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THE DETROIT CRISIS AND ADVERSARY

"It brought the crisis in the twenty-year warfare with our ancient adversary, the Detroit United Railway." Thus speaks the Mayor of Detroit in telling what the last year did for the city. It is the attitude which such words indicate, whether displayed by company or city, that makes it so difficult to settle public utility problems. "Ancient adversary" and "twenty-year warfare" are not the conciliatory terms that should come from either side in such a controversy. They are not a basis for the co-operative relations that ought to exist between a city and its utilities in order that the best service may be provided. An attitude of this kind is the strongest argument for a state commission to deprive a city wholly of the power of regulation. If a city regards a utility as its adversary it cannot decide what is fair for either itself or the utility. Reasonable action can be expected only from an able state commission which recognizes neither side as an adversary but seeks to develop a reasonable co-operative policy. If the Detroit United Railway is an adversary of the city of Detroit as the Mayor claims, it is not the only adversary in Detroit. It has yet to be proved that the company is an adversary to the growth and prosperity of the city.

MR. ERICKSON'S PAPER ON REGULATION

The midyear conference was fortunate in hearing so expert an opinion on the respective merits of regulation and profit-sharing as it had from Mr. Erickson. The able member of the Wisconsin commission has studied so effectively the problems of public utilities and their relation to public welfare that his views on any issue affecting these conditions are important. In his paper the wholesomeness of the policy of state regulation is set forth in contrast with the dangers of a substitute policy of profit-sharing. Any plan of division of earnings in a municipality necessarily means local regulation instead of state regulation. This is a detriment. It also means, as Mr. Erickson says, a tendency to place the advantage of the taxpayer above the interest of the user of the service. The reason why this is unwise is that the user of the service may feel that something is taken from him and given to the taxpayer. If that is his conclusion, he may resent it. It is true that the so-called profit is but a misleading name for a tax and that the amount of it is part of the cost of operation. This cost the user of the service has to pay. Franchises have not been drawn on wholly economic grounds. Sometimes economic laws have been rudely disregarded. The terms of contract have been fixed

by barter between a company and the city officials in power at the time. These officials would enter into a contract on terms involving so-called profit-sharing. They would not enter into a contract on other terms. The bargain was made and the future left to the "rough play of economic forces"; and all must admit that these forces have had their inning. The equitable basis of relations between the companies and the public is regulation by a higher power than a municipal body. Mr. Erickson has done a good service to both public and companies in pointing this out in the way in which his unique subject and his discussion emphasized it.

ADMINISTRATION VIEWS ON HOLDING COMPANIES

In his message of Jan. 20 President Wilson startled the country by saying: "We are agreed, I take it, that the holding companies should be prohibited," and then he asked whether the owners of stocks (presumably those who own a majority in a holding company) should not be forced to divest themselves of stock control of all but one of the corporate fragments into which the holding company is to be broken. Whatever one may think of companies organized to secure the control of competing interstate railroads, such as the famous Northern Securities Company, it was almost incredible that the administration should seriously contemplate a campaign against holding companies as they are understood in the electric railway and lighting field. It was, therefore, satisfactory to read in the daily papers early this week the semi-official denial that interference was being considered with this kind of holding company. Indeed, any such plan would be almost a catastrophe not only to the electrical industry but to the smaller communities which now enjoy electric service which they could not possess without the device of the holding company. Such bodies are organized not to stifle competition but to give the benefit of expert aid in engineering, operation and finance to scattered plants whose existence otherwise would often not be warranted. Each isolated plant may be a monopoly within its own territory, but practically all political economists believe that municipal utilities must be monopolies if the greatest efficiency is to be secured. The holding company organization is obligatory in a plan of this kind because each local operating company usually must incorporate under the laws of the state where its service is given so as to secure the right of eminent domain and other privileges. To go back to the old plan of separate ownership would not only greatly cripple many existing undertakings but would probably lead to the abandonment of some of them and the loss of their services to the cities concerned.

RATE OF FARE AND RIDING HABIT

The paper of Mr. Hild at the midyear meeting of the American Electric Railway Association is a clear refutation of the claim often made by advocates of low fares for city railways that "the lower fares will induce so much more travel as more than to offset the losses due to the lower rates." It would be easy to show the falsity of this claim by a *reductio ad absurdum*. For instance, if the statement is broadly true, and a 4-cent fare is desirable, a 3-cent fare should be even better and a 1-cent fare would be the height of wisdom. The truth is that the rule has so many limitations so far as electric railway operation is concerned as practically to nullify it. As Mr. Hild says, the rate charged for transportation is one factor only of those which affect railway traffic, and it is by no means the most important. Very properly, he puts safety first and service next. He also calls attention to the fact that European practice in regard to low fares establishes no criterion for American practice because, while the fares are low, the ride is short, and the result is that the receipts per car mile do not differ greatly from those in this country.

Of course, purely as an abstract proposition, a reduction in fare on a street railway seems a desirable thing to the average citizen, just as would a reduction in the price which he would have to pay for any commodity, provided he can get the same commodity or the same service for the low price that he formerly did at the high price. Consequently, when low-fare campaigns are being conducted the advocates of the reduced fare have never, so far as we know, proposed that the railway company should reduce the character of service or the length of ride to make up for the lower fare. But if given a choice between a reduction in service and a corresponding reduction in fare, we do not believe that the American people as a whole would ever choose the latter.

We base this conclusion upon the experience of the past. When gas was introduced as an illuminant it was more expensive than oil, and it still is, but most people who have the opportunity to make the choice prefer to pay the higher price for the better service. The same principles apply in a comparison between gas and electricity as an illuminant and are equally true in the field of city transportation. The electric railway passenger of to-day travels in luxury compared with his predecessor of twenty or even of ten years ago. He enjoys better lighting, better heating, better ventilation and greater comfort, and he is carried a far greater distance for the same fare. One can hardly realize the extent of the improvements made during this period unless he sees the modern car and the ancient car side by side. Yet we do not believe that there is a city in this country which would be willing to return to the old order of things, if it were possible to do so, in order to gain a reduction in fare of, say, a portion of a cent.

The fact is that the increased cost of operation plus the increased demand for better facilities have brought about a condition where the former rates of fare are

no longer adequate. Indeed, it is becoming more difficult every day for the electric railway companies to make both ends meet even with a 5-cent fare. The problem in most cities is not how to prevent a reduction of the fare from 5 cents but how best to put in force a higher average fare than 5 cents. Should there be a uniform fare at a higher rate? Or should a charge be made for transfers? Or should a zone system be adopted for the longer rides? These are really vital questions which will have to be answered before long, and the railway companies should be in a position to answer them when that time comes.

THE WORK TO FOLLOW THE MIDYEAR CONFERENCE

In deciding to adopt a code of principles the American Electric Railway Association has taken a constructive step. This is the most important act of the midyear conference. It is the promised contribution of the conference to the industry. Just how purposeful the principles will be has yet to be seen. Just how effective they will be cannot be told in advance. This much is clear: The real work is still before the industry. A decision to declare principles must come before the principles can be drawn. But the drawing of them, no matter how carefully or laboriously done, is only a part of the real problem. Assuming plain and fair principles, the test of them will come when the association asks the companies to make the principles their own. If there is failure at this point, the whole effort will be useless. If the companies do not adopt them, the public cannot be expected to accept them as representing the views of the companies. It is the companies, acting individually, that will have to live up to the principles if, as an effort to help the industry, these principles are worth the paper they are to be written on.

The announcement of President Black at the dinner, pledging the association to the new policy, well emphasizes the usefulness of the conference to the industry. Here was a matter which had long been the subject of informal discussion and correspondence. The public relations problem worried the companies. The public relations committee met and adopted a constructive program, and it became at once the most vital topic before the industry. In doing as it has done the committee speaks for the industry. It would have been interesting if this action could have been made the subject of general discussion as part of the program at Friday's conference. Railway executives express views in their meetings that are of direct interest and importance to other railway officials. But the code of standards of the association, if effective, will be of direct interest and importance to the public. The best thought of the industry will have to be directed toward the successful consummation of the policy from now on, therefore, in order that it may represent, not alone the remedies which railway officials express privately to others, but those which they can fairly outline to the public as salutary. If the 1914 midyear conference was measured only by its public relations work, it would amply justify the large expenditure of time and money which officials of member companies contributed. Thus

to elevate the work of the committee is not to reflect upon the other well-planned features of the meeting; it is simply to point to the work of the committee as a word of hope to an industry in trouble.

