction of the cars will add materially to their life, although the main reason for their conversion was a desire to reduce boarding and alighting accidents.

### Effect of Car-Wheel Diameter on Motor Heating

BY A. L. BROOMALL, RAILWAY ENGINEERING DEPARTMENT, WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, EAST PITTSBURGH, PA.

A number of articles have appeared in the *ELECTRIC RAILWAY JOURNAL* within the last year on the effect of car wheel diameter on motor heating,\* but none of these has given specific rules by means of which the operating man can determine, even approximately, what increase in heating is to be expected from a difference in wheel diameter.

The following method may be used to analyze accurately any specific case, and the accompanying curves give the results on an average motor under varying conditions. They may be used to determine quickly the approximate difference in heating for any case.

\*See issues for Oct. 3, 1914, page 622; Oct. 31, 1914, page 1014; Nov. 28, 1914, page 1203; Dec. 19, 1914, page 1344; July 10, 1915, page 70.

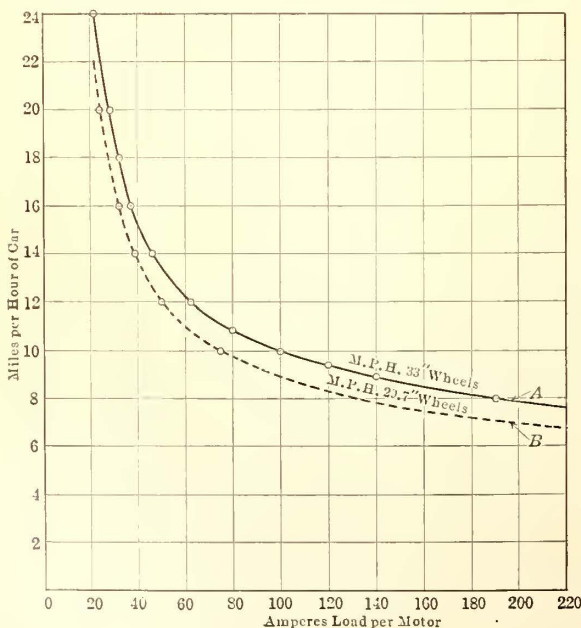


Fig. 1

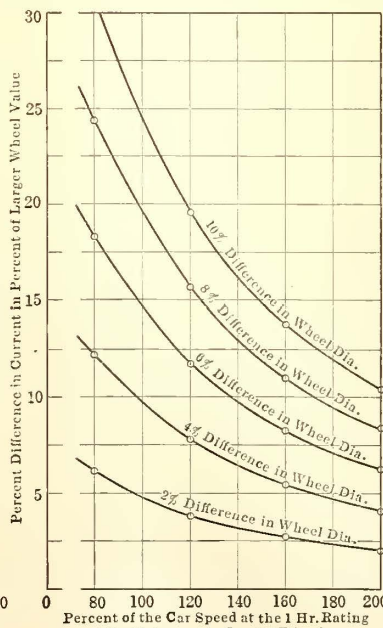


Fig. 2

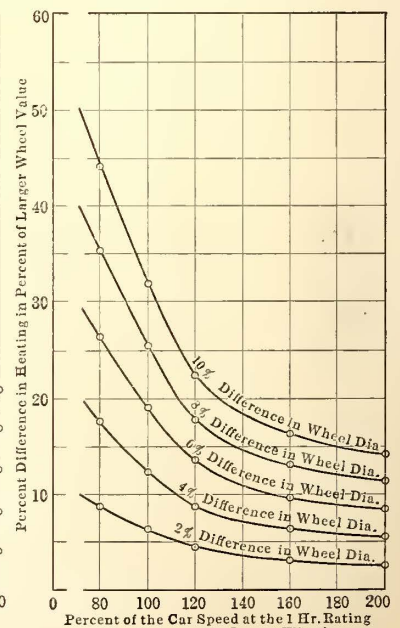


Fig. 3

FIG. 1—CHARACTERISTIC CURVES; FIG. 2—DIFFERENCES IN CURRENT DUE TO DIFFERENCES IN WHEEL DIAMETER; FIG. 3—DIFFERENCES IN HEATING DUE TO DIFFERENCES IN WHEEL DIAMETER

Curve A, Fig. 1, is the familiar speed-current curve of a car equipped with electric motors. This curve shows the car speed in miles per hour for varying amperes drawn by the motor with a given gear ratio and wheel diameter and with a definite voltage at the motor terminals. Suppose, however, that the wheels on the car were 10 per cent smaller in diameter than on the car for which curve A holds, then a similar curve for this car would be as shown at B, with speeds 10 per cent less than for the same amperes in curve A. Curve A, Fig. 1, is made up for 33-in. wheels, and curve B shows the car speeds for wheels 29.7 in. in diameter. If wheels of these two sizes are under the same car, of course, the car speed for the two wheels will be the same and the amperes drawn by the two motors will be different, as shown on the two curves for the same car speed. As an example, assume the car speed to be 10 m.p.h., then the motor mounted on the 33-in. wheels (see curve A) will draw 100 amp. and the motor mounted on the 29.7-in. wheels (see curve B) will draw 75.5 amp. or 24.5 per cent less. At 8 m.p.h., the motor mounted on 33-in. wheels will draw 190 amp. and the motor mounted on 29.7-in. wheels will draw 132 amp., or 30.5 per cent less than the motor on 33-in. wheels.

The difference in the currents drawn by the two motors depends on the shape of the speed curve. At light loads where the curve is steep, the percentage difference in amperes is small, but where the curve flattens out at heavy loads the percentage difference in amperes becomes much larger.

Having obtained for any given car speed the amperes drawn by the two motors on wheels of different size, the core loss and  $I^2R$  loss for each of the motors may be calculated and the difference in the armature heating obtained. The difference in heating for different loads on two motors of the same type varies somewhat with the design. The  $I^2R$  loss, of course, varies as the square of the current and the core loss varies only slightly with the current.

The shape of the speed curve and the distribution of losses varies with different designs, so that if accurate results are required, the difference in current drawn and the difference in heating must be worked out for each type of motor. An example of an indivi-

dual case was that for which results were given in the issue of the *ELECTRIC RAILWAY JOURNAL* for July 10, 1915, page 70.

To determine the difference in heating as outlined above would often require more information than the operating man has available, and, therefore, the writer has taken an average speed curve from many railway motors and has worked out the percentage difference in current in per cent of the larger wheel value for car speeds ranging from 70 to 200 per cent of the speed at the one-hour rating of the motor on the larger wheel, and for wheel diameters which vary as much as 10 per cent. These results are given in Fig. 2.

Likewise, by taking the average variation of losses in a number of railway motors, curves were obtained giving the per cent difference in heating in per cent of the larger wheel value in terms of the one-hour rated car speed. These results are given in Fig. 3.

While the results as shown in Figs. 2 and 3 are worked up for a motor of average characteristics the error in applying them to any case will not be large and they may be used very quickly to determine the difference in heating which may be expected for a difference in wheel diameter.

As a practical example, suppose that we have a quadruple equipment of 40-hp. motors whose rated speed is 525 r.p.m. at 500 volts. These motors have a sixty-nine-tooth gear and a fifteen-tooth pinion. Assuming that three of the motors are mounted on 33-in. wheels and the fourth motor on 31-in. wheels. The difference in wheel diameter is 6 per cent of the larger wheel value. When the motors on the larger wheels are operating at the one-hour rating of the motors, the car speed is approximately 11.2 m.p.h. and, therefore, for a car speed of 11.2 m.p.h. there will be approximately 14.7 per cent difference between the amperes taken by the motor on the 31-in. wheels and the motors on the 33-in. wheels. The difference in the heating in the armatures will be approximately 19 per cent. When the car speed has increased to, say, 22.4 m.p.h. or 200 per cent of the car speed at the one-hour rating of the motor, the difference in amperes will be 6.3 per cent, and the difference in heating in the armatures will be 8.6 per cent.

It will be seen from the shape of these curves that the total difference in the heating in the armature in the two motors depends largely upon the speed at which the greater part of the operating is being done. When a large part of the running is at high speed, the difference in heating will be less than where the motors are operating at speeds nearer the one-hour rating speed.

### Novelty in Indirect Lighting

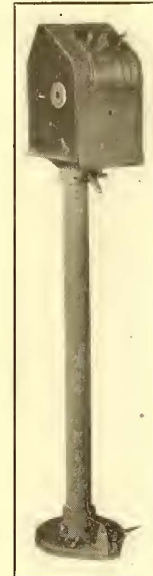
The Eli Lilly Company, near Greenfield, Ind., one of the largest manufacturers of antitoxins and serums in this country, recently built a new laboratory in which two main buildings are connected by a long pergola with an impressive tower in the center. This faces the National Highway over which thousands of automobiles travel each year. Numerous attempts made to illuminate the building front in a manner that would provide a general lighting effect were found to be ineffective. Finally, however, the success of the Terre Haute, Indianapolis & Eastern Railway, which supplies power to the company, with "Golden Glow" interurban incandescent headlights led to the suggestion to try "Golden Glow" harbor range lights, manufactured by the Esterline Company of Indianapolis, and the result was so satisfactory that an entire equipment was purchased and permanently installed.

The lamps are mounted on concrete bases and are so

close to the ground as to be unnoticeable in day time, and at night it is hardly possible, from the road, to tell where the sources of light are. The fact that no maintenance is necessary with the mirrored reflectors in the "Golden Glow" lamps, and the long life of the bulbs, makes the installation an ideal one.

### Transfer Issuing Machine

For some time there has been a demand from electric railway men for a practical device to print and issue transfers. The advantages of such apparatus have long been acknowledged, but the expense and the mechanical difficulties involved in its manufacture have heretofore prevented its actual production. However, the Ohmer Fare Register Company, Dayton, Ohio, has made use of its unusual facilities to plan and perfect a transfer machine that is designed in accordance with the ideas of some of the most prominent electric railway men in the country, and it is with full confidence in the success of the device that the makers now offer it to the industry.



TRANSFER MACHINE

A transfer issued by this machine bears all the necessary data in plain bold type which any passenger can read at a glance. There are no punch holes. The date, the time, the direction, the consecutive number and the line to and from which the transfer is issued are printed, together with the conductor's identification number and the number of the machine. It is a transfer in fact and not a stop-over privilege. Time limitations are accurately and easily maintained because the time is printed mechanically when the transfer is issued.

The machine, unlike a human agency, is never confused by rush-hour traffic.

The receiving conductor is never in doubt and the passenger knows what his transfer calls for. Any transfer can be immediately traced to its source through the conductor's identification number and by the number of the issuing machine. Transfer abuses on the part of the public and traffic in transfers by trainmen are eliminated. The conductor's transfer record for the day is secured simply by having him issue a transfer to himself when he goes on duty and another when he quits work. He pins them together and turns them in. The intervening numbers are the transfers issued.

Ohmer's transfer machine reduces the cost of transfers to the cost of the plain paper upon which they are printed, the expense of handling stocks of transfers and checking them out being eliminated. Not only is the machine efficient and economical, but it has that other most important qualification—speed. It is so rapid in

MACHINE NO	FROM	TO	DIRECTION	TIME	CONSECUTIVE NUMBER	DATE
	KEDZIE	21 <sup>st</sup> ST.	NE	10 25 AM	0 2 0 5 2	SEP 11 15
ISSUED BY CONDUCTOR NO. 27						
This space may be utilized for displaying any information or limitations that may be desired printed on the transfer.						

TYPICAL TRANSFER ISSUED BY MACHINE

its operation that large crowds can be handled quickly. Careful tests show about eighty transfers per minute can be issued without difficulty.

The machine is operated by a pedal, and both hands are for the most part free for receiving and registering fares and attending to other duties. The date is simply set when the conductor goes to work, the time is set at the proper intervals, and the names of the connecting lines are set by a quick movement of the hand. The conductor's identification number is printed from his numbered identification key which remains in the machine, it being necessary for the key to be in position before any transfers can be issued.

Altogether, the device appears to be a very satisfactory release from the well-known limitations of transfer pads and the hand punch. It is very economical of space in the car, standing on a pedestal fastened to the floor and it is so arranged that either the machine itself can be removed from the pedestal and placed upon the pedestal at the other end of the car, or else can be moved, pedestal and all, and clamped in place by means of specially designed floor plates. The machine on its pedestal stands about 4 ft. high. Without the pedestal its dimensions are as follows: 7 in. wide, 7<sup>5</sup>/<sub>8</sub> in. deep and 12 in. high. It has been built to meet the most trying conditions of city traffic, where the abuse of transfers has made such a machine a real necessity.

### Novel Tests for Rail Steel

The Titanium Alloy Manufacturing Company, Niagara Falls, N. Y., has brought out in Bulletin No. 8 of its series entitled "Rail Reports" comparisons of standard and titanium-treated open-hearth rails which are based upon two types of tests of unusual character. The first of these depends upon the fact that the carbon content in steel rails as rolled is not uniform all over the cross-section, a condition that is, of course, anything but desirable owing to its effect upon the structural condition of the rail and upon the hardness of the wearing surface. The investigation covered the examination of samples from ingots from 111 heats of standard open-hearth rails and from 101 heats of titanium-treated open-hearth rails, in all of the latter 0.10 per cent of

titanium being used. As these heats averaged more than 50 tons each, the investigation covers samples from every heat of over 5000 tons of each kind of steel, or more than 10,000 tons in all.

The investigation was carried out by taking samples with a 5/8-in. drill at two points in each rail, one of these being located at the upper corner of the head, and the other being taken at the throat or where the head and web join. The results are indicated graphically in an accompanying diagram (Fig. 1) which shows in solid black the number of samples that had more than 12 per cent segregation or difference in carbon between the two points.

In general, the sample taken at the throat of each rail showed a higher carbon content than that taken at the upper corner of the head, but this condition was reversed in some cases, as is shown by the negative percentages at the right-hand side of the two diagrams. Summed up, the titanium-treated rails showed ninety-five out of 101 samples, with less than 12 per cent segregation, while the standard rail had but forty-five samples out of 111 that showed less than 12 per cent, the majority showing between 15 per cent and 30 per cent of segregation.

The bulletin also shows a "merit comparison" of samples taken from the centers of heads and from the flanges of twenty-five standard rails and twenty-five titanium-treated open-hearth rails. This comparison is based upon the fact that the strength of steel may be expressed by a formula, as indicated by M. H. Wickhorst in a report presented before the American Railway Engineering Association in 1914. The accuracy of the formula naturally depends upon the elimination of impurities in the steel, and also upon the soundness of the metal in general. As shown by the diagram, Fig. 2, the tests of actual strength indicated an order of merit that was generally below the theoretical strength that should have been developed in accordance with the formula, although in some cases the actual strength materially exceeded the theoretical strength. However, in the main, the titanium-treated rail showed an actual strength that did not fall below 60 per cent of theoretical figure in any case, while the standard open-hearth rail ran as low as 20 per cent at the center of the head, and as low as 50 per cent at the flanges.

In general, the titanium treatment effected the following improvements in the rail heads: The number of samples showing more than 80 per cent merit were increased by nearly two-thirds over the number found with standard rail, and all samples showing less than 60 per cent merit were eliminated, although 20 per cent of such samples were found in the standard steel. In the flanges, the samples that showed more than 80 per cent merit were increased by 5 per cent, and the samples showing less than 60 per cent merit were eliminated, these amounting to 8 per cent of the total number of standard samples.

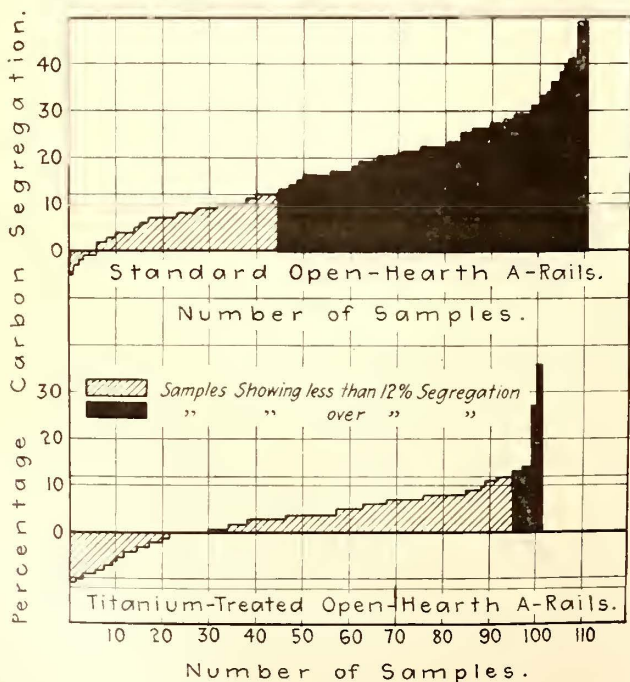


FIG. 1—DIAGRAM SHOWING EXCESS OF CARBON AT THROAT OF RAIL OVER THAT AT TOP OF HEAD

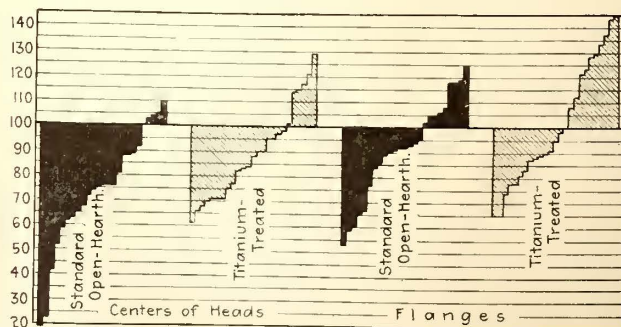


FIG. 2—DIAGRAM SHOWING RELATION OF ACTUAL STRENGTH TO THEORETICAL STRENGTH BY FORMULA

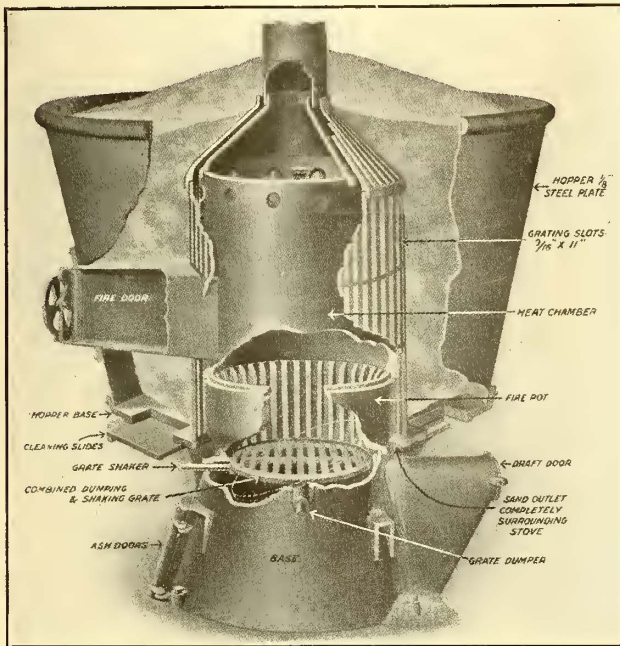
### Des Moines Locomotive Weighs 37 Tons

In the issue of Aug. 11, 1915, on page 274 an article was published describing the severe test to which one of the locomotives of the Inter Urban Railway of Des Moines, Iowa, was subjected in transporting 3500 Iowa troops over a section of its line. This transportation test is made all the more remarkable when the corrected weight of the locomotive is given as 37 tons instead of 55 tons.