WHERE DOES THE ASSOCIATION STAND ON PUBLIC RELATIONS?

The speech made by Mr. Tripp at the American Electric Railway Association dinner is a first-rate analysis of present conditions. If we did not urge our readers to heed it and the association to follow its recommendations, we should fail to do our plain duty. Fortunately the association has already resolved to declare the principles it stands for. Mr. Tripp's long experience as an operator has taught him the practical and inherent difficulties of the companies. He knows that the problems have been many and insistent and that the companies are not yet out of the woods. From his large experience he has formulated principles for the industry to adopt if it will. But before outlining policies he accurately describes difficulties which hamper the effort to make public relations satisfactory.

Mr. Tripp mentions the effect of arrested development due to inability of the companies to market securities. It is not surprising to hear the speaker's opinion that the cause of this effect cannot be told in a word. As we understand Mr. Tripp's idea, it is that, no matter what or who is responsible, conditions must be dealt with as they are; not as they might have been, not as they will be or may be, but as they stand now. Whether public relations are the cause or the effect, Mr. Tripp would improve them and thus let them be the new cause of a new effect. In other words, if these relations become good, the wider market for securities will necessarily follow.

Use has made the term "educating the public" familiar. The thought behind Mr. Tripp's suggestion should cause it to be discarded. As a substitute he would deal with the public through "co-operation." It is easy to wave this aside by saying that there cannot be co-operation unless the public will co-operate. But what the industry wants is the help of a constructive suggestion, and that is offered. It should not be rejected. It is not easy to lay down a program which will lead the public to see that its fair part is to co-operate. Yet the speaker, in elaborating his suggestion, did not fail to remind the companies that they as well as the public have corrective acts to perform. First, Mr. Tripp would correct, repeatedly and with provable statements of fact, misstatements by "self-appointed advisers of the people." To the untruths, the half truths and truths expressed in a misleading way in deliberate or ignorant magazine and newspaper articles effective rejoinders should be made. Often the correction will not be noticed. Often, if noticed, it will be garbled. But in time the results will count. Until that time patience and determination will be required.

In brief, the plan discussed by Mr. Tripp and arranged for almost simultaneously and independently by

the committee on public relations is to have the association stand for a code of ethics. Shall it represent the best ideas of the times with respect to business practices, and shall the companies depart therefrom at their peril? Or shall it represent the practices of the times, and shall the ideas of the public be conformed thereto? Or are the best ideas of the times and the practices of the times the same? If they are not the same, they ought to be. If they are, let the association say so. Companies that lag behind the line of standards would undoubtedly, as Mr. Tripp realizes, be affected. But would the mismanaged companies be affected as seriously by a standard which they do not measure up to as the well-managed companies are affected by the backwardness of companies that do not try to reach a high standard? The answer should be that the association, seeking the advancement and good of the industry, will set out in writing the best and fairest standard that it can frame. Starting from the present, the duty then will rest upon each company in the industry, not to lower the standard, but to live up to it as best it can. We heartily indorse the plan for a declaration of principles. It should be strong, straightforward and fair to the public interest.

THE M. C. B. BRASS SHOULD BE DISCARDED

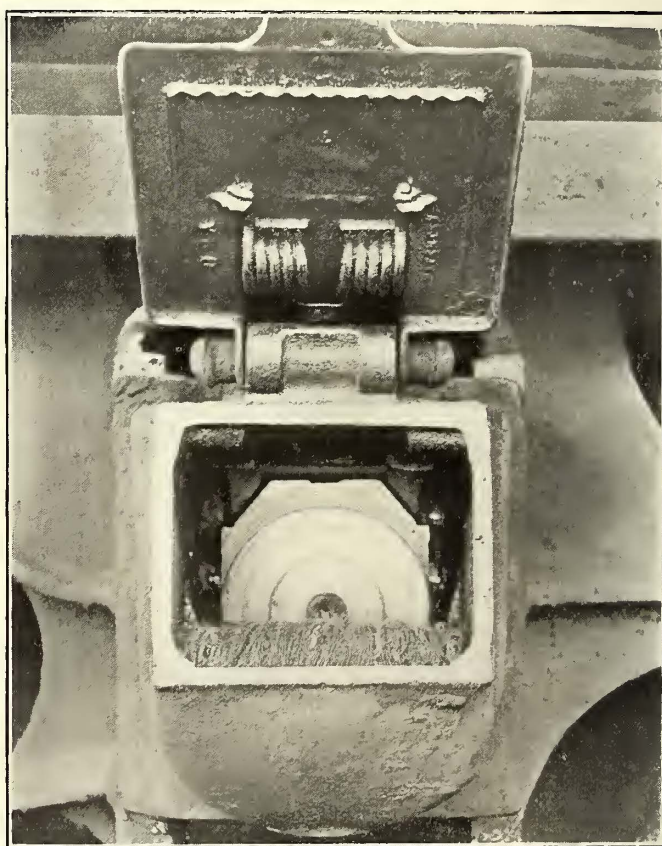
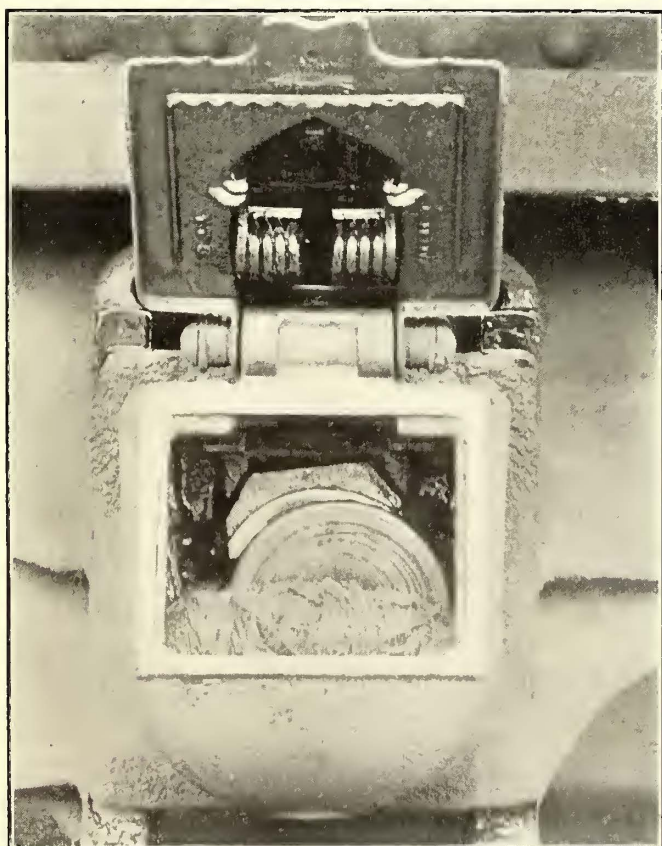
From time to time during the past two years we have endeavored to call attention to the unsuitability of the standard M. C. B. brass for passenger equipment subject to high acceleration and braking. These comments were based upon the possibility of the journal shifting out from under the shallow bearing when heavy brake applications were made, and they were supported by ample circumstantial evidence. Now, in the article on the New York, Westchester & Boston Railway, published elsewhere in this issue, additional evidence on the point is submitted, and it is *prima facie* in character. After one sees the two illustrations on page 220 it will be difficult indeed for him to advocate the continued use of the M. C. B. design in this class of service. In one illustration a journal is shown to have moved so far and the brass to have tilted to such a degree that, obviously, the only restraining influence against further motion is the striking of the journal on the rough surface of the cast-iron box. Certainly no extended argument is needed to demonstrate that this must produce hot boxes, to say nothing of the damage to the fit of the babbitted brass on the journal. Both the New York, Westchester & Boston Railway and the Interborough Rapid Transit Company have effected an astonishing reduction in hot-box troubles by the use of a special brass of practically full semi-circular cross-section, and there is absolutely no excuse for the electric railways operating a high-speed, frequent-stop service to retain as a standard a brass which was manifestly designed for freight cars with about 30 per cent braking power. It would be well for the A. E. R. E. A. committee on equipment to consider this subject with the idea of recommending a design of brass which would not be subject to the glaring defects of the M. C. B. standard.