### Automatic Sand Dryer

The "Viloco" sand dryer, which is manufactured by Harry Vissering & Company, Chicago, operates upon the logical principle that as soon as sand is dry it should be free to escape, and the ability to dry sand without burning it has resulted in its adoption by a number of electric railways. Among them is the San Antonio (Tex.) Traction Company, where it has been found that the saving which is brought about by an initial investment of \$175 amounts to no less than \$36 per month.

The results have been attained by an automatic action that is made possible by a cast-iron grating located between the body of sand and the stove.



AUTOMATIC SAND DRYER

Through this grating the sand runs freely as fast as it dries, so that wet sand is prevented from coming in contact with the stove, and the vapor from the drying sand is permitted to escape freely between the grating and the body of the stove, passing into the stack through holes at the top of the heat chamber. With home-made sand dryers as usually constructed the stove is surrounded by a hopper of wire netting, and the sand which comes in contact with the stove dries first, having no means of escape until all the sand within the hopper is sufficiently dry to start running through the wire netting. In the meantime the sand that is actually in contact with the stove becomes so hot as to be thoroughly burned and to assist materially in burning out the stove itself. Of course, sand which has been burned loses its value, but with the new form of dryer the sand does not come in contact with the stove at all and all possibility of burning the stove or the sand is removed.

As shown in the accompanying illustration, the de-

vice is simple in construction. Ample cleaning slides are provided around the entire hopper base to facilitate ready removal of any material that will not pass through the openings in the cast-iron grating. The grate is a combined shaking and dumping arrangement and it can be replaced through the large ash doors, thereby making it unnecessary to dismantle the dryer in order to renew the grate.

### Brazed Bonds on the Pacific Electric and Los Angeles Railways

Among the Pacific Coast railways which are using the cars and brazed bonds of the Electric Railway Improvement Company are the Pacific Electric Railway, Los Angeles and vicinity, and the Los Angeles Railway.

The former has six cars, two 1200-volt and four 600-volt, the two being used in bonding new lines and the four for maintenance and reconstruction work. During the month of May, 1915, 3547 bonds were placed with the 600-volt cars, of which 2859 were 6 1/2-in. ET-3, 300,000 circ. mil bonds brazed on the ball of the rail, and 472 were 14-in. EC-15, 300,000 circ. mil bonds concealed beneath the joints in street work. The total number of bonds placed during this month is probably less than the average and the proportion of cable bonds used is unusually large.

The brazed bond is the company's standard for bonding joints, although special soldered bonds are still used to some extent. In block signal work connection of the reactance bond and other cables to the rails also is made by brazing.

About 300,000 brazed bonds are now in use on the Pacific Electric lines. In maintenance work old wire bonds and others are replaced with brazed bonds, as the company found the short brazed bonds to be practically free from theft and to have a much lower contact resistance.

The Los Angeles Railway uses combination gage cars made by the same manufacturer. The standard practice of this railway on city lines is to braze on the bonds in such a position that they are covered by the plates.

### New Electric Locomotive for Italian Railways

The Italian State Railways are introducing a new type of electric locomotive, designed as 2-C-2, for high-speed service on lines with many curves, such as those in the Ligurian Riviera. Twenty-four of these locomotives have been ordered, eighteen of them from the Tecnomasio Italiano Brown-Boveri of Milan, with the mechanical parts partly from the Officine Meccaniche of Milan and partly from the Stabilimento Breda, near Milan. The other six will be supplied by the Costruzioni Meccaniche di Saronno, with electrical equipment by the Maschinenfabrik Oerlikon, Switzerland. Both are designed by the State Railway Department, and the construction is substantially identical in both lots in order to meet the requirements of the electric traction services.

Recent statistics show that the total number of English soldier tramway men who have been killed in action, died from wounds, lost from ships of the navy, or who have died from other causes since joining the forces, is 214, of whom 186 were municipal employees and 28 were private company employees. The number of tramway employees who have given their services for the war reaches a total of 18,057, which is an average of about 30 per cent of the total number of men employed on English tramways.

## Electric Railway Legal Decisions

### CHARTERS, ORDINANCES, FRANCHISES

**Alabama.**—Demand by Passenger for Transfer in Exchange for Fare—Ejection—Right to Transfer.

Where a passenger on a street car offered to exchange his fare for a transfer and demanded that the conductor get his transfer ready before he would pay the fare, his ejection by the conductor was not wrongful, as the right to demand a transfer does not exist until the fare is paid. (*Willoughby v. Birmingham Railway, Light & Power Co.*, 66 Southern Rep., 888.)

**Arkansas.**—Assessments of Street Railway Tracks as "Real Estate" for Cost of Bridge.

In the absence of legislation to the contrary, the tracks of a street railroad are not "real estate," so as to be subject to a local improvement tax for construction of a bridge, it owning no right-of-way. (*Fort Smith Light & Traction Co. v. McDonough*, 177 Southwestern Rep., 926.)

**California.**—Fares in Cities of 100,000 Inhabitants.

Statutes 1877-78, page 18, sec. 1, declare that no street railroad in any city or town with more than 100,000 inhabitants shall be allowed to charge more than 5 cents fare for each passenger for a trip of any distance, and that a violation shall expose the owner to a forfeiture of \$250 in favor of the person so unlawfully charged. Civil Code, sec. 501, adopted in 1872, was in 1903 (Statutes 1903, page 172) re-enacted so as to provide that the rates of fare should not exceed 10 cents for one fare for any distance under 3 miles, but that in municipalities of the first class they should not exceed 5 cents. Held that, while implied repeals are not favored, yet sec. 501, as re-enacted, is apparently a revision of the earlier statute, which was repealed by implication, and so the act of 1878 is not applicable to the city of Los Angeles, though it has a population of more than 100,000. (*Suydam v. Los Angeles Railway*, 140 Pacific Rep., 55.)

**Indiana.**—Side Track to Power Station Not a "Switch" or "Turnout."

Under an ordinance which granted a franchise to a street railway company, plaintiff's predecessor, providing that no extension of tracks should be made and no tracks should be laid in or over any street except those then occupied and that no double tracks, except turnouts and switches, should be laid without permission to do so by ordinance or resolution of the Common Council, the company had no right to construct a track at nearly right angles to its main track extending about 350 ft., running through one alley and intersecting another to reach its power plant, since such track was not a "switch" or "turn-out," as these terms, in relation to railroads, relate to tracks in the nature of sidetracks adjacent to and used in connection with another line of track; nor did the franchise carry with it, as an incident necessary for the operation of the road, the right to construct such branch or lateral; and the fact that the company's predecessor had constructed a power plant at a considerable expense at a point accessible only by such branch or lateral did not give the company the right to construct such lateral.

In such case the act of the city treasurer in accepting the tender of rental fixed by such contract did not estop the city from removing the track contemplated by the contract. (*Indiana Railways & Light Co. v. City of Kokomo et al.*, 108 Northeastern Rep., 771.)

**Louisiana.**—Law of Eminent Domain Will be Strictly Construed.

Civil Code, Arts. 2626-2641, concerning the compulsory transfer of property, being special and exceptional in character, and in derogation of common right, must be strictly construed. (*Orleans-Kenner Electric Railway v. Metairie Ridge Nursery Co., Ltd.*, 68 Southern Rep., 93.)

**Maryland.**—Early Ordinances on Speed of Railroad Trains Not Applicable to Electric Railways.

A city ordinance which provides that no passenger, burden or other cars shall be driven, hauled or propelled on any of the railroads or railways within the city limits at any faster speed than a walk, and at no time move without a brakeman, in addition to the driver, enacted in 1839 as supplementary to an ordinance of 1832, for the better regulation of railroad cars, does not apply to electric street cars.

(*State, to Use of Needles et al., v. Maryland Electric Railways*, 92 Atlantic Rep., 962.)

**Mississippi.**—Crossings with Steam Railroad Tracks in Streets.

Although the right-of-way of a railroad company is its private property, and cannot, under the constitution of 1890, sec. 17, be taken for public use, except on compensation being made, it does not own city streets along or across which its tracks are laid, and cannot acquire, under Code 1906, sec. 3322, any exclusive right to the use of the streets. It can acquire in the streets only the right to locate its tracks, subject to the right of the public to continue the free use of the streets for travel, and to the right of the municipal authorities to grant similar easements. Hence a street railway company, receiving a permit from a city to lay its tracks in the streets, may extend its tracks across a railroad company's tracks in a street without first instituting condemnation proceedings and paying damages. (*Mississippi Central Railroad v. Hattiesburg Traction Co.*, 67 Southern Rep., 897.)

**Minnesota.**—Conditions of Condemnation Proceedings Not Nullified by Appeal.

In proceedings to condemn a railroad right-of-way, the commissioners awarded to the land-owner a specific sum of money as damages, and, in addition thereto, imposed upon the company the obligation to construct a cattle pass and certain culverts for the use of the landowner. The company appealed, and by the notice thereof limited the issues raised thereby to the question of damages. The jury in the district court reduced the damages from the amount awarded by the commissioners, but the verdict contained no reference to the conditions imposed by the report of the commissioners. The company caused judgment to be entered upon the verdict, and the judgment made no reference to the conditions. The amount thereby awarded to the landowner was paid, and he formally satisfied the judgment. It is held: That the award of the commissioners imposing the conditions referred to was not nullified by the appeal, and, since that branch of the proceeding was not challenged on the trial of the appeal, the conditions remained in force and effect. (*Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Co.*, 150 Northwestern Rep., 906.)

**Missouri.**—Interstate Commerce—Employers' Liability Act.

Where a street car was running wholly within the State and was carrying only intrastate passengers, the fact that it was part of a system which issued transfers for carriage in an adjoining State does not render those servants in charge subject to the federal employers' liability act of April 22, 1908, chap. 149, 35 Stat. 65 (U. S. Comp. St. 1913, secs. 8657-8665), and an action for their wrongful death may be maintained under the State law, even though, if interstate passengers had been on the car, the servants would have been engaged in interstate commerce. (*Kiser v. Metropolitan Street Railway*, 175 Southwestern Rep., 98.)

**New York.**—Points at which Transfers Must Be Given.

Where two street railway lines run substantially parallel and 1360 ft. apart for the greater part of their distance but one turns at right angles and crosses the other, a passenger on one of the lines is entitled to a transfer at the point of intersection to a car on the other line which will carry him back in the direction from which he came, under railroad law, sec. 181, providing that no corporation operating a street surface railroad shall charge any passenger more than 5 cents for one continuous ride from any point on its route to any other point thereof or any connecting branch thereof, within the limits of any city; it not appearing that there are any conditions of congestion or intricate connecting lines which render the giving of such transfers impracticable. (*People ex rel. New York State Railways v. Public Service Commission*, Second District, 153 New York Sup., 18.)

**South Carolina.**—Fenders Ordered North of Certain Meridian Line.

Civil Code 1912, sec. 3950, requiring cars operating north of a line 10 miles north of and parallel to the thirty-first meridian to be equipped with fenders, is not unconstitutional as denying the equal protection of the laws. (*Thomas v. Spartanburg Railway, Gas & Electric Co., et al.*, 85 South-eastern Rep., 50.)

## LIABILITY FOR NEGLIGENCE

**Alabama.—Headlights.**

It is negligence, as a matter of law, for a street railway to run a car in the night time with a headlight not having sufficient capacity to cast a light upon the track, so that the motorman may perceive objects for the distance within which the car can be stopped, or for a motorman to run his car at such a rate of speed as to be unable to stop the car with the aid of appliances which he has within the distance in which, by the aid of the headlight, he can see a man prone upon the track. (*Montgomery Light & Traction Co. v. Baker*, 67 Southern Rep., 269.)

**Alabama.—Liability for Injuries to Traffic Policeman.**

If a motorman saw a traffic policeman on the track or in dangerous proximity thereto, with his back to the car, he was guilty of negligence in failing to sound the gong or to give warning in some way of the car's approach, as he had no right to assume that the policeman was conscious of the approach of the car. (*Mobile Light & Railroad v. Burch*, 68 Southern Rep., 510.)

**Arkansas.—Rights of Mail Wagons.**

A city ordinance, which gives United States mail wagons when in use collecting mail a right-of-way, is a police regulation designed for the benefit of the public to insure the United States mail free course, and does not create a right of action in favor of mail collectors against a street railway company for a violation of the ordinance. (*Bain v. Ft. Smith Light & Traction Co.*, 172 Southwestern Rep., 843.)

**Indiana.—Employers' Liability Act—Construction.**

The co-employers' liability act (Burns' Ann., St. 1908, Sec. 8017), declaring that every railroad or other corporation operating in the State shall be liable for personal injuries suffered by any employee in specified cases, being invalid so far as it applies to corporations other than railroad companies, because imposing upon them burdens not placed upon individuals and partnerships engaged in the same business, cannot, by virtue of the words "other corporations" be extended to street and interurban railway companies. (*Hughes v. Indiana Union Traction Co.*, 105 Northeastern Rep., 537.)

**Kentucky.—Frightening Horse by Track Blower.**

A railway company is not responsible because a horse using the highway was frightened by the noise made by a blower used by the track gang. Although there is a right of action for such injuries, where an obstruction is placed in a highway so as to interfere with its use by travelers, or where an object is placed outside of the traveled portion of the highway by one having no lawful authority to do so, nevertheless where the object does not interfere with public travel, and there is a right to place it outside of the traveled part of the highway, irrespective of the shape and appearance or frightful qualities of the object to an ordinarily gentle horse, there is no liability. In the instant case the defendant corporation had a right to place its implements on the right-of-way in such a manner as not to interfere with public travel. (*Miller v. Kentucky Traction & Terminal Co.*, 175 Southwestern Rep., 976.)

**Massachusetts.—Injuries to Occupants of Unlicensed Automobile.**

Occupants of an automobile which has not been registered according to law are trespassers on the highway and have no rights against other travelers, except to be protected from reckless or wanton injury.

The mere fact that the motorman in charge of an electric car did not see plaintiff's automobile as soon as he might have seen it and did not stop his car as soon as it might have been stopped, does not show that he was guilty of wanton negligence, warranting a recovery by plaintiffs, who were trespassers on the highway, because their machine was not registered. (*Dean v. Boston Elevated Ry. Co.*, 105 Northeastern Rep., 616.)

**New York.—Contributory Negligence of Passenger Hit on Platform by Train Going in Reverse Direction.**

Where, in an action for wrongful death, it appeared that there had been a delay in running trains in a city subway for more than half an hour and that decedent, while waiting on an unguarded station platform and leaning slightly forward to watch for a train, was struck by an express train which came at high speed without warning, in the reverse

way of the track, the question whether she was guilty of contributory negligence was for the jury. (*D'Arcy v. Interborough Rapid Transit Co.*, 152 New York Sup., 500.)

**New York.—Master and Servant—Action for Injury to Servant from Released Brakes.**

Where it was not within the scope of reasonable prudence and foresight to have anticipated that a motorman would leave his car with the air brakes set, without setting the hand brakes, and that the car would start because of a leak in the air brakes and strike and kill him, negligence, if any, in not inspecting the air brakes was not the proximate cause of his death. (*Larson v. Nassau Electric Railroad*, 151 New York Sup., 694.)

**North Carolina.—Contact with Live Wires Under Bridge.**

An electric railway company, maintaining feed wires about 12 in. beneath a bridge, is not liable for injury to a boy of thirteen years getting down on his knees on the floor of the bridge and reaching his hand between the lower railing and flooring and touching a feed wire, for the company could not reasonably foresee the accident resulting from the boy's own independent act. (*Parker v. Charlotte Electric Railway*, 85 Southeastern Rep., 34.)

**Oregon.—Injury to Passenger Rising Before Car Stops.**

A street car passenger was not negligent as a matter of law in leaving her seat as the car approached her destination and going on the closed platform before the car stopped so as to bar her right to recover for injuries sustained by her being thrown from the vestibule and injured as the car suddenly rounded a curve. (*Kemp v. Portland Ry., Light & Power Co.*, 145 Pacific Rep., 274.)

**Pennsylvania.—Injury to Passenger on Running Board.**

Where, in an action for the death of a street car passenger, there was evidence that the car was so crowded that deceased was compelled to ride on the running board, and that, as the car passed a wagon standing still in plain view of the motorman for upward of 100 ft. as the car approached, the hub of the wheel of such wagon protruded over the running board and caused the accident, the court properly refused to direct a verdict for defendant. (*Simkins v. Philadelphia Rapid Transit Co.*, 90 Atlantic Rep., 527.)

**Pennsylvania.—Injury to Passenger on Platform.**

The burden of proof is on a passenger on a trolley car injured in consequence of riding on a platform to show that the car was so crowded that he could not be accommodated within. (*Frega v. Philadelphia Rapid Transit Co.*, 91 Atlantic Rep., 222.)

**Rhode Island.—Starting Signal Given by Unauthorized Person.**

Where a street car came to a full stop before plaintiff attempted to alight and, before she had safely alighted, was started by a signal given by some one not authorized thereto by defendant, and where the accident could not have been prevented after such signal by the exercise of due diligence on the part of the conductor or motorman, defendant was not liable. (*Moore v. Woonsocket Street Railway*, 92 Atlantic Rep., 980.)

**Virginia.—Passenger Pushed from Car Step While Riding Thereon.**

Where plaintiff was on the step of defendant's car when it was started and could have remained there in safety had not her hold been broken by two men who pushed past her, the act of the men was an intervening cause, and the carrier, if negligent, was not liable for injuries plaintiff received in a fall from the car. (*Virginia Railway & Power Co. v. Godsey*, 83 Southeastern Rep., 1072.)

**West Virginia.—Knowledge by Agent of Incompetency of Fellow Servant.**

Knowledge by an agent respecting the incompetency of employees over whom he has charge for the employer is knowledge of the employer. If a master knowingly employs or retains a careless and incompetent servant, he thereby impliedly authorizes or ratifies his negligent acts, committed in the course of his employment, and if the servant's negligence is wanton and willful or malicious, the master is liable for exemplary or punitive damages. (*Hains v. Parkersburg, Marietta & Interurban Railway*, 84 Southeastern Rep., 923.)

# News of Electric Railways

## B. C. ARBITRATION AWARD ACCEPTED

### Agreement Made a War Measure—Letter of Manager Kidd to the Men

Between Aug. 26 and 29 meetings of the employees' unions of Vancouver, New Westminster and Victoria were held, at which the reports of the Conciliation Board in the British Columbia Electric Railway wage reduction arbitration were discussed. The men criticised the reports of the majority award, and as a result of the meetings it was decided to take a ballot on Aug. 30 as to the acceptance or rejection of the award. On Aug. 31 a committee from the union met George Kidd, general manager of the company, and stated that the result of the ballot was overwhelmingly against the acceptance of the majority report. Asked whether the company would put forward any concessions which might be placed before the men when the report as to the ballot was made, Mr. Kidd replied that the company had decided to accept the majority award in its entirety and would not consider any concessions in these terms. The committee from the union then retired and during the afternoon communicated with the international executives at Detroit asking their advice and opinion in view of the critical situation. On the evening of Aug. 31 a letter signed by Mr. Kidd was sent by mail to each employee of the company.

At midnight on Sept. 1 a mass meeting of the employees was called to receive the report of the international executive and to decide as to whether a strike should be called. The committee of the employees presented a report to this meeting, in which, according to the press, it was stated that the international executive refused to indorse a strike and advised that the majority award be accepted under protest. This message was taken to mean that the international executive would not assist the men financially in the case of a strike.

The committee also reported that during the day the company had consented to an amendment of the majority award. This consisted in making the agreement a war measure, its term being until six months after the cessation of hostilities with a minimum of twelve months and a maximum of twenty-two months. With reference to recognition of the union the agreement was altered so as to provide that employees should become and remain members of the union. The fact, however, that an employee ceased to be a member of the union did not entitle its executive to demand that he should be dismissed from the company. In such cases the general manager should decide the point, and if this was not considered satisfactory the matter should be settled by arbitration. These arrangements were made as the result of mediation by H. H. Stevens, M.P., and Dominion Fair Wage Officer McNiven. As the result of the report as to the amendments and the reply from the international executive, the mass meeting adjourned without ordering a strike.

On Sept. 3 a ballot of the employees was taken as to the acceptance of the amended award. The result was favorable by a large majority. In accordance with the direction of this ballot representatives of the employees' union signed the new agreement with the company on Sept. 4 in accordance with the majority award of the conciliation board as to wages and working conditions, the only alterations being the amendments previously noted.

The letter sent by Mr. Kidd to each employee on Aug. 31, referred to previously, was as follows:

"I have to-day been informed by the committee representing yourself as a member of the Amalgamated Association of Street & Electric Railway Employees of America that the company's employees have decided to reject the award recently given by the majority of the members of the Board of Conciliation appointed to consider the dispute existing between this company and its employees. In order to avoid any possibility of misunderstanding I wish you fully to understand the company's final and considered position in the matter as conveyed to your committee this morning.

"The award of the majority of the board is anything but satisfactory to the company, as we contended and still contend that we are entitled to a reduction of 15 per cent on our total wage bill, and also to considerable relief from the

onerous working conditions contained in the agreement which has now expired. Instead of obtaining the relief for which the company asked, a reduction of about 8 per cent on its total wage bill has been recommended, and the working conditions are practically unaltered.

"Under these circumstances the company would be justified in refusing to accept the award. Bearing in mind, however, the conditions prevailing in the Province, and fully realizing the necessity of avoiding any trouble which might still further prejudice the business interests and general welfare of the community, the company has decided to accept the recommendations of the majority of the board.

"The board recommended that the new wage schedule and working conditions should take effect on Sept. 1. Realizing, however, that the company has only to-day notified your committee of its intention to accept the award, it has been decided to continue the existing wage schedule and working conditions for one week. Should you finally decide not to accept service on the terms laid down by the majority of the board, which will, therefore, come into effect on Sept. 8, your decision will be received by the company with great regret, as we much prefer employees who have been for many years upon our payrolls to continue the operation of our system. At the same time your decision will not in any way affect the company's intention of adhering literally to the terms of the recommendation signed by the majority of the board. In the event of your refusing to continue the performance of your duties, the following course will be pursued by the company:

"A period of forty-eight hours will be given you in which to reconsider your decision. If during this time you should present yourself for duty, your services will be accepted at the rate and under the conditions laid down by the Board of Conciliation, but should you not during this time be willing to accept service, your name will be erased from the company's books. In the event of your deciding to leave our employ, you will be instructed to hand in, within the forty-eight hours referred to, your badge, pass, punch, change-fund, and any equipment which may be the property of the company. All seniority rights will expire within forty-eight hours of your failure to appear for duty, and any man afterward engaged to carry on the company's service will have a seniority standing dating from the acceptance of his application. All men so engaged will be treated as first-year men and paid accordingly. The company has arranged, as far as possible, to pay to all employees who present themselves within the forty-eight hours, for the purpose of returning their equipment, all monies which may be due to them.

"I place these matters before you clearly so that you may, before taking any steps which you may afterward regret, have no excuse for saying that you did not understand the true facts of the case, or the true intention of the company concerning this matter, and although, as I have said, the company much prefers, for the sake of peace, to operate under the award with its old employees, it cannot and will not under any circumstances deviate from the conditions herein described to you."

## ORGANIZED LABOR OPPOSED TO MUNICIPAL OWNERSHIP

Organized labor will oppose the purchase by the city of Detroit, Mich., of the lines of the Detroit United Railway in the one fare zone. At a meeting of the Federation of Labor at night on Sept. 8 the report of a special committee recommending private operation was unanimously adopted. The report charges that the municipal ownership plan is undemocratic, un-American and smacks of despotism because it gives the Street Railway Commission complete power over the labor question in the event of the purchase. The report also says that adoption of the municipal ownership plan would nullify the arbitration between the commission and the street railway employees, thereby making it possible for the city to establish any kind of conditions it chooses for platform men. The action of the federation indicates an active campaign in opposition to the municipal ownership plan, particular opposition being shown by the members of the street car union.



## HOLYOKE STRIKE DECLARED OFF

### Responsibility for Continuation of Strike Placed on the Amalgamated Association

Following a visit of W. D. Mahon, president of the Amalgamated Association of Street & Electric Railway Employees of America, to Holyoke the strike was declared off and the men agreed to return to work on Friday morning, Sept. 10. The term of the agreement will be submitted to arbitration by the board recently named, consisting of W. H. Brooks for the company, John J. White for the union and James E. Carter as chairman.

The most conspicuous feature of the continued strike on the Holyoke (Mass.) Street Railway has been a report by the Massachusetts Board of Conciliation and Arbitration placing the burden of responsibility for the continuance of the strike on the local branch of the Amalgamated Association. In the opinion of the board the strike is unjustifiable, and the report holds that the men should return to work at once, leaving the issue between them and the company to arbitration. The points at issue as expressed in a communication to the company from the union, dated Aug 2, are as follows: (1) Agreement to have the present scale of wages based on the day system of payment, until June 1, 1916. The present scale is, on the day basis, \$2.30 a day for the first six months, \$2.45 for the second six months, \$2.60 for the second year, \$2.70 for the third year, and \$2.85 for the fourth year and thereafter. (2) Agreement to make the schedule of runs in accordance with the so-called nine-hours-in-eleven law, and the following agreement: for all runs in excess of nine hours and not in excess of nine hours and fifteen minutes, the payment of one-half hour's extra time, and all runs in excess of nine hours and fifteen minutes and not over nine and one-half hours, payment for one hour of extra time, at the exact rate per hour divided by nine. (3) Payment for all extra work done by motormen and conductors other than regular runs, at the exact hourly rate as quoted above. (4) Establishment of a nine-hour day within ten consecutive hours for shops and carhouses, with an eight-hour day for Sundays and holidays, to be completed within nine consecutive hours, the present daily rate to be unchanged. (5) Agreement between union and company to expire on June 1, 1916.

On Aug. 15 it was agreed that the issues between the parties should be arbitrated by a board selected as previously described in these columns, and the employees returned to work. The board was selected, and subsequently objection was made to the form of the agreement by the employees in that it appeared to them that it would be within the scope of the powers of the arbitration board to fix a time-limit of the award beyond June 1, 1916, and they requested the company to amend the proposed submission to arbitration in this particular so as definitely to limit the award to the date given. The company refused to agree to this limitation and on Aug. 27 the men again struck. The report says:

"The strike still continues and up to this time neither party to the controversy has receded from its position. The company has not operated its cars since the last strike and great public inconvenience and injury to business have resulted from the continuance of the existing conditions. It may be that an element of doubt exists as to the scope of the powers of the board of arbitration chosen by the parties, but the letter of Aug. 2 and additions thereto agreed upon by the parties and the agreement of Aug. 15 were prepared and presented to the company by representatives of the employees. The company was required to execute the agreement of Aug. 15 as a condition precedent to the return of the employees then on strike, the starting of the cars and the arbitration of the existing controversy.

"The board is of opinion that the arbitration should have gone forward in accordance with the agreement of submission of Aug. 15 and that the strike of Aug. 27 should not have taken place. It is not within the province of the State board to define the limits of the powers conferred by the parties upon the arbitrators chosen. The board recommends that in view of the facts herein stated, of the great inconvenience, discomfort and hardship imposed upon the public, the injury to business and to the commercial

prestige of the city occasioned by continuance of the strike, the employees should return to work, the company receive them without discrimination, and the arbitration of the matters in dispute proceed."

Following the reception of the report the employees voted to continue the strike and Mayor Woods telegraphed President Mahon of the Amalgamated Association, pointing out that after seventeen days without car service District Organizer Reardon refused to accept arbitration for the length of term of the agreement, stating that the company was willing to arbitrate this point, which was the only one in the way of car service for 100,000 people in the Holyoke district, and asking the personal attention of Mr. Mahon with decision by wire at the earliest possible moment.

Every owner of a jitney license was summoned to a session of the aldermen on Sept. 4 and when the drivers arrived they were informed that fares must be decreased. The license committee of the Board established various local fares ranging from 5 cents to 20 cents, a speed limit of 15 m.p.h., and ordered a close definition of routes to be followed by individual chauffeurs.

### FOUR FRANCHISES FOR BROOKLYN

The New York City Board of Estimate & Apportionment has voted to surface companies in the Brooklyn Rapid Transit System four important trolley franchises. Applications for these franchises had been in three of the four cases before the board for several years and had been the subject of considerable controversy, as certain of the franchise terms for which influential members of the Board of Estimate had contended were wholly unacceptable to the companies. The franchises were finally granted on the basis of a compromise in which the city yielded several of the disputed points.

The most important of the franchises covers the so-called Atlantic Avenue route and provides for a trolley route on Atlantic Avenue in Brooklyn from the vicinity of the Long Island Railroad depot easterly to Sheppard Avenue in East New York, a distance of about 5 miles. The trolley rights on Atlantic Avenue had long been in dispute. The original railroad operation there was under a steam franchise of the old Atlantic Avenue Railroad, which subsequently was merged into the Nassau Electric Railroad of the Brooklyn Rapid Transit System, the rights being leased to the Long Island Railroad. The Atlantic Avenue Railroad owned in fee a somewhat circuitous right-of-way, partly within and partly outside of the boundaries of Atlantic Avenue, and in 1853 for the purpose of strengthening and widening the street, the city of Brooklyn, the Atlantic Avenue Railroad and the Long Island Railroad entered into an agreement whereby the Atlantic Avenue Railroad received a "perpetual and exclusive right" to use a 30-ft. strip in the middle of the street for railroad purposes in exchange for certain portions of its right-of-way to be used for highway purposes.

When the Long Island Railroad electrified its line into Brooklyn and in part elevated and in part depressed the tracks, an effort was made to inaugurate trolley operation on Atlantic Avenue. This was resisted by the city and ultimately denied in the courts, it being held that the perpetual and exclusive right to the 30-ft. strip in the center of Atlantic Avenue constituted an easement and not ownership in fee and that only one railroad could be operated thereon, it making no difference in the court's opinion whether this operation was upon the surface, below the surface or above the surface. A long deadlock followed, but ultimately the Long Island Railroad and the Nassau Company came to an agreement with respect to an application for a trolley franchise by the Nassau Company on the surface of the 30-ft. strip over the Long Island tunnel or under its elevated structure as the case might be. This is the application which has now finally been granted by the Board of Estimate and adds an important trolley line to the Brooklyn surface system. Atlantic Avenue has for a long time suffered from stagnation of business and property values. The new line, it is expected, will largely relieve the Fulton Street line and the Bergen Street line of transfer passengers now received from intersecting lines running north and south.

The other franchises are known as the Metropolitan Avenue, the Eighth Avenue and the Fresh Pond Road franchises. The Metropolitan Avenue franchise extends from

Dry Harbor Road to Jamaica Plank Road in the Borough of Queens and traverses a territory which has been without convenient trolley transportation. The route is largely undeveloped at present but it is hoped that the providing of transportation will be followed by a rapid upbuilding of the territory served.

The Eighth Avenue franchise extends from Thirty-ninth Street to Bay Ridge Avenue in the South Brooklyn territory. This is a franchise which has long been sought by the local interests and provides trolley transportation for a territory in which there has been much building.

The Fresh Pond Road franchise connects the new Lutheran elevated line of the Brooklyn Rapid Transit Company with Myrtle Avenue and gives to persons in Glendale and the Forest Park section of Queens a shorter connecting ride to the elevated railroad.

It is expected that work on all of these new extensions will be begun within the next few months.

#### ARBITRATION OF ALBANY STRIKE

##### Agreement to Arbitrate Reached on Sept. 10 After Strike Declared on Labor Day

The strike of the employees of the United Traction Company in Albany, Troy, Rensselaer, Watervliet, Cohoes and Green Island, in progress since Labor Day, was settled at 2 o'clock on the morning of Sept. 10. The men and the company agreed upon arbitration. The cars started running at 5 o'clock. Mayor Cornelius F. Burns of Troy and Judge William E. Wollard and Judge Lynn J. Arnold, Troy, are to be the arbitrators. They will convene on Oct. 1 to determine if the grievances of the employees are justified. In the meantime conditions of discipline obtaining prior to June 1 will be restored as desired by the strikers. The agreement to arbitrate follows:

"The disagreement now existing between the United Traction Company and its employees of the Albany and Troy divisions, 148 and 132 respectively, is adjusted as follows: The principle that the company has the right to administer discipline to its employees is hereby affirmed. The question whether the present system of procedure now in use by the company in the disposition of discipline cases is a violation of subdivision 6 of the agreement and the question of its fairness shall be submitted to and determined by the following arbitrators: Mayor Cornelius F. Burns, Troy; Judge Lynn J. Arnold and Judge William E. Wollard, who shall meet on Oct. 1, 1915. If the arbitrators should decide after hearing both sides that the present system of procedure is not violative of section 6 of the present agreement and unfair, then it shall be adopted as the procedure in discipline cases. In the meantime the members of the associations shall report for duty and the old system of procedure in discipline cases existing before June 1, 1915, shall be in use. In witness whereof the parties hereof have hereto set their hands and seals the tenth day of September, 1915."

The strikers' committee was headed by William B. Fitzgerald, international representative of the Amalgamated Association of Street & Electric Railway Employees. Vice-President Harry W. Weatherwax and General Manager Charles F. Hewitt represented the company. In the room where the conference was held between the strikers' committee and the company officials were the arbitrators named above and John J. Mackrell, president of the Common Council of Troy and counsel for the Troy local of the strikers. Those signing the agreement were Mr. Weatherwax for the company, and Mr. Droogan, president of Division 148, and Joseph M. McLoughlin, president of Division 132. The agreement was approved by Mr. Fitzgerald for the national association.