Maintenance of the Mechanical Equipment of the New York, Westchester & Boston Railway

On This Suburban Line, Which Has Been in Operation for Nearly Two Years, the Cost of Maintenance and Inspection for the Cars and Their Equipment Has Been Reduced to Approximately 2 Cents per Car Mile—An Account Is Given of the Early Difficulties Which Were Experienced and of the Means Taken to Overcome Them

The New York, Westchester and Boston Railway, a high-speed suburban line extending northward about 20 miles from New York City, was described in a series of articles in the *ELECTRIC RAILWAY JOURNAL* during 1912. It was opened to traffic on May 29, 1912, and since that time the mechanical and electrical costs have been steadily decreasing until the total maintenance charge is now less than 2 cents per car mile. These

the early months of operation much of this was due to the fact that both the overhead conductor and the road-bed were new and had not settled into their proper working positions. The troublesome points were, of course, eliminated as soon as they were exposed by actual operation. Pantograph shoes were found to have but a short life owing to the excessive wear and to the burning of the arcs. However, as pointed out in a



Westchester Equipment—Result of Emergency Application of Brake with Standard M.C.B. Brass and with Special Semicircular Brass

This is ocular proof of one cause of hot-boxes. For some time past it has been suspected that journals were shifted out from under their brasses under heavy brake applications, and full-semicircular brasses have been recommended instead. These illustrations furnish unanswerable support of the contention, and demonstrate that the M.C.B. standard brass is unsuitable for passenger cars.

results, however, were not obtained without many investigations and experiments. In fact, during the early days of operation the difficulties appeared almost insurmountable, and it has only been by the introduction of numerous changes and improvements that the present conditions have been reached. In this article the difficulties with the mechanical equipment are outlined, and the means which were taken to eliminate them are described in detail. The experiences with the electrical apparatus will be treated in a later article.

PANTOGRAPHS

Since the road was opened a certain amount of trouble has been experienced with the pantographs. During

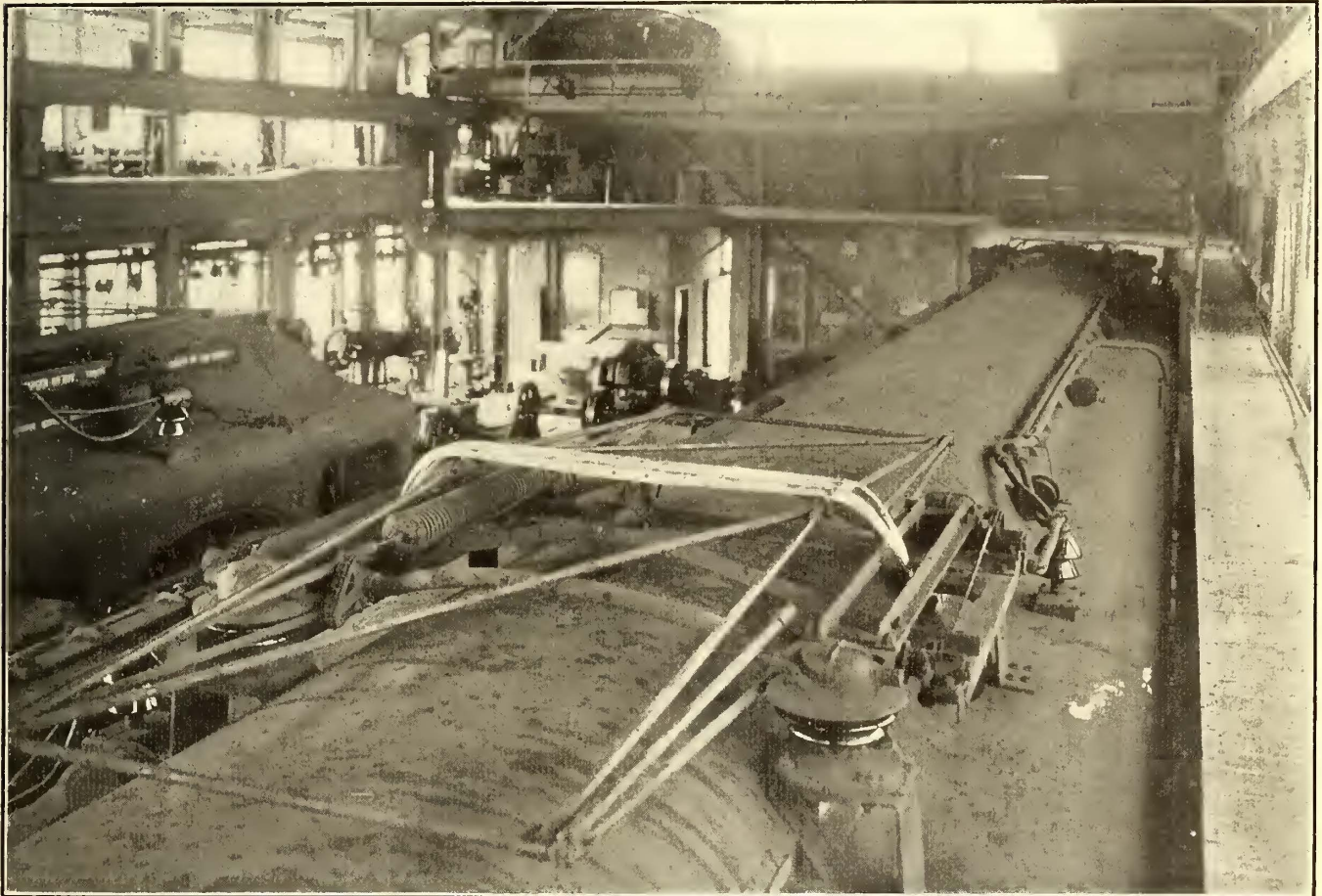
recent communication to these columns from R. R. Potter, superintendent of equipment, since that time the steel contact wire has worn slightly flat, thus providing a contact which is an actual area rather than a single line. All of the burning has been eliminated, and the abrasion has been reduced materially. In the early days, also, the wrecking of pantographs was no unusual matter as their extremely light construction makes them susceptible to destruction even when they are caught only partially in the overhead work.

The pantograph frames, it should be said, are constructed of light seamless drawn tubing, the metal being only about No. 22 gage. The pantograph is extended or held up by means of a long spring in tension which

is capable of considerable adjustment. It is lowered by an air-operated piston which pulls against this spring, and the whole framework rests upon insulators mounted on the roof of the car, the current passing through the framework on its way to the transformer. The extreme lightness of the construction is necessitated because at high speeds the pantograph must follow the variations in height of the conductor wire without any tendency to bounce away from it; and, following out this idea, the pantograph shoes are made of 1/16-in. metal and weigh only 7 lb. Increased mileage could, of course, be obtained by increasing the thickness of the shoe, but this would add weight at a point where the increased inertia would make it difficult for the pantograph to follow irregularities in the overhead construction. Horns of aluminum are provided at each side of the shoe in order to prevent the shoe from catching at its side on the wire, and a latch is bolted to the center

The original shoes were made with a groove in which was placed grease, but the use of grease has been abandoned, as the management has decided within the last year that it is unnecessary.

It has also been found that the pressure of the shoe against the contact wire should be as light as possible, and the company is now using a pressure of 10 lb., measured when the pantograph is being pressed down. This adjustment, made by the springs already described, will permit the pantograph to rise about 1 ft. above the normal height of the contact wire. During the spring and autumn, however, on account of the variable weather and the alternate expansion and contraction of the catenary, the pantograph is adjusted temporarily so that it will go to the full height of 1 ft. 9 in. above the normal height of wire. This requires an additional pressure of from 4 lb. to 5 lb., but as soon as the overhead work adjusts itself permanently for winter



Westchester Equipment—View from Pantograph Gallery in Shop, Showing Top of Car

of the shoe so that it may be held down when in its lowest position. The whole shoe with the horns and latch weighs but 13 lb.