As in many other strikes the issue was befuddled by questions of veracity between the representatives of the company and the men. The representatives of the men alleged hearings on charges without personal representation. Charles F. Hewitt, general manager of the company, said that the men were not denied the right to appeal cases in which there had been suspensions, and that out of fifty-eight suspensions since the incumbency of C. A. Coons as superintendent of transportation there had been no appeals. Regarding the administration of discipline Mr. Hewitt issued a statement on Sept. 6 in which he said:

"If Mr. Droogan (the president of the Albany division of

the Amalgamated Association) or any of the employees had felt that any employee had been punished unfairly, his case would have been appealed, and as there have been no cases appealed it is reasonably certain that the employees feel that the discipline at least has been fair. Mr. Droogan does not claim that the discipline has been unfair, but he apparently objects to the manner of applying it, and that the right of appeal has been denied to the men. This is not correct. In any single past or future case, any employee has under the rules the right to appeal, first to the general superintendent, and then to myself, and this right is not, never has been and never can be denied, and there has been no curtailment whatever in this right of appeal. My feeling is that what he objects to is that the division superintendents, after hearing the cases, have reported the matter to the general superintendent, who has suggested the discipline which has been applied by the division superintendent, Mr. Droogan wishing that the general superintendent would first hear the case without reference to the division superintendent.

"This would take up a good deal of time of the general superintendent, and in nearly all the cases would be absolutely unnecessary, and in any case when the employee desires it he can appeal his case not only to the general superintendent, but to myself, as provided for in the agreement. This works no hardship whatever on the men, because in the case of either the general superintendent or myself changing any decision of the division superintendent the man is given full pay for time lost.

"I am really greatly surprised at this whole situation; the matter is a serious one, and under the charter and by-laws of the Amalgamated Association they are not allowed to call a strike without having brought in one of their international officers and without taking an actual vote of the employees, neither of which matters seems to have been done in this case. In view of the irregularity of the proceeding it seems strange that Mr. Droogan should assume the responsibility of selecting Labor Day on which to inconvenience the people of Albany."

Sept. 8 saw the complete suspension of service in Albany, Troy, Rensselaer, Watervliet, Cohoes and Green Island. On that day there was a short conference between the officers of the company and the representatives of the men, but it was concluded abruptly upon Mr. Droogan intimating that Mr. Hewitt has sought to misrepresent matters. At this conference the president of the Troy division of the men asked in what respects the system of discipline in use in Albany was superior to that in force in Troy. Mr. Weatherwax, vice-president of the company, declared that the company had a right to adopt its own system of discipline without referring it to the men for approval.

Representatives of employers and employees involved in the strike met for a few minutes with the citizens' conference committee on Sept. 9, and then adjourned to meet again late in the afternoon. The recess was occasioned by the failure of W. D. Fitzgerald, a member of the international board of the Amalgamated Association, who has assumed full charge of the strike, to arrive in Albany.

No attempt was made by the company to operate cars in any of the places affected by the strike. On account of the complete suspension of service the public was in some cases greatly inconvenienced. All sorts of methods of transportation were quickly improvised to meet the situation. The jitney came to the front and did a flourishing business. In the interest of the public Mayor Stevens of Albany issued a strike proclamation urging all owners of private motor cars to give a lift to working people, especially women. The Mayor suggested that people willing to do this should fly the American flag at their radiators. The Mayor of Troy made a like appeal to automobile owners in that city.

#### PROGRESS ON MANCHESTER (ENGLAND) LINE

The work of electrifying the railway between Victoria Station, Manchester, and Bury, via Prestwich, is making rapid progress, and it is anticipated that the new service will be ready, in a restricted form, by the beginning of November. Trial runs have already taken place over parts of the line. The third-rail system is used, as on the Liverpool & Southport line. The cars will be of the corridor type, each with a capacity of between 90 and 100 passengers. The districts served include Cheetham, Higher Crumpsall, Heaton Park, Prestwich, and Whitefield.

**NEW RAPID TRANSIT LINE INTO CINCINNATI**

The West End Rapid Transit Company, Cincinnati, Ohio, was incorporated on Sept. 3 by J. C. Hooven, C. E. Hooven, L. E. Voorhies and Stanley Shaffer, all interested in the Cincinnati, Lawrenceburg & Aurora Electric Street Railway. The capital stock of the new company is fixed at \$10,000. The plan is to build a line from Anderson's Ferry, the present terminus of the Cincinnati, Lawrenceburg & Aurora line, to the intersection of Third and Vine Streets in the city. The line will give the Cincinnati, Lawrenceburg & Aurora road an entrance to the city and through connections with other roads to the west. Negotiations have been opened with C. L. Henry of the Indianapolis & Cincinnati Traction Company for the establishment of a connection at some point.

**DES MOINES ORDINANCE****Summary of Principal Provisions of Franchise Grant to Des Moines City Railway Advanced by Chamber of Commerce**

The City Council of Des Moines, Iowa, has received the Chamber of Commerce franchise looking to an extension of the rights of the Des Moines City Railway. The proposed new grant differs but slightly from the franchise submitted to the Council by the company a year ago. The franchise is for a period of twenty-five years. It provides a rate of fare of six tickets for a quarter, a 2½-cent fare for children under twelve years, children under six free, and forty tickets for \$1 for high school students. The question of capitalization for the company is not covered. The only clause by which the value of the company is fixed gives the city the right to purchase the system for \$5,000,000, based on the valuation of the company "on Aug. 1, 1915." The company must accept the franchise within thirty days after the ordinance is adopted by the city. The Council must call an election within sixty days by which the grant may be approved by the voters.

The principal provisions of the new grant have been summarized as follows:

One supervisor is to be appointed by the city; one by the company to have authority as to what shall be done affecting the quantity and quality of the service, fixing schedules, routes and terminals, and the character and equipment of cars.

Differences between the company and the city in regard to any of the provisions of the ordinance or failure of the two supervisors to agree, or any difference between the company and its employees to be settled by arbitration; one arbitrator to be appointed by each side. Should the two arbitrators fail to agree a third is to be appointed by them, and if they fail to agree the Supreme Court is to appoint the third man.

The company to spend \$1,500,000 within three years to put street railway system in first-class condition.

The company is to keep open to inspection full accounts of money expended and liabilities incurred and statistical accounts of its business and operations, and furnish monthly reports of its car mileage, etc.

The City Council is to have power to order extensions upon petition of a majority of the residents of any district not served by the company's lines, if in its opinion the return to the company will pay cost of operation and depreciation.

Six tickets for a quarter; for children under twelve years, 2½ cents; children under six ride free when accompanied by adult. High school fare, forty tickets for \$1.

No stock is to be issued except in conformance with the laws of the State, the city to be advised as to the terms and conditions of all bond and stock issues, discounts on bonds not to be considered in fixing the value of the company's property, all proceeds to be invested in betterments to the company's property.

The city is to have the right to purchase upon six months' notice. For this purpose the value of the property on Aug. 1, 1915, to be considered equal to the sum of \$5,000,000.

The company is to agree to surrender all claims in streets of the city other than granted by the ordinance, pay all interest due on any bonds secured by lien upon its property and cause the receivership suit and all-bondholders' suits to be dismissed.

If the company fails to perform terms and conditions

stipulated by the ordinance and continues to fail for three months after written notice from the city the city may repeal the franchise.

**NEW YORK CONSTITUTIONAL CONVENTION COMPLETES ITS WORK**

The Constitutional Convention of the State of New York, which has been drafting the new organic law for that State, practically completed its work on Sept. 4. All that remains now to be done of the preliminary work is the passing of the final draft of the proposed new constitution and an explanatory address to the people. It was expected that these matters would be taken care of when the convention reassembled on the evening of Sept. 9.

If the revised constitution is ratified by the voters the short ballot will be inaugurated in New York State at the beginning of 1917. The Governor, Lieutenant-Governor, Comptroller and Attorney-General are retained as elective officers, but the successors of the Secretary of State, the State Engineer and the State Treasurer are to be appointed by the Governor. The Department of the State Engineer in fact will be supplanted by a department of public works, with the head to have supervision of the construction, care, maintenance and operation of all the public works of the State, including canals, highways and public buildings, and this department will plan all the engineering, architectural and construction work required by the State department. If the voters approve the revised constitution the State budget will in the future be submitted to the Legislature by the Governor instead of being initiated in the Legislature and subject only to a limited veto power by the chief executive. The salaries of the lawmakers are to be raised from \$1,500 to \$2,500, with weekly railroad fares to and from their homes added. The convention decided to double the salary of the Governor, who after 1917 will receive \$20,000 annually. The convention failed to substitute the appointive system for the elective in filling positions on the bench.

The Governor's appointments are freed from the requirement of confirmation by the Senate, except in the case of members of the Industrial, Public Service, Conservation and Civil Service Commissions, which are regarded as quasi-judicial bodies. The Public Service Commissions are made constitutional bodies. So are the Tax Commission, the Industrial Commission and the Civil Service Commission.

In all 725 proposals were presented to the convention. Of these less than 100 got beyond the committees having them in charge. In many instances, however, features of proposals rejected by the committees were incorporated in omnibus proposals which were presented to the convention as committee measures.

**SUBWAY APPROACH FOR NEW CLEVELAND BRIDGE**

The committee on municipal art and architecture of the Cleveland Chamber of Commerce filed a report on Sept. 3 in which it unanimously recommended the construction of a subway approach to the new Superior Avenue bridge across the Cuyahoga River from the east side. The committee suggested that the subway should extend from the bridge to the Public Square under Superior Avenue and that it would not be well to arrange for emergence at any other points.

A sub-committee reported that during one twenty-four-hour period 7196 motorcycles, automobiles, motor trucks and horse-drawn vehicles passed over the viaduct, while in the same period 3437 street cars, counting cars with trailers as one and a half, crossed, making a total of 10,633 vehicles of all classes, or an average of 143 street cars and 300 other vehicles per hour. While this committee is looking at the matter from the standpoint of beauty and artistic effect largely, the fact that these figures were secured shows that it has not eliminated the practical ideas from its consideration. It will be seen that the traffic that will pass over the new bridge, which takes the place of the old viaduct, is very heavy and within a short time will be much more so, thus making blockades possible at all times. The committee suggested that the County Commissioners find some way of financing the subway so that the rentals required will make the burden of expense as light on the public as possible.

### INITIATIVE ORDINANCE FOR PURCHASE OF CLEVELAND RAILWAY

An initiated ordinance was introduced in the City Council at Cleveland, Ohio, on Sept. 7 providing for the issue of \$34,000,000 of bonds for the purchase of the property of the Cleveland Railway. The measure has been referred to the proper committees. Should the committees hold the ordinance up until too late to have it voted upon at the coming fall election, about 5000 more names will be necessary to the petition in order to get it before the voters at a special election.

A discussion of the question of changing schedules on Lorain Avenue in order to give some of the men longer hours of work took place before the street railway committee on the same day. George Davies, president of the local branch of the Amalgamated Association, accused Peter Witt, street railway commissioner, of paying certain car crews to make the fast time when the new schedules were introduced on Superior Avenue. Mr. Witt told Mr. Davies that he must have a very poor opinion of some of his members. A committee of the union was before George L. Radcliffe, general manager of the Cleveland Railway, on Sept. 8. The Moylan resolution, providing for the changes demanded, was referred to the city law department for an opinion as to whether Council has authority to make changes in the schedule under the Tayler grant.

The County Commissioners have agreed to an extension of the State Road line of the Cleveland Railway for 2½ miles if the company will agree to place lights on the bridges and at the county road intersections.

The city is experimenting with a semaphore similar to the type used in New York, Detroit and other cities at busy street intersections. The semaphore consists of cross-arms at the top of an iron rod set in a heavy base. It is placed in the center of the street and operated by the patrolman on duty at the crossing. The words "Stop" and "Go" are painted on the arms and indicate the direction of traffic as the patrolman turns it.

### EMPLOYEES CONCLUDE IN RHODE ISLAND ARBITRATION

Evidence was concluded on Sept. 2 on behalf of the employees of the Rhode Island Company in the arbitration proceedings at Providence. In the course of the proceedings eighty-six witnesses were examined, 2200 pages of testimony taken and 105 exhibits filed. The company's side of the case is now being presented. In one of the last hearings devoted to the union side, the question of rents was discussed by Arthur Sturgis, Boston, in connection with evidence on the cost of living. Mr. Sturgis said that the average rent paid per month by 359 motormen and conductors of the Rhode Island Company was \$13.66. The witness said that the houses obtainable in Providence were far superior to those available in New York City for the same money, but that the cost of food in New York was sufficiently lower than in Providence to make the comparative cost of living higher in the latter city. A classification of orders issued by the company since 1907 totalled 1425. They were made up as follows: automatic collectors, 16; accidents, 103; transfers and tickets, 243; full stops, 76; timetables and operation, 472; mail and newspapers, 69; reports of motormen and conductors, 10; signals, 90; fares, 44; lights, heat, doors and signs, 265; assignment of work, 15; miscellaneous, 17.

Outlining the company's case, Attorney James M. Swift said that the fact that a wage scale was first agreed upon by the union and the company in July, 1913, showed that a fair and proper settlement was then reached. Conditions had not changed materially since, and nothing that had since happened warranted an increase in wages. Wages and conditions elsewhere were immaterial. To grant the demands of the men would cost the company \$500,000 a year more than at present. The company's officials appreciated the opportunities to better the service, but only a fair dividend had been paid and the outstanding capital stock was well represented by the money invested in the system. The witnesses called for the company began rebuttal testimony in connection with previous statements of employees dealing with existing wage and working conditions. Among those

who appeared were W. D. Wright, superintendent of maintenance and equipment; B. E. Whitcomb, head of the line department; Frederick L. Barnard, chief electrician, Manchester Street power station; Daniel P. Miner, chief engineer, Manchester Street power station, and Henry F. Purington, Jr., inspector of the maintenance of way department. The last-named witness said that improved equipment had made the work easier in his department in recent years. Mr. Swift hoped to complete the company's case during the week ended Sept. 11.

### MR. DOHERTY CONFERS WITH COUNSEL IN TOLEDO

Henry L. Doherty, chairman of the board of the Toledo Railways & Light Company, was in Toledo again on Sept. 1, in conference with Attorneys Thomas H. Tracy and Rathbun Fuller, but he gave out no information as to what will be the next move in the franchise negotiations with the city of Toledo.

Some time ago the City Council of Toledo, Ohio, adopted a measure ordering the Toledo Railways & Light Company to remove its tracks from that section of Huron Street between Orange and Stickney Avenues before Sept. 30, in order to allow the city to lay a new pavement. Director of Public Service Neukom has made public his intention of having the tracks removed by the city unless the company takes some steps to do so soon. It is said that the pavement on that section of the street is in bad condition, but the company will not spend any money in such improvements until the franchise matter is settled.

**Electrification Proposed.**—H. Hirschberg, president and treasurer of the Independence & Monmouth Railroad, operating between Independence and Monmouth, Ore., 19 miles, contemplates electrifying the road. Power will be purchased from the Oregon Power Company.

**Two Chilean Concessions.**—Augusto Astaburuaga has been granted an extension of two years for the beginning of work on the electric railway from Santiago to Maipu, a suburb of the city. The Compania Molinera El Globo of Collipulli, Chile, has been granted the privilege of establishing a lighting and traction system for the town. The town is 90 miles southeast of Concepción and has a population of 4000. Communications to the company should be in Spanish.

**Third-Tracking Contract.**—The Public Service Commission of the First District of New York has authorized the New York Municipal Railway Corporation (Brooklyn Rapid Transit System) to award the contract for the erection of steel for additional tracks on the Broadway elevated railroad in Brooklyn between Myrtle Avenue and Aberdeen Street to the Jobson-Gifford Company, the lowest bidder, for \$400,441. The company will furnish the materials and the contractor will do the work. The time limit is twelve months. Similar work between the Williamsburg Bridge and Myrtle Avenue is nearly completed.

**Storm Precautions at Houston.**—The city of Houston, Tex., was saved from a night or more in darkness during the recent tornado by the activity of D. A. Hegarty of the Houston Electric Company. Early in the period of the storm Mr. Hegarty began to take precautions. He telegraphed to distant cities for linemen and supplies, bringing them from as far as New Orleans, and before they were actually needed had an extra supply of wire and lights in the storeroom and the extra linemen housed in buildings of the company. Then for the five days following the storm these men worked continuously under his direction. The daily papers were loud in their praises of Mr. Hegarty, and one of them told the story of his achievement in a graphic way under the title "How Dan Hegarty Turned on the Lights."

**Restoring Service Over the Galveston Causeway.**—A single track trestle bridging the gaps in the causeway over Galveston Bay, caused by the recent Texas coast storm, was completed on Sept. 1 and regular operation of the Galveston-Houston Electric Railway was begun on Sept. 2 on the two-hour schedule. At the time service was resumed the broken trolley wires had not yet been restrung and a

switch engine was used to tow the interurban cars over the spaces where there were no wires. Owing to the fact that this single track is the only one connecting Galveston Island with the mainland and is used by hundreds of freight and passenger trains a day, many delays are encountered and the interurban company contemplates the immediate construction of another trestle for its exclusive use until the causeway is rebuilt.

**Radial Railway Data in Preparation.**—Chief Engineer Gaby of the Hydro-Electric Power Commission of Ontario made an address on the hydro-radial enterprise of the province before the convention of the Ontario Municipal Association on Sept. 2. He said that within the next few weeks statistics would be completed and reports would be ready for presentation to the various municipalities interested showing the estimated cost for the construction of a network of radial electric railways throughout the western portion of the province. Requests for this information had been received from some 300 municipalities along 1600 miles of roads in the districts from Whitby in the east, to Sarnia and Windsor in the west, including the Huron and Niagara peninsula districts.