At present the galvanized-iron shoes are being replaced by black mild-steel shoes of the same thickness, it having been found that a slightly greater life may thus be obtained. The black steel shoes give an average life of 2600 miles, and this, with the present thickness of shoe of 1/16 in., seems to be about the best that can be obtained. These shoes are formed from sheet metal in the wheel press, which is equipped with special dies for the purpose. The operation requires two men, shoes being turned out at a rate of seventy per hour. The pressure is limited by a safety valve to 100 tons as more than this pressure prevents the shoe from being correctly formed. The 1/16-in. galvanized shoes originally used required only 75 tons pressure.

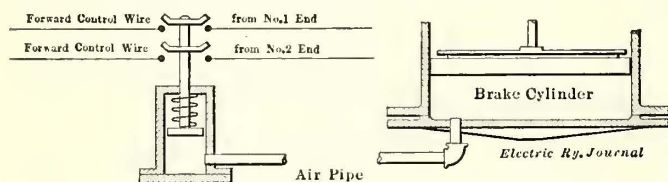
or summer conditions the pressure is again reduced to the original figure of 10 lb.

An important addition to the pantograph equipment consists in what is called a "ground hook." This is a latch hook on a short piece of cable which is grounded to the roof of the car, and it is used to hold the pantograph in its lowest position whenever anyone is working upon it. When the ground hook is in place, even if some one in the cab should attempt to raise the pantograph, it cannot reach the normal lowest height of wire, and if the pantograph at the other end of the car should be raised, the overhead wire would be at once grounded through the connection to the car roof, thus throwing out the circuit breaker at the nearest anchor bridge. A stringent rule has been made that no one must work upon the roof of the car except when these ground hooks are in place. As a consequence of this

precaution, no accidents of any kind have occurred through motormen, inspectors or repairmen touching a live pantograph or having current turned on to the pantograph upon which they were working. Two of these ground hooks are to be provided for each pantograph on all future cars. On each car is also provided a long stick with a hook at the end for use in case a pantograph should remain partially raised when in a damaged condition. The stick is impregnated with oil and is therefore a non-conductor, insulating the man who holds it so that he may work on the live overhead construction with impunity.

One feature of the construction on these cars which is unusual is that the rubber hose inserted in the air line which controls the pantograph operating cylinder and the holding-down latch is fully 6 ft. long. This hose connects the air pipes, which are grounded, to the pantograph cylinder, which is charged with 11,000 volts pressure, and in consequence it has to insulate the live construction from the ground when the pantograph is raised. On other single-phase roads it has been the experience that shorter hoses have deteriorated very rapidly due to the action of creepage current, but on this line no such trouble has occurred, and up to the present none of these hoses has been replaced.

The high-tension insulators at the pantograph base have seldom been broken, and none of them has ever broken down electrically. On future cars, however, the insulators are to be made with ball-joint tops so that the pantograph frame will assume a natural bearing on all four supports. On the pantograph frames and bearings, which have been running steadily for



Westchester Equipment—Diagram Showing Arrangement of Air-Brake and Control Interlock

one and a half years, no wear is observable, but a great deal of attention is paid to them on account of the necessity of keeping them moving very freely. In fact, it is believed that the elimination of much of the pantograph trouble has been due to the policy of the company in keeping the pantograph exceptionally light and free-moving.

AIR-BRAKE AND CONTROL INTERLOCK

Another important improvement which was applied to the cars consisted of an interlocking device which prevented the application of power to the motors whenever there was air pressure in the brake cylinders. This was installed because it had been found when cars dragged in starting, as they would if the brakes were not fully released, that the short-circuiting current on the commutator bars was very injurious to the commutator and that the resistance leads in the armature became very hot.

In effect the device consists of a double-throw switch, placed in the control-circuit from the controller at each end of the car, which opens and closes the main switches for the movements ahead, but not for movements in the reverse direction. This double-throw switch is operated by an air cylinder which is connected to the brake cylinder on the car through a small air pipe. When there is air pressure upon the small cylinder the switch is held open, but when the air pressure is released, or, in other words, when the air is removed from the brake cylinder, a spring returns the

switch to closed position, thereby enabling the motorman to apply power to the motors.

While the main reason for installing this device was to prevent starting the cars as long as there was air pressure on the brake cylinders, an incidental advantage has been found in that it prevents cars from dragging after a heavy application and release have been made, and in this way it saves considerable current. It also has a tendency to make trains come to an actual stop at all stations, a feature of some value, as sometimes motormen display a tendency to run past stations without making an actual stop when they see no passengers on the platform as they approach it. In making a stop on this line the rules call for a heavy reduction in brake-pipe pressure for the first application, the air being graduated off as the train slows down, and since the interlocks have been applied it has been found that, notwithstanding the belief of the motormen that the power consumption would be increased by their installation, it has actually been decreased by eliminating the dragging, as shown by the recording wattmeters which are installed on all of the cars on the line.

BRAKES

In addition to the installation of the air-brake-control interlock, as previously described, certain other changes have been made in the brakes. These are of the Westinghouse A.M.C.E. type, and a certain amount of trouble with stuck brakes has been experienced. The necessity for waiting until the pressure chamber has leaked off enough pressure to release the brake, thus causing a serious delay to the train, has been eliminated by placing a release valve on the pressure chamber of the control valve. By opening this by hand from the ground the brakes are released, and delays from this cause are now never in excess of one minute, which can be made up.

It was also found that if inspectors, after changing brakeshoes, set up the slack adjuster to give a 2-in. travel of the brake cylinder pistons, which is sufficient to give slack to the shoes on the wheels, the brakes would not hold satisfactorily when the car went into service. On the other hand, a travel of 4½ in. was found to give satisfactory results, this being the travel at which the slack adjuster works. This unusual condition was traced to the angularity of the brake levers, which was sufficiently acute with the extremely short piston travel to reduce materially the effective pressure upon the shoes, practically the same pressure being applied to the piston regardless of the travel, as the application in this type of brake is made from the main reservoir on each car.

Several other minor changes in the brake rigging and piping were made, among them being the installation of a short nipple close to the end of the train line, so that broken hose nipples did not involve dismantling a considerable length of pipe. The feed valve for the control of brake pipe pressure was placed inside the car on account of its tendency toward freezing up in cold weather, and the feed groove in the quick-action slide valve was enlarged to prevent undesirable emergency applications under normal reductions of brake-pipe pressure. A relief hole was drilled in the cutting-in cock for the air-compressor governor, as it was found that the leakage past the piston moving the control switch was sometimes insufficient to start the compressor. Since there is a main reservoir on each car of the train in this brake system, it was found necessary also to put a choke fitting in the hose connection between the main reservoirs on adjacent cars, for the reason that when a train was broken in two the main reservoir pressure would otherwise be exhausted into the atmosphere without making a sufficient application of the brakes.

The "clasp" brakes, which provide two shoes to each wheel, have been found very satisfactory on the motor trucks, and their use will be extended to the trailer trucks on all future cars. Brakeshoe heads, it should be said, are kept in line with the tires by the use of a spring lock washer between the hangers and the sides of the head, the whole being bolted up tight, the shoe and head adjusting themselves to the wheel upon the first application of the brakes.

TRUCKS

In general, trucks are shopped only for worn wheel flanges, although not a great deal of this trouble is experienced. The cause next to this in frequency for shopping a truck has been broken gears, it having been found that with cast-steel gears the spokes cracked, while with tempered-steel gears the teeth were sometimes broken out. Out of twelve flexible gears which were supplied for trial with the original cars three have been removed on account of various defects due to insufficient strength. These flexible gears are made with a loose rim held from turning on the hub by means of springs. However, the flexible gears have been redesigned recently and these, it is said, will be eventually made standard on the road, as their ability to absorb vibration is very advantageous with the alternating-current motors. Case-hardening of the wearing surfaces of the teeth is found to be desirable under all circumstances, as the strains upon the gear teeth due to vibration are very severe. The case-hardening process gives a sufficiently hard external film of metal for a wearing surface but permits this to be backed up with soft metal considerably less brittle and less subject to fracture.

Trucks are occasionally brought into the shops on account of the necessity for turning and slotting commutators, but this work is generally done when the truck is in the shop for other work. Journal-box shoes do not wear at all on the motor truck on account of the clasp brake which is used. On the trailer truck, however, the common type of single-acting brake is installed and this causes a considerable amount of wear upon the shoes and boxes, a special lubricating device being under consideration at present.

The original truck center plates were found to be difficult to lubricate on account of the cast-steel-on-cast-steel bearing. These ran absolutely dry in spots, and to eliminate the trouble the truck center plate was babbitted by running $\frac{1}{4}$ in. of hard bearing metal into it. Since this has been done no further trouble has been experienced with the center plate lubrication, the improved quality of the cast-steel-on-babbitted bearing being one reason for this and the flowing of the babbitted so as to give a larger bearing surface regardless of irregularities on the upper plate being another.

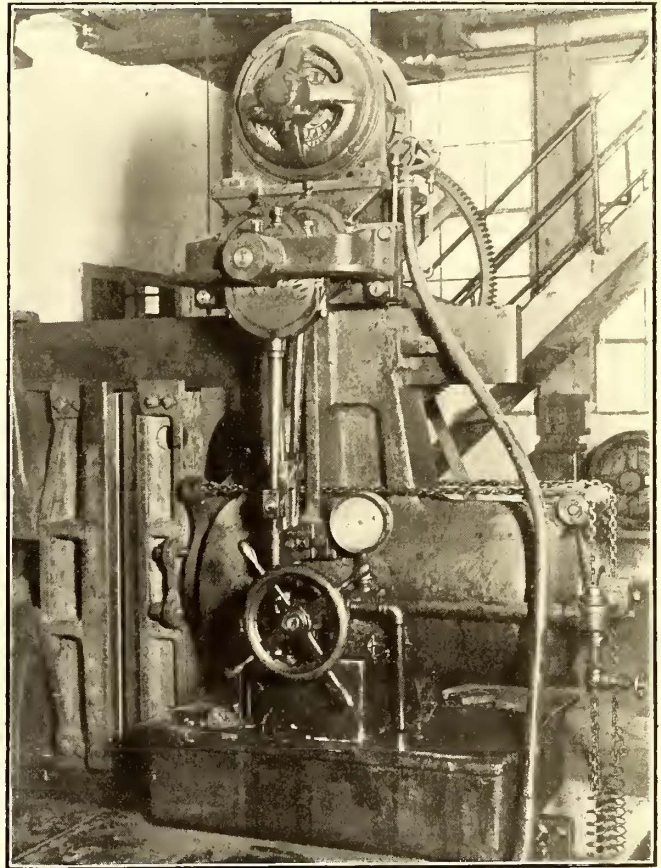
There appears to be no working of any of the members of the truck notwithstanding the year and a half of service through which they have passed. This is probably due to the fact that the trucks are made up of pressed-steel shapes throughout and are heavily riveted together. The truck has, however, been changed slightly from the original design, as shown in the *ELECTRIC RAILWAY JOURNAL* for March 30, 1912, page 496. The change consists in the addition of plates which have been riveted to the end frames at the top and extend back diagonally to the side frames. These were installed because it was found that the pull from the brakeshoes was bending down the truck end frames.

No spiral springs have been renewed, but eight of the leaf springs supporting the bolsters have failed on account of insufficiently reinforced ends. It is intended in the future to replace broken springs with springs having box ends, the ends of the leaves being held to-

gether by a U-shaped clip. Flat wheels, it should be said, are practically unknown, only four cars having developed them at the commencement of operation. Three of these cases were caused by a bad rail and one by a hand-brake which was left set when the car left the terminal.

Hot journals on the motor trucks are practically unknown, but on the trailer trucks a considerable amount of trouble has been experienced. This was found to be due to the fact that the latter trucks were equipped with M.C.B. brasses which had insufficient depth to hold the axle in place during an emergency application of the brake. The illustrations on page 220 show the effect of emergency application to the brass as originally installed and as installed after the difficulty had been discovered and remedied.

One of the halftones shows the effect of an emergency application on a 5-in. x 9-in. M.C.B. brass on a trailer axle. The photograph was taken when the car was standing still, and it was found that the brass started



Westchester Equipment—View of Standard 400-Ton Wheel Press with Dies in Place for Forming Pantograph Shoes

The dies, which stand in a vertical position, are shown at the extreme left of the illustration between the ram and the yoke, one die being attached to each.

to leave the journal at about 60-lb. brake-cylinder pressure, the full emergency application producing a brake-cylinder pressure of about 95 lb. With the car moving the vibration would probably cause the journal to be pushed out from under the brass at a still lower pressure, and it is quite possible that the journals are pushed out even when the full service application is made, as a train-pipe pressure reduction of 20 lb. gives a pressure of 50 lb. in the brake cylinder.

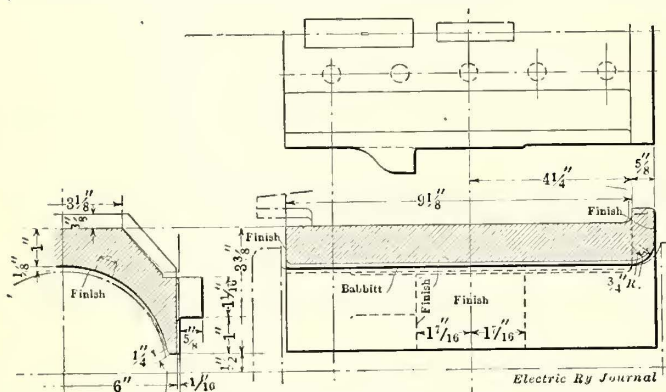
The other halftone shows the special $5\frac{1}{2}$ -in. x 10-in. brass designed especially for the motor trucks of these cars and having long ears at each side, thus providing a practically full semicircle of bearing surface on the journal. In the case in point one of these $5\frac{1}{2}$ -in. x

10-in. brasses has been placed upon the trailer journal, which is 5 in. x 9 in., and the difference in diameter has been filled out with babbitt. It will be seen that the emergency application has not shifted the journal under the brass in the slightest degree. The emergency braking pressure is about 90 per cent of the wheel load.

CAR BODIES

No bad effects from the vibration of the single-phase motors have been observed on the car bodies, which are, as previously described in these columns, built up of pressed-steel unit sections. Only one car has been in a collision. This occurred between an electric locomotive with a freight train and a motor car before the road was in operation, and, although the collision was very severe, all of the damage was concentrated at the car platform, the car body not being affected in the least and not even a light of glass being broken.

During the past year a paint shop has been erected, and the cars are now being re-varnished. It has been found necessary to apply only one coat of color and two coats of varnish to the bodies. On account of the use of steel trolley wire and steel contact shoes a great deal of rust is deposited, and the roofs, originally painted a dark-gray color, are now being painted to match the rust which falls upon them. This rust during storms is washed down over the sides of the cars and makes an excessive amount of cleaning necessary. In addition,



Westchester Equipment—Special Brass with Long Side Extensions to Prevent Shifting of Journal

it is also found to have a bad effect on the varnish, but this bad effect is now being overcome by use of an oil cleaner, and it is expected that cars will need re-varnishing only at eighteen-month intervals.

INTERIOR FITTINGS

A few changes in the car-body interior fittings have been made, of which probably the most important is the installation of motorman's safety gates which fold across the controllers when not in use, so that the motorman, before he can start the car, is compelled to bring them out into place and is thus protected from falling out of the platform door when he is at work. The car as originally designed had 108 deck lights which could not be opened and were used only for the purpose of lighting the ceiling of the car. It was found that they could not be kept tight and that, in consequence, whenever a heavy rain occurred the roof leaked quite badly. It was finally decided that these lights were not necessary, so that they have been covered with metal strips which are soldered to the car roof. The company also plans to use brass guides for the sash as it has been found that varnished wood or metal makes the sash stick. Sash balances are to be eliminated as they tend to raise the sash when not in exact adjustment and thus cause drafts in the car. Brass beading

strips are also to be installed eventually for the sash, as it has been found that the wooden beads splinter.