**Arrears in Taxes Claimed in Cincinnati.**—The Cincinnati (Ohio) Traction Company was notified on Aug. 28 that it is indebted to the city of Cincinnati, Ohio, in the amount of \$20,810.36, and was requested to send a voucher to the city auditor for that amount. E. O. Biggs has been engaged in auditing the company's books for the city solicitor and he claims that the company has been paying the city a tax on the amount it received from the Millcreek Valley line, 3 cents per passenger, whereas the courts recently decided in other cases that the tax must be paid on the full amount charged for fare, which is 5 cents per passenger. This is one of the lines which operate over the company's tracks within the city. It has no franchise of its own. The city claims taxes on the balance from Jan. 1, 1911, to June 30, 1915, \$18,424.63, with interest, \$2,385.75.

**\$160,000,000 of Contracts Under Dual System Plans.**—In the *Public Service Record*, a monthly publication issued by the Public Service Commission, First District, New York, it is stated that on Aug. 1 the total amount of rapid transit contracts under the dual system plans on lines to be owned by the city was in round numbers \$160,000,000. The contractors on these lines and upon the lines to be owned by the two companies, namely, the Interborough Rapid Transit Company and the New York Municipal Railway Corporation, are employing about 20,000 men. The total of \$160,000,000 includes those parts of the new system which are already in operation, namely, the Centre Street Loop subway in Manhattan, the Fourth Avenue subway in Brooklyn and the Queensborough subway under the East River, formerly known as the Steinway tunnel. Out of more than eighty sections contracts have been let for more than sixty. It is expected that the contracts for the remaining sections will be awarded by Jan. 1.

**Conference on Newport Franchise.**—The City Commissioners, members of the Business Men's Club and representatives of the Cincinnati, Newport & Covington Railway met in Newport on Sept. 1 to consider the franchise question. The commissioners and the railway representatives had previously reached an agreement on almost all other important matters except the rental for the use of the streets. At the conference on Sept. 1 the commissioners stated that they were prepared to accept a lump sum of \$12,000 a year for the use of the streets, instead of an amount based on the track mileage. W. W. Freeman, president of the company, and Polk Lafoon, secretary, argued that the company should not be penalized further than the taxes it would be compelled to pay and the improvements it had agreed to make, but that it would be willing to compromise on the payment of \$3,000 a year as rental for the use of the streets and no more. Another meeting will be called to adjust the differences if possible.

PROGRAM OF ASSOCIATION MEETING

New England Street Railway Club

The *Frances* has been chartered for the annual men's outing of the New England Street Railway Club, a deep-sea fishing trip, on Sept. 16.

# Financial and Corporate

## ANNUAL REPORTS

### Havana Electric Railway, Light & Power Company

The comparative statement of income, profit and loss of the Havana Electric Railway, Light & Power Company, Havana, Cuba, for the years ended Dec. 31, 1913 and 1914, follows:

	1914	1913
Gross earnings .....	\$5,396,713	\$5,417,054
Operating expenses and taxes .....	2,595,321	2,612,952
Net income .....	\$2,801,392	\$2,804,102
Other income .....	102,119	140,087
Gross income .....	\$2,903,511	\$2,944,189
Fixed charges .....	1,094,140	1,096,085
Surplus after charges .....	\$1,809,371	\$1,848,104
Surplus Jan. 1, 1914 .....	1,313,457	.....
Total .....	\$3,122,828	.....

A summary of the operations of the various departments of the company for 1914 shows the following apportionments:

Department	Gross Earnings from Operation	Operating Expenses and Taxes	Per Cent of Gross Earnings	Net Earnings from Operation
Electric railway .....	\$2,915,033	\$1,405,818	48.23	\$1,509,214
Electric light .....	1,605,696	518,257	32.28	1,087,440
Gas .....	556,157	385,406	69.30	170,751
Stage lines .....	319,827	285,840	89.37	33,987
Total .....	\$5,396,713	\$2,595,321	48.09	\$2,801,392

The decrease in gross earnings for the year amounted to \$20,340 or 0.33 per cent, while the operating expenses and taxes decreased 0.66 per cent. Rainy days, which were more in 1914 by 23 per cent than in 1913, had a disastrous effect upon car earnings. Moreover, the curtailment of public construction work, the paralysis of travel in certain districts because of quarantine for bubonic plague, the competition of a United Railways line and for a time of a motor omnibus line and the closing of cigar factories on account of the European war, all operated to decrease the electric railway earnings for the first time in the company's history. In view of the events of the year, however, it is surprising that the loss was not greater. The most encouraging feature was that it was found practicable to reduce operation so that during the last four months of the year the passenger earnings per car-mile were equal to those of the preceding year. The following statistics show more fully the comparative results that were obtained for the last two years:

	1914	1913	Per Cent Change
Passenger car-miles .....	10,778,706	10,543,739	+2.23
Passenger earnings .....	\$2,794,668	\$2,839,118	-1.56
Passenger earnings per car-mile .....	0.2594	0.2693	-3.68
Total operating expenses .....	1,373,937	1,426,972	-3.72
Total operating expenses per car-mile .....	0.1275	0.1353	-5.77

The total number of cash fare passengers carried during 1914 was 55,893,367, a decrease of 1.56 per cent as compared to 1913, but still an increase of 7.76 per cent over 1912. The freight equipment of the company did more work than in 1913, transporting a total of 282,190 long tons of materials. The locomotive car-hours increased 15.6 per cent and the trail-car-hours 27.9 per cent. The new track constructed during the year aggregated 8.28 miles, an increase of 11.5 per cent, comparable to 9.5 per cent in 1913 and 2.4 per cent in 1912. Reconstruction work on track was continued, and at the end of 1914 about 32 per cent of the track built under the original light specification had been replaced in accordance with the present heavier standard.

During the year 1914 the rolling stock was increased by twenty passenger cars of standard type and one locomotive, built in the shop, and by twenty steel 6-yd. capacity side-dump trail cars for carrying track and construction materials, shipped from the United States and assembled in the shop. Electrical equipments were received for thirty additional cars and three more locomotives to be constructed, and apparatus for the equipment of the four new locomotives and the twenty-four large steel coal cars with automatic air brakes.

The following table shows the results of operation of the company's stage lines:

	1914	1913	Per Cent Change
Stages owned .....	166	165	+0.61
Stages operated (daily average) .....	145	151	-3.97
Stage-miles run.....	3,266,518	3,402,691	-4.00
Gross earnings .....	\$319,826	\$356,894	-10.40
Gross earnings per stage-mile..	\$0.0980	\$0.1048	-6.49

The influence of the generally unfavorable business conditions, and the resulting greatly increased unemployment, especially in the tobacco industry, were most severely felt by the omnibus service. Two other causes contributed materially to the adverse circumstances encountered, namely, the extension of the suburban electric service of the United Railways to a number of neighboring small towns, which before were mostly dependent upon the omnibuses, and the very high rate of exchange of Spanish silver during the entire year, which made it so nearly equal to United States currency that there was but slight difference in fare between the omnibuses and the quicker and more comfortable electric street cars. Because of existing conditions, the trial of the electric motor omnibuses, which was projected and was referred to in the 1913 report, was deferred to more favorable times. All the new equipment of this department, however, has been designed with a view to the ultimate establishment of motor vehicle service. An attempt was made during the year by another company to operate gasoline motor buses of English type, but the receipts were so unsatisfactory that it was given up after three months' trial.

During the year the consolidated power plant, described in the ELECTRIC RAILWAY JOURNAL of May 15, 1915, page 920, was substantially completed and was by the end of 1914 carrying three-fourths of the total load. The annual report of the company, on the whole elaborate, contains a handsomely illustrated special report on this power plant. The annual report is also published in Spanish for the convenience of security holders preferring that language.

#### Denver Tramway System

The statement of income, profit and loss of the Denver (Col.) Tramway System for the year ended March 31, 1915, follows:

Gross earnings .....	\$3,263,954
Total operating expenses .....	1,683,960
Net earnings before deducting taxes and franchise payments .....	\$1,579,994
Taxes and franchise payments .....	279,220
Net earnings after deducting taxes and franchise payments .....	\$1,300,774
Other income .....	32,295
Gross income .....	\$1,333,069
Deductions from income:	
Interest on funded debt .....	\$988,415
Other deductions .....	22,350
Total deductions .....	\$1,010,765
Net income .....	\$322,304

This is the first report since the reorganization as of March 31, 1914, of the Denver City Tramway System. The Consolidated Securities & Investing Company was incorporated on March 30, 1914, and became the successor of the Denver Realty Company, the Boulevard Real Estate Company and the Denver Excursion Company. The Consolidated Securities & Investing Company, as successor company, acquired ownership of all the stock and bonds of the Denver & Inter-Mountain Railroad. All the stock of the Consolidated Securities & Investing Company was in turn acquired by the Denver City Tramway. Thereafter the Denver Tramway, incorporated on March 30, 1914, purchased all the property of the Denver City Tramway, which company had previously acquired the Denver Tramway Terminals Company and the Denver Tramway Power Company. The Denver Tramway thus became the owner of all the stock of the Consolidated Securities & Investing Company. The Denver & Northwestern Railway, though it is no longer an operating company (having sold its physical property to the Denver City Tramway in 1913), continues to be the holding company of the Denver Tramway.

In view of the above changes a comparison in details of the results for the first fiscal year of the Denver Tramway System with the results of the system for the year preced-

ing would be difficult. The gross earnings of the Denver Tramway, however, showed a decrease of approximately 5.21 per cent for the year just ended. By rigid economy a saving of about an equivalent amount was effected in operating expenses. A general reduction was made in salaries without cutting the wages of men receiving less than \$90 per month. After payment by the Denver Tramway of interest on \$3,167,000 of prior lien bonds and after taxes and franchise requirements, there remained available out of earnings more than 161 per cent of the fixed charges on all outstanding bonds assumed by the company.

During the year there was a total expenditure by the Denver Tramway of \$188,647 for betterments and improvements, of which \$89,106 was on account of way and structures, \$54,966 for new equipment and \$44,574 as the company's proportion of the cost of the work done in construction of the Colfax-Larimer viaduct prior to March 31, 1915. The largest item of track work was in reconstruction of 5.29 miles of single line, where all rail was replaced, principally with 73-lb. steel. The more important items of equipment added were six new trailers, four new rotary snow-sweepers, two motor utility cars, and the fitting of trail cars with bulkhead partitions and electrical heaters. Expenditures for system maintenance amounted to \$371,116. No large outlays for capital improvements are contemplated for the current year, except those to which the company is committed and which are under way. It is expected that no financing will be necessary until 1919.

The following table presents some miscellaneous statistics for the entire system:

Passengers carried:	
City lines .....	75,572,785
Interurban lines .....	956,034
Total .....	76,528,819
Passenger earnings per car-mile:	
City lines (cents) .....	26.53
Interurban lines (cents) .....	28.98
Passenger earnings per car-hour:	
City lines .....	\$2.56
Interurban lines .....	4.69
Car-miles operated, passenger:	
City lines .....	11,174,515
Interurban .....	366,290
Total .....	11,540,805
Car-hours operated, passenger:	
City lines .....	1,159,205.4
Interurban lines .....	22,622.4
Total .....	1,181,827.8

#### Glasgow Corporation Tramways

The ordinary income of the Glasgow (Scotland) Corporation Tramways for the year ended May 31, 1915, was £1,076,877, while the working expenses, including payments to dependents of employees, were £735,987, leaving net revenue of £340,890. The ordinary income of the previous year was £1,083,846 and the working expenses £676,277, leaving net revenue of £407,569. After adding interest on investments and rent of lines, increasing the revenue to £406,717, and after deducting interest, sinking fund payments, taxes, depreciation and other expenses amounting to £393,766, the net balance of £12,951 was paid over to the common good. The gross revenue for the year decreased £6,130, and the average traffic revenue per car-mile increased from 10.609d. to 10.612d. The working expenses, excluding expenditures incurred on account of the war, increased £7,893 or 0.13d. per car-mile. This increase was mainly caused by shorter working hours, wages and taxes. A sum of £51,816 was expended in connection with the war, as follows: Allowances to dependents, £39,736; car tokens, £6,231; war bonus, £5,005; general recruiting, £541, and equipment of pipe band, £301.

During the year £76,391 was expended on capital account, making a total expenditure of £3,751,708 as of May 31, 1915. The amount to the credit of the depreciation and permanent way renewals fund on that date was £2,158,738. The total set aside for the last fiscal year was £172,310, as compared to £212,642 for the preceding year. An amount of £33,768 was expended during the year for track renewals, leaving a credit balance of £2,294,304. The general reserve fund at the end of the year had a total credit of £32,238, £1,970 having been added through the sale of obsolete equipment and £7,801 expended during the year. The sum of £65,875 was expended on the upkeep of the

ramway track in ordinary repairs. In addition to this \$68,228 was set aside to meet the cost of track renewals, calculated at the rate of \$350 per mile of single track. The total cost of ordinary repairs to the power plant and sundry machinery was \$8,137, and \$23,566 was charged against revenue to meet depreciation. The total cost of inspection and repairs of cars was \$55,965, with \$41,199 further reserved, and the total cost of maintenance of miscellaneous equipment was \$1,192, with \$1,840 reserved. The car mileage in 1914-1915 was 24,214,460, with 198.125 miles of single track in operation, and in 1913-1914 24,403,482 car-miles with 196.125 miles of single track in operation. The passengers in the two years numbered 336,260,758 and 336,654,624 respectively. At present 2223 members of the company's staff are enlisted in His Majesty's forces.

#### KEY ROUTE EARNINGS IMPROVE

According to an official statement issued by George K. Weeks, president, the San Francisco-Oakland Terminal Railway, Oakland, Cal., has deposited with the Wells Fargo Nevada National Bank funds for the payment of matured coupons on the Oakland, San Leandro & Hayward first mortgage 6 per cent bonds, the Alameda, Oakland & Piedmont first mortgage 6's and the Oakland Transit Company first consolidated 6's of 1918. The company has also deposited funds for the payment of interest on the Oakland Traction equipment trust certificates.

These payments have been made after providing for \$122,000 of State taxes due in August, and it is understood they will be followed by the payment, from time to time as funds are accumulated, of other matured coupons on the bonds of this system in the order of their apparent seniority.

The recent earnings of this company have been just about sufficient to pay necessary operating and maintenance charges and interest on its outstanding obligations. Some time ago the company, by reason of apparently pressing requirements for capital purposes, fell behind in the accumulation of funds to meet its semi-annual interest payments. Since that time funds to meet this interest have been advanced by various banks in San Francisco and Oakland against the agreement on the part of the road to repay these advances out of daily receipts.

When it came to advancing the interest due last July the majority of the banks felt that some movement for a permanent reorganization of the property was so imminent and the consequent possibility that the repayment of any advance made might be interrupted so greatly that they were not justified in making such advances. A plan was therefore worked out for the purchase by the banks of matured interest coupons from such holders as found it desirable to realize on the same without delay, as noted in the *ELECTRIC RAILWAY JOURNAL* of July 17. The company has now started the payment of these coupons to the banks which purchased them and to the holders who have retained them without discrimination. Previous references to the condition of this company were made in the issues of May 29, June 12 and 19, and Aug. 21 and 28.

**Albuquerque (N. Mex.) Traction Co.**—The Albuquerque Traction Company is to be offered for sale on Oct. 1 at the court house in Albuquerque by L. F. Lee, special master. It is expected that the group headed by George Roslington, receiver, will bid in the property.

**Birmingham, Ensley & Bessemer Railroad, Birmingham, Ala.**—The foreclosure sale of the Birmingham, Ensley & Bessemer Railroad, announced in the *ELECTRIC RAILWAY JOURNAL* of Sept. 4, is to take place at the Jefferson County Courthouse about the middle of October.

**British Electric Traction Company, London, England.**—An amended scheme of capital reorganization being considered by the British Electric Traction Company involves reducing the four outstanding classes of capital (exclusive of debentures) to two. It is proposed that the \$403,592 of cumulative 6 per cent preference stock shall be exchanged at par into a new issue of a similar character, while the \$807,185 of non-cumulative 7 per cent preference stock is to be covered as to 35 per cent into the new cumulative 6 per cent participating preference stock, while the balance

of 65 per cent will be represented by new ordinary stock. As regards the \$1,070,097 of non-cumulative 6 per cent preferred ordinary stock at present outstanding, 50 per cent will be converted into new ordinary stock, while the balance of 50 per cent will be written off altogether. Of the \$665,505 of deferred stock now outstanding, 30 per cent is to be converted into new ordinary stock, the balance of 70 per cent being regarded as lost. The \$266,371 of income certificates (non-interest bearing) are to be exchanged as to 10 per cent into fully-paid new cumulative 6 per cent participating preference shares, and as to 25 per cent into fully-paid new ordinary shares, the funds requisite for this purpose to be drawn from the company's reserves. The balance of 65 per cent of the certificates will be cancelled. Thus the capital account is to be written down by \$1,001,602. It is believed that this should suffice to enable the assets to be written down to their market value.

**Empire United Railways, Inc., Syracuse, N. Y.**—The Public Service Commission for the Second District of New York, has authorized the purchase by the Empire United Railways of the 2500 shares of capital stock, \$100 par value, of the Monroe County Electric Belt Line at \$9.67 a share. The stock will be paid for at \$1.67 a share when delivered, \$2 a share three months, \$2 a share six months, \$2 a share nine months and \$2 a share twelve months from Sept. 1, 1915.

**Everett Railway, Light & Water Company, Everett, Wash.**—It is reported that the election held on Aug. 24 resulted in favor of issuing \$1,100,000 of 6 per cent utility bonds with which to finance the purchase, or the condemnation and purchase, of the plant of the Everett Water Company, which is owned by the Everett Railway, Light & Water Company.

**Gary & Interurban Railroad, Gary, Ind.**—The Gary & Interurban Railroad has defaulted on the interest and principal of \$350,000 of 6 per cent notes due on Sept. 1. A protective committee composed of D. H. Gordon, S. Baldwin, Sr., W. K. Cromwell and P. L. Poe is asking for deposits of the defaulted notes with the Baltimore Trust Company as depository. The notes are protected by a deposit of \$500,000 of the first mortgage bonds of the East Chicago Railway, indorsed by the Gary & Interurban Railroad.

**Indianapolis Traction & Terminal Company, Indianapolis, Ind.**—The Indianapolis Traction Terminal Company showed a deficit during the year ended June 30, 1915, of \$22,865 as compared to \$56,886 for the previous year, according to a report filed with the Indiana Public Service Commission. After deducting the loss for the year, the surplus as of June 30, 1915, was \$292,894. The current deficit was caused in part by the increase in operating costs incident to an increase of wages at the time of the recent strike. Business also fell off to some extent, and the number of passes, especially to policemen and other officials, noticeably increased. The revenues for the current year totaled \$2,889,065 as compared to \$2,902,113 for the year preceding. The total fares were 67,967,954 and the transfers 21,778,673, as compared to 68,257,958 fares and 21,282,858 transfers for the preceding year. Wages to conductors and motormen increased from \$532,347 to \$569,187, and carhouse employees were paid \$69,770, an increase of \$6,495. Claims for damages and injuries for the year amounted to \$115,836. The company spent for construction \$96,168, making the total construction work carried on the books \$11,198,204. Additions to equipment amounted to \$50,527. The income tax increased this last year to \$5,929 as compared to \$3,459 for the previous year.

**Kansas City Railway & Light Company, Kansas City, Mo.**—The stockholders' committee of the Kansas City Railway & Light Company has in preparation a plan for distributing the equities among the stockholders and separating the railway and light property, as required by Judge Hook's plan, described in the *ELECTRIC RAILWAY JOURNAL* of Aug. 21. G. M. Reynolds, Chicago, is chairman of the committee.

**Muskegon Traction & Lighting Company, Muskegon, Mich.**—The Muskegon Traction & Lighting Company has applied to the Michigan Railroad Commission for authority to increase its authorized stock from \$700,000 to \$1,000,000. The present stock consists of \$600,000 of common and \$100,000 of preferred issues.

Standard Gas & Electric Company, Chicago, Ill.—The Standard Gas & Electric Company has authorized the offer to stockholders of \$3,750,000 twenty-year 6 per cent notes at 90 and interest. The privilege of subscribing to \$3,000,000 of the notes is accorded holders of the preferred stock to the extent of 25 per cent of their holdings of stock, and the common stockholders may subscribe to the remaining \$750,000. The right of subscription closes on Oct. 15 and the plan will not be declared operative unless \$2,000,000 subscriptions are made. A number of the larger stockholders have pledged themselves to purchase the full allotment. H. M. Bylesby, president, states that the proceeds of the full sale will retire all short time obligations, liquidate the floating debt and enable the company to increase its earnings. It is also stated that in the event of the notes being taken, the preferred stock will be immediately put upon a cash dividend basis, starting with 1 per cent for the first quarter. Since June, 1913, the preferred dividends have been paid in scrip, maturing in about eight years.

Underground Electric Railways, Ltd., London, England.—Further details of the dividend announcement made in the ELECTRIC RAILWAY JOURNAL of Aug. 14 show that the Underground Electric Railways of London was to pay on Sept. 1 or after the interest on its first cumulative income debenture stock, less income tax, at the rate of 6 per cent per annum. As regards the Underground group, the Metropolitan District Railway has declared an interim dividend for the half year ended June 30 on guaranteed stock at the rate of 4 per cent per annum, on the first preference stock at the rate of £4 10s. per annum and on the second preference stock at the rate of 3 per cent per annum. This second preference dividend is the same as for the corresponding half of last year, but compares with a distribution at the rate of 1 per cent per annum for the second half of 1914. The London Electric Railway declared an interim dividend for the half year ended June 30 on the preference stock at the rate of 4 per cent per annum, and on the ordinary shares at the rate of 1 per cent per annum. This ordinary dividend is at the rate paid for the corresponding six months of last year, but for the second half of 1914 the payment was only at the rate of one-fourth of 1 per cent per annum, so that for the full twelve months the dividend was five-eighths of 1 per cent. A third instance of the distribution being restored to the level of the first half of last year is in the case of the City & South London Railway. A year ago the 5 per cent preference stocks of 1891, 1896, 1901 and 1903 received their full six months' dividend and those distributions are now being repeated, but for the second half of 1914 only the two earlier issues received their dividends, nothing being paid on the 1901 and 1903 stocks.

Winnipeg (Man.) Electric Railway.—It is reported that the June returns of the Winnipeg Electric Railway were the most disappointing of any in the last six months. The company's decline in income extends over a full year. The contraction began June, 1914, but it became even greater after the European war started. From a 12.8 per cent decline shown in the January returns, the company has finally come to a 42.6 per cent decline for last June. This follows a 41.2 per cent decline in May and 40.3 per cent in April. Net earnings for six months were \$621,643, being a decrease of \$256,204 or 29.2 per cent. The half year's figures indicate earnings at the rate of \$1,243,286 per annum. This compares with earnings of \$1,685,094 for the year 1914 and \$1,826,088 for 1913.

#### DIVIDENDS DECLARED

Arkansas Valley Railway, Light & Power Company, Pueblo, Col., quarterly, 1¾ per cent, preferred.

Brazilian Traction, Light & Power Company, Ltd., Toronto, Ont., quarterly, 1½ per cent, preferred.

Eastern Power & Light Corporation, New York, N. Y., quarterly, 1½ per cent, preferred.

El Paso (Tex.) Electric Company, quarterly, 2¼ per cent, common.

Interborough Consolidated Corporation, New York, N. Y., quarterly, 1½ per cent, preferred.

Interborough Rapid Transit Company, New York, N. Y., 5 per cent.

Manhattan Bridge Three-Cent Line, Brooklyn, N. Y., quarterly, 1½ per cent.

United Traction & Electric Company, Providence, R. I., quarterly, 1½ per cent.

#### ELECTRIC RAILWAY MONTHLY EARNINGS

##### BANGOR RAILWAY & ELECTRIC COMPANY, BANGOR, ME.

Period	Operating Revenues	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., July, '15	\$68,146	*\$37,948	\$30,198	\$17,462	\$12,736
1 " " '14	67,805	*34,246	33,559	17,351	16,208
12 " " '15	780,845	*378,809	402,036	211,620	190,407
12 " " '14	778,667	*367,699	410,968	208,850	202,118

##### CHATTAHOOGA RAILWAY & LIGHT COMPANY, CHATTAHOOGA, TENN.

1m., July, '15	\$90,116	*\$63,458	\$26,658	\$30,337	†\$3,679
1 " " '14	92,696	*61,435	31,261	28,130	3,131
12 " " '15	1,039,520	*709,344	330,176	351,820	†21,644
12 " " '14	1,159,210	*711,202	448,008	324,043	123,965

##### CLEVELAND, SOUTHWESTERN & COLUMBUS RAILWAY, CLEVELAND, OHIO

1m., June, '15	\$108,341	*\$71,675	\$36,666	\$27,348	†\$9,420
1 " " '14	110,026	*70,291	39,735	27,356	†12,378
6 " " '15	583,142	*398,390	184,752	164,760	†20,583
6 " " '14	596,846	*399,830	197,016	163,880	†33,136

##### COMMONWEALTH POWER, RAILWAY & LIGHT COMPANY, GRAND RAPIDS, MICH.

1m., July, '15	\$1,182,520	*\$654,686	\$527,834	\$365,166	\$162,668
1 " " '14	1,143,335	*625,936	517,399	358,812	158,587
12 " " '15	14,072,518	*7,565,138	6,507,380	4,327,623	2,179,757
12 " " '14	13,970,316	*7,699,022	6,271,294	4,055,815	2,215,479

##### CONNECTICUT COMPANY, NEW HAVEN, CONN.

1m., June, '15	\$685,850	*\$461,469	\$224,381	\$98,310	†\$148,964
1 " " '14	738,224	*414,139	324,085	93,458	†252,399
12 " " '15	7,960,821	*5,726,883	2,233,938	1,185,984	†1,323,457
12 " " '14	8,085,399	*5,767,389	2,318,010	1,077,461	†1,501,072

##### CUMBERLAND COUNTY POWER & LIGHT COMPANY, PORTLAND, ME.

1m., July, '15	\$262,080	*\$141,245	\$120,835	\$64,819	\$56,016
1 " " '14	258,004	*132,359	125,645	63,294	62,351
12 " " '15	2,555,338	*1,453,628	1,101,710	778,734	322,976
12 " " '14	2,470,163	*1,426,799	1,043,364	757,926	285,438

##### EAST ST. LOUIS & SUBURBAN COMPANY, EAST ST. LOUIS, ILL.

1m., July, '15	\$200,599	*\$122,023	\$78,576	\$63,645	\$14,931
1 " " '14	218,659	*130,214	88,445	61,342	27,103
12 " " '15	2,448,863	*1,452,450	996,413	758,115	238,298
12 " " '14	2,758,242	*1,733,817	1,024,425	630,863	393,562

##### GRAND RAPIDS (MICH.) RAILWAY.

1m., July, '15	\$105,596	*\$72,022	\$33,574	\$13,933	\$19,641
1 " " '14	115,756	*73,308	42,448	13,566	28,882
12 " " '15	1,216,108	*833,416	382,692	163,523	219,169
12 " " '14	1,294,505	*837,522	456,983	156,372	300,611

##### LAKE SHORE ELECTRIC RAILWAY, CLEVELAND, OHIO.

1m., July, '15	\$136,446	*\$78,781	\$57,665	\$36,220	\$21,445
1 " " '14	151,999	*79,221	72,778	35,768	37,010
7 " " '15	761,570	*513,400	248,170	252,497	†4,327
7 " " '14	810,105	*510,867	299,238	247,489	51,749

##### LEWISTON, AUGUSTA & WATERVILLE STREET RAILWAY, LEWISTON, ME.

1m., July, '15	\$75,376	*\$44,683	\$30,693	\$15,949	\$14,744
1 " " '14	72,565	*41,199	31,366	15,497	15,869
12 " " '15	706,709	*463,361	243,348	187,996	55,352
12 " " '14	675,185	*459,328	215,861	184,780	31,081

##### NASHVILLE RAILWAY & LIGHT COMPANY, NASHVILLE, TENN.

1m., July, '15	\$166,927	*\$109,847	\$57,080	\$42,896	\$14,184
1 " " '14	184,081	*110,802	73,279	42,100	31,179
12 " " '15	2,163,788	*1,281,341	882,447	493,588	388,859
12 " " '14	2,247,867	*1,399,216	848,651	489,539	359,112

##### NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO.

1m., July, '15	\$371,736	*\$219,704	\$152,032	\$51,804	\$100,228
1 " " '14	351,659	*206,170	145,489	50,848	94,641
7 " " '15	2,128,388	*1,321,350	807,038	360,270	446,768
7 " " '14	2,073,359	*1,265,805	807,554	352,683	454,871

##### PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.

1m., July, '15	\$467,946	*\$260,486	\$207,460	\$183,947	\$23,513
1 " " '14	511,005	*280,020	230,985	182,303	48,682
12 " " '15	5,694,808	*3,103,158	2,591,650	2,210,534	381,116
12 " " '14	6,644,511	*3,340,255	3,304,256	2,127,126	1,177,130

##### TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN.

1m., July, '15	\$792,831	*\$549,883	\$242,948	\$84,927	†\$158,687
1 " " '14	823,935	*531,416	282,519	83,996	†199,650
7 " " '15	5,382,641	*3,893,040	1,489,601	577,700	†927,294
7 " " '14	5,337,139	*3,690,976	1,616,163	574,700	†1,076,939

\*Includes taxes. †Deficit. ‡Includes non-operating income.



# Traffic and Transportation

## JITNEY JOTTINGS

### Ordinance in Newark Before Mayor—Progress of Regulation in Other Cities

The Board of Street & Water Commissioners of Newark, N. J., has passed a jitney ordinance, to take effect immediately, and the measure is now before the Mayor for signature. The measure covers any automobile or other common carrier other than a street car operated within the city for hire at a rate of 15 cents or less. A license to operate must be obtained from the City Clerk. Power is vested with the Board of Street & Water Commissioners to determine the reasonable seating capacity of each jitney, the routes, hours of service and terminal points, and that body is authorized to approve applications as presented or to make such changes in regard to the seating capacity, routes, hours of service, etc., as the convenience and safety of the public may demand. Each holder of a jitney license must take out liability insurance in the sum of \$5,000 within two weeks of the granting of the license. Rules are laid down in detail in regard to operation, among them a provision making it unlawful to omit to operate a jitney over the designated route during the hours of service unless consent has been obtained from the general superintendent of works, subject to the approval of the Board of Street & Water Commissioners. Any person who violates any provision of the ordinance is upon conviction to pay a fine of \$5 for the first offense and \$10 for each subsequent offense, and "any license may be revoked accordingly for violation of the provisions of this ordinance."

The City Council of Newark has passed on first and second reading an ordinance covering the matter of license fees, these fees ranging from \$50 to \$125, according to the seating capacity of the jitney. This ordinance will come up for third and final reading early in October.

An ordinance regulating the jitney in Waterloo, Iowa, has been adopted by the City Council. The ordinance, known as the motor bus ordinance, applies to every motor vehicle, hotel buses excepted, in the city engaged in hauling passengers for hire. Operators of the vehicles must file an indemnity bond payable to any or all persons who may receive injuries while a passenger in their vehicle. The bond is regulated according to the carrying capacity of the vehicle. A \$2,000 bond is required for a vehicle carrying more than one and less than six passengers, driver included; a \$3,500 bond for a vehicle carrying more than six and less than eleven passengers, and a \$5,000 bond where more than ten passengers are carried. The license fee is also regulated according to the carrying capacity of the vehicles. A license fee of \$15 a year is charged a vehicle carrying more than one and less than six passengers, driver included; \$20 where the carrying capacity does not exceed eight; \$25 where the capacity is not more than sixteen passengers; \$30 where the carrying capacity is less than thirty, and \$35 a year where the carrying capacity is more than thirty passengers.

An important jitney hearing was set for Sept. 7 before the Railroad Commission of California in the case of the United Railroads of San Francisco versus the Peninsula Rapid Transit Company. The United Railroads on Aug. 3 filed with the Railroad Commission a complaint against the Peninsula Rapid Transit Company. The company asked the commission to rule that the motor bus company was a public utility, subject to regulation by the commission. The complaint requested that the motor bus company be directed to file with the commission a schedule of rates, fares, charges and classifications, and obtain from the commission a certificate of convenience and necessity, and comply otherwise fully with the public utilities act. The Peninsula company runs motor buses with a capacity of twenty each in regular schedules from San Francisco to Daly City, Milbrae, Easton, Burlingame and San Mateo, the latter point being about 22 miles from San Francisco. The United Railroads claims that the Peninsula Company is a common carrier, but has never secured authority as one from San Francisco, or from San Mateo County, or from any of the cities whose streets it uses. The United Railroads points out that it has invested much capital in rights-

of-way and in building and in maintaining its suburban line between San Mateo and San Francisco, and that it was operating its line long before the motor buses began to run. The United Railroads also claims that it gives an adequate service at all times and there was no necessity for the establishment of the motor bus company.

The question of whether the city of Oakland, Cal., has the right to impose a tax on jitneys, despite previous payment of a State vehicle tax by the jitney owner has been decided in the affirmative by Superior Judges Ogden, Brown and Waste of Alameda County and Conley of Madera, sitting en banc. The judges held that the State taxed the jitney vehicle, but the city taxed the jitney business. The test case was that of Leroy M. Phillips, arrested for non-payment of the \$60 annual tax imposed by the recent Oakland ordinance.

Stringent regulation of the automobile passenger carrying business in Los Angeles, Cal., is proposed in measures now being drafted by the public safety committee of the Los Angeles City Council. Recommendations from Traffic Chief Butler, the Police Commission, and the Public Utilities Board for the new ordinance include requirements that it shall be unlawful for any passenger carrying vehicle to carry passengers on steps or running boards, or for any passenger to sit on the door of an automobile or street car. Some means will also be considered for eliminating the nuisance and congestion resulting from the hundreds of automobiles maintaining street stands for so-called taxicab service. It is suggested that the operators be required to keep their cars in garages or vacant lots and establish telephone call stands in the business district.

All Redlands, Cal., has been divided into four parts and two zones in an effort to fix a scale of prices for the jitney. The trustees of the city found that many complaints had been made of passengers being charged different prices for the same trip. It has been decided that within a radius of 1 mile from the business district a charge of 5 cents shall be made. The second zone covers a radius of 2 miles from the business section. A charge of 10 cents can be made for a trip from the center to a section of one color in the first zone and then to a section of another color in the same zone. For a trip to a section of color in the first zone, then to a section of color in the second zone, calls for 15 cents. Each zone is divided into four colors. The trustees have decided that not only must the jitney men have insurance of \$5,000, but that all automobiles for rent or hire in the city must have the insurance.