COMMITTEES OF THE ENGINEERING ASSOCIATION

J. H. Hanna, president of the American Electric Railway Engineering Association, has announced the appointment of the following committees for the ensuing year. These include all of the committees of the association except those on power distribution and subjects, which were published in the issue of Dec. 13, 1913. There is still one vacancy in the list of members which will represent the Engineering Association in the joint committee on transportation engineering, two vacancies in the committee on power generation and three vacancies in the committee on buildings and structures.

WAY MATTERS.

Chairman, C. S. Kimball, Washington, D. C.; vice-chairman, H. F. Merker, East St. Louis, Ill.; E. H. Berry, Cincinnati; C. H. Clark, Cleveland; E. P. Roundey, Syracuse, N. Y.; W. F. Graves, Montreal; R. C. Cram, Brooklyn; C. W. Gennet, Jr., Chicago; J. B. Tinnon, Joliet, Ill.

HEAVY ELECTRIC TRACTION

Chairman, E. R. Hill, New York; vice-chairman, E. B. Katté, New York; Hugh Hazleton, New York; W. S. Murray, New Haven, Conn.; J. M. Bosenbury, Peoria, Ill.; C. H. Quinn, Roanoke, Va.

EQUIPMENT.

Chairman, F. R. Phillips, Pittsburgh; vice-chairman, W. G. Gove, Brooklyn; L. M. Clark, Indianapolis; J. P. Barnes, Syracuse, N. Y.; W. R. McRae, Toronto, Ont.; R. N. Hemming, Anderson, Ind.; F. J. Doyle, Schenectady; F. W. Garrett, Boston; D. E. Crouse, Annapolis, Md.

STANDARDS.

Chairman, H. H. Adams, Chicago; vice-chairman, Martin Schreiber, Newark, N. J.; F. H. B. Paine, Philadelphia; E. B. Katté, New York; G. H. Pegram, New York; W. H. Roberts, Akron, Ohio; Norman Litchfield, New York; F. R. Phillips, Pittsburgh; B. F. Wood, New York; G. W. Palmer, Jr., Boston; E. R. Hill, New York; C. S. Kimball, Washington; C. F. Bedwell, Newark.

BLOCK SIGNALS FOR ELECTRIC RAILWAYS.

Chairman, J. M. Waldron, New York; Gaylord Thompson, Trenton, N. J.; C. H. Morrison, New Haven, Conn.; J. Leisenring, Peoria, Ill.

ELECTROLYSIS.

Chairman, Prof. A. S. Richey, Worcester, Mass.; E. B. Katté, New York; G. W. Palmer, Jr., Boston; E. J. Blair, Chicago.

LIFE OF RAILWAY PHYSICAL PROPERTY.

Co-chairman, Martin Schreiber, Newark, N. J.; R. B. Rifenberick, Detroit; Edwin Gruhl, Milwaukee.

TRANSPORTATION ENGINEERING.

Co-chairman, R. N. Hemming, Anderson, Ind.; E. T. Munger, Portland.

ENGINEERING ACCOUNTING.

Co-chairman, J. P. Barnes, Syracuse, N. Y.; J. P. Ripley, New York; Martin Schreiber, Newark, N. J.; F. A. Bagg, Gloversville, N. Y.; Lee H. Parker, Boston.

POWER GENERATION.

Chairman, B. F. Wood, New York; vice-chairman, W. H. Sawyer, New York; L. E. Sinclair, Washington, D. C.; J. W. Welsh, Pittsburgh; L. P. Crecelius, Cleveland; R. J. S. Piggott, New York; G. C. Hall, New York.

BUILDINGS AND STRUCTURES.

Chairman, C. F. Bedwell, Newark, N. J.; H. G. Salisbury, Toronto, Ont.; L. C. Datz, New Orleans, La.; W. B. Ingham, Newark, N. J.; R. C. Bird, New York; F. H. Miller, Louisville, Ky.

Electrolysis Mitigation in Springfield, Ohio

This Is an Abstract from a Bulletin of the Bureau of Standards by E. B. Rosa and Burton McCollum, the Joint Authors of Two Previous Articles on Electrolysis Which Were Published in the Issues of Jan. 3 and Jan. 17

In Bulletin No. 27, recently issued by the Bureau of Standards and written by E. B. Rosa and Burton McCollum, respectively chief physicist and associate physicist of the bureau, there is presented a report upon the conditions with regard to electrolysis existing in Springfield, Ohio, and also recommendations as to methods for mitigating the damage from this cause. The findings are given in abstract in the following paragraphs:

The Springfield Railway installed, some time ago, a return feeder system consisting of a number of insulated overhead copper feeders running directly from the busbar to various points in the track. The experimental data secured by the engineers of the Bureau of Standards show that this feeder system has brought about a material improvement in electrolysis conditions in Springfield, but that some modifications of this system will be necessary before a satisfactory degree of protection will be assured. A study of the system as it now exists shows that with certain modifications, which are set forth in detail below, trouble from electrolysis to the water and gas pipes can be very satisfactorily eliminated.

INTERCONNECTION OF TRACKS

The proper interconnection of the tracks of the Springfield Railway and of the Ohio Electric Railway at all crossings is of prime importance, not only because of the marked economy that would result, but also because of the fact that it would be practically impossible by any means to secure satisfactory electrolysis conditions if these railway tracks were not electrically interconnected. The tracks on North Street will have when the present rehabilitation work is complete rails weighing 90 lb. per yard, having a resistance of about 0.024 ohm total between Isabella and Sycamore Streets, the distance being approximately 10,000 ft. The Springfield Railway tracks on Main Street will be for the most part 60-lb. rails, having a resistance of 0.0037 ohm for the entire distance between Isabella and Sycamore.

The current of the Ohio Electric Railway which may be considered as originating at point *D* on the accompanying charts, east of Lagonda Avenue, amounts to approximately 400 amp on the average. The current of the Springfield Railway line coming from west of Lagonda is during the average day load of the order of about 1000 amp. This is, of course, distributed over the entire city, but for purposes of illustrating the advantage of the interconnection of the two railway track systems it may be assumed that a load of 500 amp is concentrated on west Main Street in the vicinity of Western Avenue.

This will, of course, not represent an actual condition, but it would give a total drop on the Main Street tracks to the power houses that is approximately equal to that produced by the distributed load actually existing there. Under these assumptions the drop on the Ohio Electric tracks along North Street between point *D* and the Ohio Electric power house at point *B* would be the current multiplied by the resistance. This equals $400 \times 0.024 = 9.6$ volts, the gradient being from east to west. The drop on the Springfield Railway tracks along Main Street between point *C* and the power house *A* would be $500 \times 0.037 = 18.5$ volts. Since these drops are in

opposite directions, it will be impossible to prevent large differences of potential between the tracks on Main and North Streets.

If, for instance, rails at both power houses are at zero potential, then the Ohio Electric tracks near Columbia and North will be 9.6 volts positive to the rails of the Springfield Railway, giving rise to large leakage of current through the earth between the two systems, which would cause serious injury to the pipes. Further, the potential between the Springfield Railway tracks west of Main and the tracks on North Street near the Ohio Electric power house would be about 18.5 volts, producing an even more serious condition than the former. The distance between the tracks here being only about 1000 ft., the potential gradient will be seen to be enormous, and it would inevitably result in serious injury to the pipes in that locality.

If, however, the tracks are tied together at all streets on which cross tracks now exist—namely, at Isabella and Western, Wittenberg, Limestone, Sycamore and Lagonda—the currents from the two directions would divide between the tracks, and since they would flow in opposite directions, the resultant current would be the difference between the two, or only about 100 amp, which would be directed eastward and toward the Springfield Railway Company's power house.