Wholesale arrests of jitney drivers have been made at Temple, Tex., on charges of violating the recently enacted ordinance regulating the operation of jitney buses. Few of the drivers complied with the ordinance by providing indemnity bonds of \$5,000 and \$10,000 and payment of a license fee ranging from \$40 to \$100, graduated according to number of passengers carried. The ordinance also requires that cars shall take regular stands for solicitation of business in the down-town section, no solicitation on the streets being permitted. Cars are required to remain at the regularly designated stands until loaded, or until time for the driver to make his trip. He is not allowed to stop to solicit passengers while passing through the business street.

In a decree filed by Judge Ferguson of Common Pleas Court No. 3 in Philadelphia he refused to grant the preliminary injunction sought by the jitney drivers of that city to restrain the enforcement of the recent ordinance, which compels the jitney owners to pay a license fee of \$50 and file a bond of \$2,500. He pointed out that the original injunction granted by Judge Sulzberger in July was vacated on Aug. 7 because of the failure of the members of the Philadelphia Jitney Association to furnish the necessary \$2,500 bond, and expressed the opinion that the jitney men had waited too long to warrant their asking another preliminary hearing. The latter insisted that the failure to file the bond was not the fault of the drivers themselves, but was due to the negligence of their president. If the injunction was now renewed, they said, the bond would be furnished at once. City Solicitor Ryan said he would not consent to a reinstatement of the injunction. He said there had been thirty-six applications to comply with the ordinance and that sixteen operators had entered the necessary bond, paid the license fees and qualified within the terms of the law.

A paper on the subject of jitney ordinances was read by Frank P. Cummings, city solicitor of Williamsport, Pa., at the sixteenth annual convention of the League of Third-Class Cities of Pennsylvania held at Reading recently. No action was taken favoring any special regulations for the jitney, the convention deeming it advisable to await the final result of the litigation over the jitney ordinance in Philadelphia.

#### COURT EXONERATES MR. DICKSON

Ruling that it would be unreasonable to hold the head of an electric railway responsible for alleged negligence upon the part of a minor employee, when such employee was under the jurisdiction of the head of the particular department in which he happened to work, Magistrate James H. Campbell in Police Court at St. Catharines, Ont., discharged E. J. Dickson, vice-president of the International Railway, Buffalo, N. Y., upon the charge of manslaughter in connection with the Queenstown, Ont., disaster of July 7. In exonerating Mr. Dickson, the magistrate said:

"Mr. Dickson certainly could not be held responsible for any negligence on the part of the crew of the car or the men in the carhouse because each division of the road is under a separate executive head. All possible matters relating to the divisions are dealt with by the executive, but there are some matters which must be left to the men in immediate charge. All the witnesses stated that all the rules regarding safety had been complied with and the car had all the necessary equipment."

Speaking of the construction of the road and the curves on it, the magistrate pointed out plans and specifications of the road had been submitted to the Ontario Railway Board, and no member of the board or anyone else had any suggestions with regard to making the curves safer. The road has been operated for more than a score of years without an accident, and the court held that "the International Railway was perhaps justified in thinking that an accident could not be possible at that point. There is nothing in my mind which would justify me in holding Mr. Dickson for trial and he is discharged."

#### PETITION FOR ANOTHER FARE INCREASE

##### The Bay State Street Railway, Boston, Seeks to Establish 6-Cent Fare Unit

P. F. Sullivan, president of the Bay State Street Railway, has notified the Massachusetts Public Service Commission of its intention to establish a 6-cent fare upon all of its lines, beginning on Nov. 1, 1915. In a letter transmitting the proposed schedules of rates in detail, Mr. Sullivan states that the changes proposed cover a general increase from 5 cents to 6 cents as the single cash fare over all the lines; the sale for 50 cents of nine tickets which are to be receivable for fare in Lowell, Lawrence, Haverhill, Salem, Lynn, Saugus, Revere, Chelsea, Malden, Everett, Melrose, Swampscott, Boston, Quincy, Brockton and Fall River; the modification of certain existing and the introduction of certain new fare zones; the modification of transfer privileges, and the withdrawal of reduced fare tickets other than those to be received for the transportation of school children.

In a statement to the press outlining the purposes of its proposed increase in rates the company points out that the general principles recognized in the schedule of fares filed are:

1. A universal cash fare of 6 cents.
2. A reduction by means of tickets in the urban and a portion of the metropolitan territory.
3. A single fare to be charged between centers and within city and town limits, modified in several of the latter to eliminate the present excessively long hauls through sparsely settled territory.
4. A transfer privilege to city or town limits from the centers of adjoining cities or towns upon the additional payment of 2 cents in the metropolitan and a portion of the urban territory.
5. The withdrawal from sale of all workmen's and reduced rate tickets, including the so-called Boston Elevated 8-cent check.

6. The elimination, as far as practicable, of the present overlaps in fare limits and the inequalities occasioned by different collection points for so-called through and local passengers.

The company says that for several years it has appreciated the need of increased income, but postponed the application as long as possible. It is pointed out that the cost of producing transportation for sale has increased to such an extent that the company is, and has been for some time, selling transportation below cost, all of which will be exhaustively shown to the public and the public service commission at hearings and investigations to be given by that body. Nearly 1000 miles of track are involved in the proposed increase.

**Reduction in Children's Fares Denied.**—The Railroad Commission of Georgia has refused the application filed with it by Judge Morris of Marietta for a reduction in the fares of children by the Atlanta Northern Railway.

**Increase in Speed in Everett.**—The City Council of Everett Wash., has passed on first and second reading an ordinance amendment providing that street cars may run 20 m.p.h. in thickly populated portions of the city. The old ordinance limited the speed to 15 m.p.h.

**Safety-First Movies in Dallas.**—The electric street railways of Dallas, Tex., are conducting an educational safety campaign, one of the chief features of which is the exhibition of a moving picture film called "The Dangers of the Street," in one of the most popular theaters of the city.

**Experimental Skip-Stops in Milwaukee.**—The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., began a three months' trial with skip-stops on its Farwell Avenue, Walnut Street and Greenfield Avenue lines on Sept. 1. All stops eliminated or changed in the outlying districts are indicated by signs. The test was ordered by the Railroad Commission of Wisconsin, and the extension of the plan to other lines will depend on the results obtained on the lines mentioned.

**New Railway Publication in Ottawa.**—The Ottawa (Ont.) Electric Railway has begun the publication of a bulletin in which it is intended to print important notices posted during the month previous to the issue and to give articles of general interest to those engaged in electric railway service in Ottawa. The first issue of the publication was dated August, 1915. It consists of four pages of reading matter, each 8½ in. by 11 in. In its first issue the bulletin urges efficiency, safety and courtesy. It is planned to issue the bulletin on the twentieth of each month.

**Changes in Toronto Suburban Fare.**—The Toronto & York Radial Railway, Toronto, Ont., announced that after Sept. 6 the sale of thirty-trip commutation tickets between Sunnyside, Long Branch, New Toronto and the Humber would be discontinued. Passengers may purchase tickets as follows: Stop 10, eight tickets for 25 cents; Stop 25, seven tickets for 25 cents; Stop 29, five tickets for 25 cents. There will be no time limit for the use of these tickets as in the case of commutation books. The new issue of tickets may be purchased on the cars, instead of at the company's office.

**Result of Near-Side Vote in Denver.**—The Denver (Col.) Tramway held an election on Aug. 23, 24 and 25 at which all passengers were entitled to vote their preference for the far-side or the near-side stop. Ballot boxes were placed near the entrances of the cars, and the conductors gave a ballot to every passenger who paid a cash fare. The count showed 252,586 votes cast during the three days' balloting, 149,692 voting for the far-side stop and 96,226 against it. There were 6668 blank ballots in the boxes. Previous to the vote the Commissioner of Safety of Denver announced his intention of introducing an ordinance to require the company to make near-side stops. Since the vote he has reiterated his intention.

**Reduction in Height of Steps Ordered.**—The Public Service Commission of Oregon has issued an order requiring the Portland Railway, Light & Power Company to lower its carsteps on its lines between Portland and Oregon City, to 15 in. above the rail, if sufficient clearance on Hawthorne bridge can be obtained, and 16½ in. if the clearance for 15

in. cannot be obtained. While the order is confined only to the cars of the lines mentioned recommendations are made for the adoption of the same standard of construction for all the other cars operated by the company. The complaint about the car steps and about insufficiency of cars on the lines was filed by the Social Service Club of Oak Grove. The commission held the complaint that sufficient cars were not provided was not substantiated. Reconstruction of the steps must commence in thirty days and be completed within a year.

**Reduction in Seattle Suburban Fare.**—The Puget Sound Electric Railway, a subsidiary of the Puget Sound Traction, Light & Power Company, Seattle, Wash., recently obtained permission to make effective immediately a reduction of 5 per cent in the price of commutation tickets, between Seattle and stations south of Georgetown, to and including Renton. The Public Service Commission ordered commutation rates to and from these stations and Seattle in May, 1914, on a basis of 75 per cent of the first-class cash fares. The reduction to be put into effect now is on the basis of 70 per cent of the first-class cash fare. At the same time the company will make effective, with the commission's consent, the same reduction to and from Tacoma, and stations on the Puyallup line, to and including Puyallup. The rate on this line has been reduced from 1.5 cents a mile to 1.4 cents, on the commutation tickets.

**Eliminating Stops in St. Louis.**—Fifty-five stops on the Olive and Broadway lines of the United Railways, St. Louis, Mo., were eliminated on Sept. 1 in a thirty-day trial by the company to convince the Missouri Public Service Commission that approximately 800 now made are useless. Large blue signs bearing "No Stop" have been put up at corners and other places where the stops have been done away with. Stops along every division are designated with red signs, "Car Stop." During the trial on the Olive line eighteen stops are to be eliminated on the Delmar division, thirteen on the University and nine on the Maryland. About fifteen stops will be eliminated on the Broadway line. None of the present stops on the Olive line east of Eighteenth Street, on the Broadway line between Clark and Franklin Avenues will be eliminated. Notices were posted in each car on the Broadway and Olive lines, indicating stops made and those eliminated.

**Objection to Running Boards on Toronto Cars.**—The Toronto (Ont.) Railway was committed for trial by Magistrate Denison on Sept. 2 on a charge of criminal negligence, as the result of operating the running boards on the open street cars. The only evidence taken was that of Alderman Gibbons, business agent of the Railwaymen's Union. He stated that he had served as conductor for eighteen years. He then submitted a list of accidents to conductors resulting from falls from the running board, showing that fourteen occurred this year and nineteen last year. There were four deaths from these accidents. The counsel for the company questioned the witness in regard to the union taking the matter of running boards to the Ontario Railway Board, and said that as a matter of fact the company was experimenting with center aisle cars, with a view to abolishing the running board. The case has been sent to a higher court for trial.

**"For a Safer City."**—Just before the opening of the Ohio State Fair W. C. Campbell, assistant general superintendent of the Columbus Railway, Power & Light Company, issued a bulletin entitled "For a Safer City." While it was intended to bring about a greater degree of care in the operation of cars during the week that the city was filled with visitors, it contained many other interesting things. It was stated that 42.6 per cent of all the accidents in which the street cars figured during the first seven months of the year resulted from collisions of cars with automobiles and other vehicles. The bulletin said the point had been reached where strenuous efforts must be made to reduce accidents of this class. The company's records showed a substantial reduction in the number of accidents as compared with previous years, and reports of courteous treatment from employees were much more frequent than in the past. These things showed that progress was being made toward that efficiency which all are so much interested in attaining.

## Personal Mention

Mr. J. H. Moir has been appointed to the position of traffic manager of the Edmonton (Alta.) Municipal Railway.

Mr. Williston Fish is now vice-president of the West Penn Traction Company, Pittsburgh, Pa., in charge of the operation of the railways of the entire West Penn System. Mr. Fish has relinquished the duties of comptroller.

Mr. Walter C. Slade has been appointed superintendent of power and lines of the Rhode Island Company, Providence, R. I. Mr. Slade was graduated from Brown University and the Massachusetts Institute of Technology and has been associated with the General Electric Company for the last four years.

Mr. Ralph W. Emerson, who has resigned as general superintendent of the New York & North Shore Traction Company, Flushing, N. Y., to become assistant superintendent of the Cleveland (Ohio) Railway, has been presented with a diamond-studded watch fob by the men of the transportation department of the New York & North Shore Traction Company.

Mr. M. R. Bump, who for twelve years has been a member of the Doherty organization, has resigned as chief engineer of the Doherty Operating Company, New York, N. Y., to become vice-president of the Picher Lead Company of Joplin, Mo., a section that he knows well by reason of the engineering and operative work he has done there for the Empire District Electric Company and other Doherty properties.

Mr. Charles A. Russell, Gloucester, Mass., one of the leading members of the Essex County bar, has been nominated a member of the Massachusetts Public Service Commission by Governor Walsh, succeeding Mr. Clinton White, who retired last July on account of age. Mr. Russell was born at Canton, Mass., and was educated at Colby College and Boston University. He was admitted to the Massachusetts bar in 1880. For eight years he was city solicitor of Gloucester and for many years has been prominent in fraternal organizations.

Mr. Frederick Thomas Leversuch has been appointed traffic manager of the London & Port Stanley Railway, London, Ont. Mr. Leversuch was born at Shrewsbury, England, on Nov. 24, 1884, and entered railway service in May, 1905. From that time until June, 1910, he was in the general freight department of the Michigan Central Railroad at St. Thomas, Ont. From June, 1910, to October, 1911, he was assistant agent of the Canadian Pacific Railway at Windsor, Ont. In October, 1911, he was advanced by the Canadian Pacific Railway to the position of freight agent at Windsor and continued in that capacity until December, 1913, when he was made agent for the company at Windsor.

Mr. James J. Callahan, whose appointment as manager of operations of the London & Port Stanley Railway, London, Ont., was announced in the *ELECTRIC RAILWAY JOURNAL* of Aug. 7, was born at New Glasgow, Que., on Feb. 25, 1875. He entered electric railway service on April 27, 1897, as a motorman with the Montreal Park & Island Railway, Montreal, and continued with that company until 1901. From 1901 to 1908 Mr. Callahan was inspector and chief instructor of the Montreal (Que.) Street Railway. During 1908 and 1909 he was chief inspector of the New York & Queens County Railway, Long Island City, N. Y., and since 1909 he has been superintendent of transportation of the Montreal & Southern Counties Railway, Montreal.

Gen. George H. Harries, vice-president of H. M. Byllesby & Company, president of the Louisville Gas & Electric Company, and officer of several other Byllesby enterprises, recently resigned his post as commanding officer of the District of Columbia National Guard. The organization over which he presided for many years presented him with an equipment of his rank (major general) in the presence of the command and more than 10,000 spectators. The gift was made in the name of the guard by Brig.-Gen. Harvey. It consists of a major general's presentation saber, appro-

priately inscribed, a full dress belt, a full dress sash, a gold belt knot and a pair of silver spurs. In his acceptance, General Harries advocated a universal volunteer army for the United States, including the feature of thirty days' military training each year for every able-bodied man between the ages of eighteen and twenty-five.

Mr. F. J. Derge, the present superintendent of the light and power department of the Toledo Railways & Light Company, Toledo, Ohio, and formerly in the New York offices of the engineering department of Henry L. Doherty & Company, has been appointed chief engineer of the Doherty Operating Company, New York, to succeed Mr. M. R. Bump. Mr. Derge was born at Eau Claire, Wis., and is a graduate engineer from the University of Wisconsin. Following the footsteps of other Wisconsin graduates he sought his initial practical experience with Mr. Henry L. Doherty, at the cadet school of the Denver Gas & Electric Light Company. His work at Denver caused him to be chosen for the chief engineership in charge of production at the Massillon Electric & Gas Company, Massillon, Ohio. Later he was called to the Doherty New York offices as a member of the traveling engineering staff. He was made chief engineer of the Trumbull Public Service Company at Warren, Ohio, and when the Toledo property was acquired by the Doherty organization he was moved to Toledo as superintendent of the light and power department.

Mr. Walter N. Polakov was recently appointed to a new office with the New York, New Haven & Hartford Railroad created to handle all matters on the entire system pertaining to the generation of power, heating, lighting, etc., with the superintendent of power as head of the department. Mr. Polakov was born in St. Petersburg, Russia, and received his engineering education and degrees in the Royal Institute of Technology at Dresden, Saxony. Previous to accepting the position of superintendent of power of the New Haven Railroad he was engaged as consulting engineer for the firm of Day & Zimmerman, Philadelphia, managing public utility companies in Pennsylvania, Ohio and other States. Previous to that he was associated with Mr. H. L. Gant in introducing scientific management, and before that held an office as expert consulting engineer for the Board of Estimate & Apportionment of the City of New York, during which time the power plant expenses of the Department of Water Supply, Gas & Electricity were reduced by more than \$500,000 and the operating expenses of the New York municipal ferries were reduced \$117,000 a year.

#### MENACE SEEN IN M. O. IN SEATTLE

Allen Dale, a member of the Council of Seattle, Wash., has introduced a bill in the City Council urging the abandonment of the city's plans to develop a street railway system. The bill would repeal an ordinance passed by the Council a year ago last May in which provision was made for the sale of \$500,000 of street railway bonds authorized by the voters for the purchase or paralleling of the Seattle, Renton & Southern Railway, and also providing for the issuance and sale of \$500,000 of utility bonds, with principal and interest, payable from the earnings of the street railway system. The plan proposed in the ordinance that Mr. Dale seeks to repeal provides for the construction of a line on Ranier Avenue, from the south city limits at Ryan Street to Dearborn Street, at an estimated cost of \$375,660; the construction of a line on Dearborn Street, from Ranier Avenue to Fourth Avenue South, and on Fourth Avenue south, from Seattle Boulevard to Spokane Street, for a connection with the Lake Burien line, Division C, and the construction of a line on Stewart Street, between Third and Fourth avenues, for a connection with Division A. The whole plan anticipates acquiring common user rights on Fourth Avenue, from the Seattle, Renton & Southern Railway and on Fourth Avenue south, and Spokane Street, from the Puget Sound Traction, Light & Power Company. Mr. Dale claims that the plan involves the expenditure of a larger sum of money than was voted by the people for street railway purposes and that the burden of debt on the taxpayers is now so great that it should not be increased without their specific authorization.