The combined resistance of the two tracks in parallel is only 0.015 ohm, giving a drop of 1.5 volts over the entire 10,000 ft. It would thus be impossible to produce any large difference of potential between any two points on the tracks. Further, the drop would in this case be in the same direction on both tracks instead of the opposite direction, as would be the case if the tracks were not interconnected, so that they would be almost absolutely at the same potential throughout their entire length. It will thus be seen that the voltage conditions will be enormously improved by tying the tracks together, and what would otherwise be a very dangerous condition along the entire line between the two power houses would be converted into a condition of comparative safety. Tying the tracks together at various points amounts, in effect, to an interchange of current on the negative side between the two power houses. The Springfield Railway's power house would then intercept the Ohio Electric's current coming from the east beyond Lagonda, while the Ohio Electric Company's station would take a corresponding amount of current from the Springfield Railway tracks in the western part of the city, only the difference between the Ohio Electric load and the Springfield Railway load being taken to the Springfield Railway power house.

In addition to the improvements in the electrolysis conditions above noted, there will also be a large saving in power. With the tracks separated the loss on the Ohio Electric tracks between Lagonda and Isabella will be the current multiplied by the voltage drop, or $400 \times 9.6 = 3840$ watts, or 3.84 kw, and on the basis of an eighteen-hour day this gives a total of about 25,000 kw-hr. per year. On the Springfield Railway tracks between Lagonda and Western Avenue the loss would be $500 \times 18.5 = 9250$ watts, or 9.25 kw, giving a total annual loss of 60,000 kw-hr. The total loss on both tracks would therefore be 85,000 kw-hr. per year. At 1 cent per kw-hr. this is \$850 per year.

As seen above, however, if the tracks are tied together, the average current in this same section is reduced approximately 100 amp and the total drop to only 1½ volts; hence the loss is but 150 watts, giving an annual loss of 972 kw-hr. per year, which at 1 cent per kw-hr. would be worth but \$9.72. The saving, therefore, resulting from tying the tracks together would be over \$840 per year, the capitalized value of which would at least be \$14,000. Special precautions should be taken therefore to insure thorough bonding between the tracks of the two systems at all intersections.

CROSS-TYING OF TRACKS

Another matter of importance in addition to the installation of a properly designed insulated feeder system is the placing of a proper cross tie between the tracks on East Main and East High Streets at or in the vicinity of Sycamore or Lagonda Avenue. The reason for this is that these tracks run approximately parallel and quite close together for a long distance without any cross lines to produce a proper electric connection between them.

It will be evident that the potential difference between the two lines at adjacent points will be due to differences in the drop along the two tracks extending east-

designed and maintained system of insulated negative feeders connecting the negative busbar to various points in the rail return. The system of negative feeders already installed is shown in Fig. 1.

As at the present constituted, this feeder system, while undoubtedly greatly improving electrolysis conditions, is not altogether satisfactory for several reasons. In the first place, the arrangement of the feeders is such that there is comparatively little current on Lagonda and East High Streets, while a relatively large amount of current is taken from the feeders running to Limestone and beyond. As a result of this, direction of current flow in the rails on Columbia and East Main and East High Streets between Sycamore and Limestone Streets is actually away from the power house. This tends to produce the lowest potential up in the heart of the city and causes a complete loss of the conductivity of the double-track lines on these streets, which could be utilized if the feeder system were so proportioned as to cause a considerable amount of current to flow eastward on those streets and be taken off in the region of Sycamore Street.

A redesign of the cables so as to take less current from the territory surrounding Limestone Street and a greater proportion from feeders draining the region to

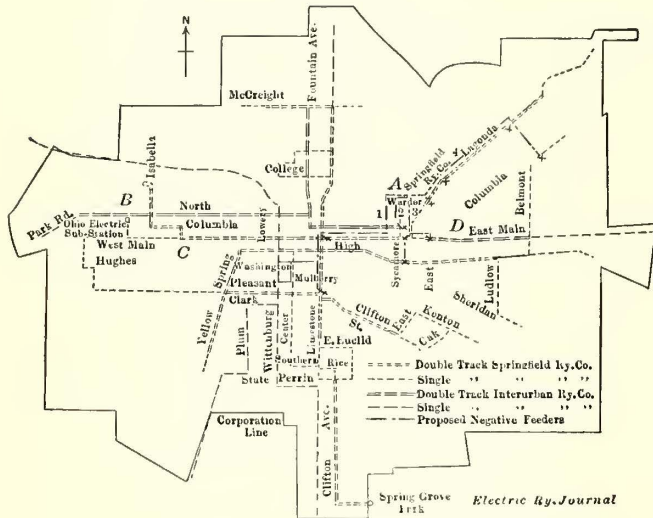


Fig. 1—Springfield Electrolysis—Chart Showing System of Negative Feeders Actually Installed

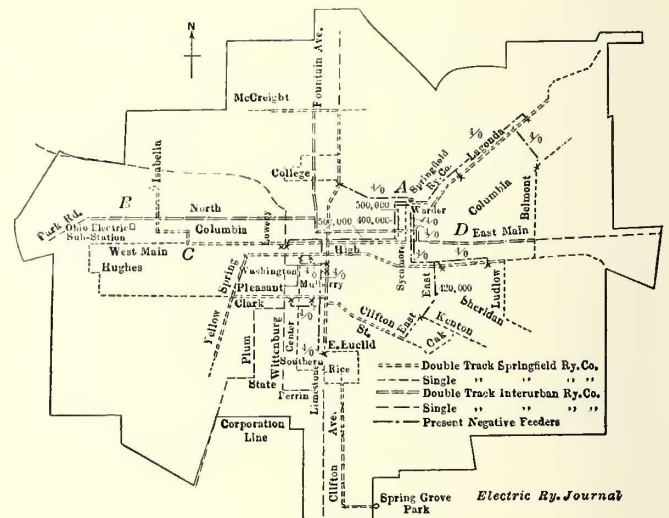


Fig. 2—Springfield Electrolysis—Chart Showing Suggested System of Negative Feeders

ward from Limestone Street, at which point they are practically tied together by the rails on the Limestone Street line. Thus, if the drop along Columbia between Lagonda and Limestone should be 10 volts and the drop on East Main Street over the same distance should be, say, 5 volts, then the potential drops between the tracks at Lagonda would be 5 volts. Since the distance here is very short, this would give rise to a very high potential gradient between the two lines, which would be sufficient to cause dangerous leakage of current into the earth and, consequently, serious damage to the pipes. In order to overcome this difficulty a heavy copper cable should connect the two lines on High and Main Streets to serve as an equalizer and prevent any large differences of potential of this sort from arising.

NEGATIVE FEEDER SYSTEMS

The above recommendations, while important and necessary to the securing of satisfactory immunity from electrolysis troubles, must nevertheless be considered as secondary in importance to the installation of a properly

the east of Sycamore Street would at once produce better potential conditions and likewise give rise to much greater economy because of the more direct route by which the current would then be returned to the power house.

Another disadvantage of the present feeder system is the relatively large potential drop which now occurs on these feeders, thus giving rise to a large energy loss. As will be shown later by a detailed calculation, a redistribution of the feeder copper would result in large economies in this direction. A further defect growing out of the high drop of potential of the feeders is the fact that the potential difference between the different points at which the feeders are connected to the tracks depends on the differences in the potential drop in the various feeders themselves. Since the load is constantly fluctuating from point to point, the drop on these feeders will necessarily change, so that it is impossible to maintain the terminal points of the various feeders always at the same potential. It will be evident that a given shifting of load, producing a certain percentage varia-

tion in the drop on an individual feeder, will cause a greater potential difference between termini of the feeders if the total drop on the feeders is larger than the same percentage variation of a load would produce if the total drop on the feeders were relatively small. For this reason, by a redistribution of the feeder copper such as to reduce considerably the total drop on the negative feeder at those points on the track to which the feeders are connected, and consequently the earth gradients throughout the city, electrolysis would be correspondingly lessened.