## Construction News

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

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

#### RECENT INCORPORATIONS

**West End Rapid Transit Company, Cincinnati, Ohio.**—Incorporated in Ohio to construct an electric railway from Anderson's Ferry to a point at the intersection of Third and Vine Streets, Cincinnati, its object being to furnish an entrance into the city for the Cincinnati, Lawrenceburg & Aurora Electric Street Railroad. Capital stock, \$10,000. Incorporators: J. C. Hooven, C. E. Hooven, L. E. Voorhies and Stanley Shaffer. [July 24, '15.]

**\*Aberdeen Railroad, Aberdeen, S. D.**—Incorporated in South Dakota to construct an electric railway. Capital stock, \$250,000. Incorporators: Charles A. Howard, S. C. Hedger and Charles N. Harris.

#### FRANCHISES

**East St. Louis, Ill.**—The Rapid Transit Company of Illinois will ask the Council for a franchise to construct tracks through East St. Louis to the free bridge. This is in connection with a project to build a line from East St. Louis to Mount Carmel, via Belleville, 150 miles. Joseph Vonnahme, East St. Louis, is interested. [Aug. 21, '15.]

**Andover, Mass.**—The Bay State Street Railway has asked the Council for a franchise to alter the location of its tracks on Elm Street and Main Street, Andover.

**Utica, N. Y.**—The New York State Railways has asked the Council for a franchise to extend its Elm Street line on James Street, Utica. The company has also made application to connect its tracks over the new halfway bridge.

**Cleveland, Ohio.**—The Cleveland Railway has asked the Council for a franchise to construct an extension on State Road, through Brooklyn township.

**North Bend, Ore.**—The Southern Pacific Company has asked the Council to extend its franchise through North Bend from thirty years to fifty years.

**Portland, Ore.**—The United Railways has received a twenty-five-year franchise from the Council to operate freight trains between Portland and Oilton.

**Dallas, Tex.**—An ordinance revoking the franchise granted to John T. Jones and associates to construct an electric railway on Parry Avenue between Kentucky Street and Henderson Avenue is being considered by the city commissioners. Mr. Jones filed a statement with the commission saying that on account of present conditions he is unable to comply with the terms of the franchise and would therefore relinquish it. [Oct. 3, '14.]

#### TRACK AND ROADWAY

**Fresno (Cal.) Traction Company.**—Work has been begun by this company on the extension of its line to Merced and J Streets, Fresno.

**Oakland, Antioch & Eastern Railway, Oakland, Cal.**—It is reported that this company is considering plans to build an extension to Martinez.

**\*San Francisco, Cal.**—A 2-mile electrically operated line is to be built by the Mammoth Copper Company, which is building a road to the Friday-Lowden mine from the Mammoth smelter.

**San Jose (Cal.) Railroads.**—Surveys are being made and work will be begun at once by this company on the construction of its extension on Alum Rock Avenue, San Jose.

**Connecticut Company, New Haven, Conn.**—This company has agreed to pay \$70,000 toward the construction of a bridge across the river at Stratford Avenue, Bridgeport. It is estimated that the entire cost to the company for relocation of tracks, paving, installation of new wires and overhead work in general in connection with the construction of the bridge will be about \$200,000.

**Atlanta & Carolina Railway, Atlanta, Ga.**—Proposals to resume work on the proposed railway to connect Atlanta,

Athens and Augusta were submitted to Judge John T. Pendleton on Sept. 1. Attorneys representing the trustees for the bondholders and receiver agreed to give option on the franchise right-of-way and all visible assets of the company to Ohio capitalists for \$150,000. Formal option will be signed by Judge Pendleton and Receiver R. E. Church will turn the option over to Adams & Sturn of Columbus, Ohio, for the purpose of financing the construction of the line. [May 15, '15.]

**Galesburg Railway, Lighting & Power Company, Galesburg, Ill.**—Residents of the northeast portion of Galesburg are anxious for a line to be extended to that territory. A petition has been drawn up and signed by many residents of that district between Lincoln and Farnham Streets. An extension from the East Galesburg line or from the North Seminary Street line is proposed.

**Evansville & New Harmony Traction Company, Evansville, Ind.**—Surveys have been made between Evansville and New Harmony, Poseyville, Cynthiana and other towns north of Evansville, while a line from Evansville south to Owensville is projected. [July 10, '15.]

**Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind.**—In considering the ordinance to compel this company to build an extension of its tracks from Wells Street west on High Street, the Council has decided that High Street is too narrow to allow the building of the proposed line. Accordingly, a new route has been suggested on Second Street to Clark Street, extending west on Third Street. A new ordinance will be drawn up to cover the new route.

\***Marion, Ind.**—Plans are being considered to construct an electric railway from Fisher's Station to Marion, via Noblesville, Perkinsville and Elwood. The project is being planned by Indianapolis people who are being backed by English capitalists and citizens of the towns to be benefited.

**Muncie & Portland Traction Company, Portland, Ind.**—This company is reballasting its Muncie and Portland line between Portland and Red Key. Twenty thousand new ties will also be used in repairs on this line. This is a correction of an item published in our issue of Aug. 7 in which it was stated that this work was being done by the Union Traction Company of Indiana.

\***Burkesville, Ky.**—It is reported that plans are being made to construct an electric railway from Burkesville to Edmonton, about 22 miles. Information may be obtained from the Cumberland Traction Company, which is building a line from Edmonton to Elizabethton.

**Bay State Street Railway, Boston, Mass.**—Work has been begun by this company laying tracks on Central Square, Lynn.

**Boston (Mass.) Elevated Railway.**—This company is repairing its outward-bound track from Harvard Square to Porter Square, Cambridge. For the greater part of the distance new rail is being laid and all joints are being welded.

**St. Paul (Minn.) Southern Electric Railway.**—This company is being urged by residents of St. Paul Park to build a line from Inver Grove across the river to St. Paul Park and northward to Red Rock.

**Morris County Traction Company, Morristown, N. J.**—Surveys have been begun by this company of the proposed extension of its lines from Landing to Netcong.

**New York Municipal Railway Corporation, Brooklyn, N. Y.**—The Public Service Commission for the First District of New York has authorized this company to award the contract for the third-tracking of the Broadway elevated railway, Brooklyn, between Myrtle Avenue and Aberdeen Street to the Johnson-Gifford Company at \$400,441.

**International Railway, Buffalo, N. Y.**—Consents have been received from all abutting property owners for the double-tracking of the line from the switch north of the Lackawanna viaduct on Virgil Avenue to a point 200 ft. west of Virgil Avenue on Kenmore Avenue. When this is completed the Kenmore Avenue line will be double-tracked to the junction of Delaware and Kenmore Avenues, the terminus of the line, with the exception of a short section through the woods south of the Lackawanna viaduct and a few hundred feet on Kenmore Avenue.

**Dover, Millersburg & Western Railway, Canal Dover, Ohio.**—Plans are being made to begin work on the proposed railway from Canal Dover to Millersburg, via Sugar Creek. F. F. Phillips, Canal Dover, is interested. [April 24, '15.]

**Cincinnati (Ohio) Traction Company.**—Through Assistant City Solicitor Southworth the city of Cincinnati filed suit in Common Pleas Court on Aug. 30, seeking to condemn property for the purpose of straightening Reading Road and to fix the compensation which must be paid to the owners of property taken. This step was taken to secure a shorter route for the extension of the line to Bond Hill and to secure a location where owners of abutting property will not attempt to prevent the laying of tracks. The owners of property on Reading Road between Paddock Road and Mitchell Avenue have successfully combated all attempts to build a railway on that section of the thoroughfare for more than four years, and numerous suits have been fought through the courts.

**Cleveland (Ohio) Railway.**—Operation has been begun on this company's extension on East 105th Street, Cleveland, to Garfield Park.

**Lake Shore Electric Railway, Cleveland, Ohio.**—This company plans to construct a cut-off between Toledo and Cleveland, shortening the distance between the two cities by 5 miles.

**Columbus Railway, Power & Light Company, Columbus, Ohio.**—At a conference between company and city officials on Sept. 1 the company agreed to lay grooved rails on Long and Main Streets. These streets are to be repaved at once for a goodly portion of their length and the company at the same time will renew its tracks. As much of the work will be done before the advent of cold weather as possible.

**Toronto (Ont.) Civic Railway.**—Bids are being considered for the rods, plates and special track work on the Lansdowne Avenue extension of the civic car lines.

**Toronto Suburban Street Railway, Toronto, Ont.**—Construction has been practically completed on this company's extension from Guelph to Toronto and it is expected that operation will soon be begun.

**Eastern Pennsylvania Railways, Pottsville, Pa.**—About \$216,000 will be spent by this company in improvements made necessary by the building of the new 2-mile extension out Nichols Street, Pottsville, to St. Clair. New machinery at the power house at Palo Alto and additions to the car-house will cost about \$100,000.

**Nashville Railway & Light Company, Nashville, Tenn.**—This company has completed the construction of its new tracks to the Tennessee State fair grounds.

**The Dallas (Tex.) Consolidated Electric Street Railway.**—This company is relaying 2410 ft. of double track on Lamar Street between the Texas & Pacific Railway and Cochran Street with 103-lb. girder rails in preparation for the paving of the street. The improvement will cost \$26,000.

#### SHOPS AND BUILDINGS

**Humboldt Transit Company, Eureka, Cal.**—This company has purchased a site at the corner of Harris and J Streets, Eureka, for the construction of a new carhouse. The structure will be 240 ft. x 240 ft. and of frame construction, the pits being of concrete. The building will contain a gymnasium for the use of the employees. It is estimated that the carhouse will cost approximately \$3,000.

**Waterloo, Cedar Falls & Northern Railway, Waterloo, Iowa.**—This company has awarded a contract to the Black Hawk Construction Company to build a freighthouse 40 ft. x 200 ft. on Utica Street near Mulberry Street. The building will be of steel, brick and concrete construction. It is estimated that the cost will be about \$50,000.

**Toronto (Ont.) Civic Railway.**—Bids are under consideration by this company for machine-shop equipment at the Danforth Avenue carhouse.

#### POWER HOUSES AND SUBSTATIONS

**Illinois Traction System, Peoria, Ill.**—This company has received six new transformers for use in its substation at Fithian. The voltage will soon be raised from 15,000 to 22,000 between Champaign and Danville.

# Manufactures and Supplies

## ROLLING STOCK

Independence & Monmouth Railroad, Independence, Ore., will probably purchase a combination freight and passenger car and a passenger coach, it being proposed to electrify the line.

Alton, Granite & St. Louis Traction Company, Alton, Ill., advises that the statement published in this paper for Aug. 28 that the company was expecting to purchase new cars to be used between Alton and St. Louis is in error.

Sandwich, Windsor & Amherstburg Railway, Windsor, Ont., has placed with the Preston Car & Coach Company an order for two closed pay cars with a seating capacity of thirty-two passengers each. This company was reported in the *ELECTRIC RAILWAY JOURNAL* of June 19, as expecting to make this purchase.

Toronto (Ont.) Civic Railway has ordered from the Preston Car & Coach Company the four cars for which it was reported in the *ELECTRIC RAILWAY JOURNAL* of June 5 to be in the market. The cars are to be semi-convertible motor cars of the prepayment type, each with a seating capacity of thirty-two passengers.

## TRADE NOTES

Root Spring Scraper Company, Kalamazoo, Mich., has recently delivered forty of its No. 2 air-operated scrapers to the Cincinnati Car Company to be installed on cars for the Binghamton (N. Y.) Railway.

Smith-Ward Brake Company, New York, N. Y., announces that Herbert M. Weaver is not in any way connected with the company. Electric railways are asked not to recognize him as a member of this company's staff.

A. L. Whipple, formerly of the Whipple Supply Company, has become associated with the Railway Improvement Company, New York, N. Y., as a special representative in the sales department, with headquarters at the company's executive offices, 61 Broadway.

The J. G. Brill Company, Philadelphia, Pa., is shipping to the Chicago & Milwaukee Electric Railroad fifteen new steel cars on their own wheels. These cars were described last week. The cars will go to Highwood, Ill., over the following route; Philadelphia to Youngstown, Ohio, via Baltimore & Ohio Railroad; Youngstown to Chicago, via Erie Railroad; Chicago to Highwood, via the Chicago & Northwestern Railroad.

United States Steel Corporation, New York, N. Y., and its subsidiary companies received a number of first awards at the Panama Pacific International Exposition. Among the companies which received grand prizes were the Carnegie Steel Company, Illinois Steel Company, Lorain Steel Company, American Bridge Company, American Steel & Wire Company and the National Tube Company. The company also itself received a grand prize and a special gold medal for its exhibit as a whole as being the best, most complete and most effective installation, with a special commendation of the educational value of the exhibit. In the system of awards at the Panama Pacific International Exposition the highest award is the grand prize and but one grand prize is awarded in each class.

Sauvage-Ward Brake Company, Inc., New York, N. Y., has changed its corporate name to the Smith-Ward Brake Company, Inc. The Smith-Ward Brake Company announces that there are no changes in the corporation except the retirement of W. H. Sauvage, who has no further interest in the business of the company. The officers remain as formerly: William S. Scott, president; Frank D. Ward, vice-president; George P. Smith, secretary and treasurer. The executive offices are at 833 Whitehall Building, New York City. The Eastern sales agent is the W. R. Kerschner Company, Inc., 50 Church Street, New York. The south-eastern sales agent is J. B. N. Cardoza, Inc., Citizens Bank Building, Norfolk, Va. The business of marketing the S-W brake automatic slack adjusters and other appliances for the electric railway field will be continued.

Esterline Company, Indianapolis, Ind., which manufactures the "Golden Glow" railway headlights, last month

received orders which increased the users of these headlights to one out of every six electric railways in this country. The following properties received "Golden Glow" equipment during August: Gulfport & Mississippi Coast Traction Company; Northern Texas Traction Company; Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company (Dan Patch Line); Iowa Railway & Light Company; Winona Interurban Railway; Humboldt Transit Company; McGuire-Cummings Manufacturing Company, for new cars of the Wisconsin-Minnesota Light & Power Company; Sheridan Railway; Hattiesburg Traction Company; Jewett Car Company for new cars of the Ohio River Electric Railway & Power Company; New York & Queens County Railway; American Car Company, for new cars of the Beaumont Traction Company; Cincinnati Car Company, for new cars of the Binghamton Railway; Georgia Railway & Power Company; Mahoning & Shenango Railway & Light Company; Denver Tramway; Scranton Railway; Empire United Railway; Pennsylvania Railroad; Windsor, Essex & Lake Shore Railway; Helena Interurban Railway; Southern Car Company, for new cars of the New York & Queens County Railway; Austin Street Railway; Hutchinson Interurban Railway; Savannah Electric Company; Terre Haute, Indianapolis & Eastern Traction Company; East St. Louis, Columbia & Waterloo Railway; Baldwin Locomotive Works, for new locomotive of Du Pont de Nemours Powder Company; Wichita Railroad & Light Company; Electrical Engineering & Purchasing Company, for Trinidad Electric Company; Virginia Railway & Power Company; San Francisco-Oakland Terminal Railways; Philadelphia Lighthouse Department; Iron River, Stanbaugh & Crystal Falls Railway; the Panama Canal; Cleveland, Painesville & Eastern Railroad; United Railways of St. Louis; Topeka Railway; Lowell & Fitchburg Street Railway; Detroit United Railway; Atlantic City & Shore Railroad.

## ADVERTISING LITERATURE

Thurman Vacuum Cleaner Company, St. Louis, Mo., has issued bulletin No. 221, bulletin No. 221-A and a reprint from *Clover Leaves* showing the application of the Thurman car cleaning devices to the coaches of the Chicago & Alton Railroad.

American Rolling Mill Company, Middletown, Ohio, has issued a new publication, "Armco Iron Rust Resisting Products," in which are illustrated and described most of the important Armco products as made at the Middletown factory and quite a number of those produced by other manufacturers. The company has also issued a new edition of "Defeating Rust," which covers the inception, development, qualities and uses of Armco iron. "Defeating Rust" has been revised extensively as compared with the edition published a year ago. Armco iron probably made its first bid for fame in culvert form. In "Defeating Rust" considerable space is given to a comprehensive handling of the subject of ingot iron culverts.

## NEW PUBLICATION

Engineering Economics. By J. C. L. Fish. McGraw-Hill Book Company, New York, N. Y. 217 pages. Cloth, \$2.

Intended to meet the first needs of students and also to render effective service in office reference work, this publication should succeed in its mission. Its chief value lies in the concise yet ample elucidation of fundamental principles of economic selection (choice based on long-run least cost) which should be thoroughly understood by engineers, but which are too often overlooked in the close application to principles of mechanics and design. After the introductory Part I, Part II treats of the elements of economic selection, such as interest and sinking funds, first cost, salvage value, yearly cost of service and estimating. Part III tells of the principles underlying the comparison of estimates and the determination of the most advantageous choice of project, material or size. Part IV in bibliographical form presents the contents of the most important works that are cited, as well as depreciation and life tables. Part V is a compendium of formulas and tables of values. Carefully arranged and indexed as it is, Mr. Fish's book offers a very fruitful field for the study of basic engineering economics.