SUGGESTED REDESIGN OF SYSTEM

In order to show how the system can be redesigned to overcome these objections, there has been worked out a detailed plan for changing the present negative feeder system in such a manner as to secure at once adequate protection of the pipe systems and the greatest economy in installation and operation. This plan of reorganizing the negative feeder system is outlined in detail below. A complete plan of the proposed feeder system is shown in Fig. 2, showing the size and location of the feeders required and the points at which they should be tapped to the rails. There is also given a careful estimate of the cost of converting the present system into the system proposed, together with an estimate of the economies resulting therefrom. It will be found that while the proposed changes contemplate the expenditure of about

figure is sufficiently low to eliminate practically any serious electrolysis trouble. The result of the calculations shows that a total of four feeders are required, together with a suitable number of taps as hereinafter described. These feeders and their routing are described in detail below, and a condensed statement of all the essential data in regard to them is given in the accompanying table.

The proposed feeder system would require a total of 49,260 lb. of copper, of which, however, 21,220 lb. is already in place. The total power loss as seen from the table is 15.4 kw, which gives an annual loss of 101,200 kw-hr., having a value, at 1 cent per kw-hr., of \$1,012 per year. To determine the cost of the system, however, it is necessary to deduct the value of copper which can be removed in making the change, and also to determine the saving in power that results. A study of the proposed layout shows that 11,630 lb. of copper that is now in place can be removed. The value of this is figured at 18 cents per lb., after allowing for the cost of removal, which gives a value of \$2,095 as the value of the copper recovered. From the table it is seen that the total copper required to be added is 28,040 lb., the cost of which, estimated at 25 cents per lb., is \$7,010. The net initial investment required would therefore be \$7,010—\$2,095 = \$4,915. The annual cost of the copper added, reckoning 8 per cent on the initial investment, amounts, therefore, to \$393. From this annual cost, however, there

INSULATED NEGATIVE FEEDERS FOR SPRINGFIELD RAILWAY

	Location	Length, Feet	Current, Amp	Cross-Section, M.C.M.	Potential Drop, Volts	Loss, Kw	Copper, Weight, Lb.	Copper Added, Lb.
1	Limestone-Pleasant to Main.....	2,440	120	0.605	4.84	0.581	4,470	2,165
	Main-Limestone to power house.....	5,520	200	1.000	11.04	2.208	16,720	8,360
Tap	At Limestone and Main.....		80		3.67	0.294		
2	Columbia to power house, Sycamore.....	1,700	310	0.413	12.72	3.900	2,130	2,130
Tie	Sycamore-High to Main.....	1,050	240	3.410	0.74	0.178	10,850	9,540
3	Sycamore-Main to power house.....	2,220	380	0.837	11.04	4.600	5,640	2,750
	Main-East to Sycamore.....	1,160	140	0.605	2.69	0.377	2,130	820
Tap	Main and Sycamore.....		300		1.95	0.585		
4	James-Lagonda.....	5,510	40	0.212	10.40	0.416	3,540	0
Tap	Lagonda and James.....		40		6.25	0.250		
4	Nelson-Lagonda to Warder.....	1,270	80	0.317	3.20	0.256	1,220	406
Tap	Lagonda and Warder.....		130		9.24	1.200		
Con	Warder-Lagonda to power house.....	1,060	210	0.794	2.80	0.589	2,560	1,870
Total						15.434	49,260	28,041

Annual energy loss = 101,200 kw-hr. Annual energy loss = \$1,012. Copper value = \$2,315. Annual interest on copper = \$985.20. Annual saving in energy loss = \$2,805.

\$4,900, they will be accompanied by certain operating economies which will result in saving sufficient to pay large returns on the cost.

In making the calculations for the negative feeder system it was necessary first to secure data as to the average distribution of load in the track network. In order to do this the car schedule of the entire system was obtained from the Springfield Railway, and from this schedule the average car distribution was laid out on a map of the railway system. The average current per car was found to be very close to 40 amp, and this value has been used in all calculations. In making the calculations the normal average load car distribution is determined from the car schedule. A careful study of the load and track layout was made and the approximate distribution of the current in the rails determined, beginning in the outlying portions and gradually tracing the current distribution as the station was approached. Where it was found that the current density at any point was such as to give a potential greater than 1/2 volt per 1000 ft. a feeder of suitable size was connected to the rails to carry off the excess current. In this way the potential gradient throughout the entire negative return of the railway is maintained below 1/2 volt per 1000 ft. This is but a small fraction of the potential gradient existing in the rails prior to the installation of any negative feeder system, and it will of course give rise to a corresponding reduction in electrolysis troubles. It is believed that this

must be deducted the annual value of the power saved by changing to the proposed installation.

Measurements of the total drops of potential on the present feeders show that the average drop on all the feeders during the average day load amounts to about 44.3 volts, and since all the current returns over these feeders under the present system, the average power loss is equal to the average drop on the cables multiplied by the average current, which gives 44.3 × 1310 × 10³ = 58.1 kw. This gives an annual loss of 381,700 kw-hr., which, at 1 cent per kw-hr., has an annual value of \$3,817. It was shown above that the annual energy loss under the proposed system would amount to \$1,012, so that the net saving in power loss reaches \$2,805 per year. Deducting from this saving in power the above figure of \$393, which was the annual cost of the necessary changes in the copper feeders, we get a net saving of \$2,412 per year under the proposed plan. Another way of looking at it is that the total saving in power, amounting to \$2,805 per year, yields 57 per cent on the total cost of reconstructing the negative feeder system.

It appears, therefore, that from the standpoint of economy alone it is highly important to make the changes recommended. It will be evident also that since the total drop on the feeder, as shown by the table, has been reduced to not more than one-fourth of the drop under present conditions, any fluctuations in load distribution will produce very much smaller potential dif-

ferences between the termini of the feeders than at present, and consequently the tendency for high potential gradients in the earth will be very greatly reduced and electrolysis conditions through the city correspondingly improved.

It will be noted that in the proposed plan there is no direct connection between the rails and the negative bus out of the power house. Such connection is omitted primarily for the reason that this district is in low ground that is likely to be comparatively damp, and consequently of low resistance, so that to make this the most positive part of the system, as would be the case if any considerable current were taken off at the power house, would be to throw the positive area in a region where it would do the greatest amount of damage. On the other hand, by removing the power-house connection the positive areas are thrown out at the termini of the feeders which are located on relatively high ground, where, owing chiefly to lower moisture content, the average resistance of the soils will be much higher than down near the power house, so that the given difference of the potential between pipes and rails would be much less serious. This is an important point which should always be considered in the design of insulated negative feeder systems.

In considering the need for a negative feeder system at the Ohio electric station, it is found that owing to the comparatively small current taken from the tracks east of the substation the tracks alone will have ample carrying capacity up to the corner of Isabella and North Streets, provided that the tracks of the two railway systems are interconnected, as recommended in the foregoing. However, to facilitate the interchange of current on the negative side to reduce the potential gradient in the tracks between Isabella and North and the substation, it is very desirable to run a short feeder directly across South from the Ohio electric substation to the Springfield Railway tracks on West Main Street. This feeder will need to carry only about 120 amp, so that the section should be about 400,000 circ. mil. The distance would be about 950 ft., giving a weight of 1150 lb. of copper. In order to make proper use of this and to prevent too large gradients in the tracks on North Street, it would be necessary to install a very low resistance tap between the negative busbar and the North Street tracks at the power house, such as would give a drop of potential of about 0.85 volt between the tracks and the busbar. This would probably not require much additional resistance above that possessed by the tap already in use. The total cost of this feeder installed would not exceed \$285.

SUMMARY

Reviewing the recommendations in the foregoing report, it will be seen from the discussion of the various proposed methods of electrolysis mitigation that those methods which are intended to be applied to the pipe system are regarded as unsatisfactory for conditions as they exist in Springfield. This is the more emphasized by the fact that there are in the pipe systems at Springfield, especially the gas system, a considerable number of insulating joints, the gas company having several hundred Dresser couplings scattered throughout its system.

So long as these insulated couplings are in place, the application of drainage connections to either the gas pipes or the water pipes, or to both, would prove disastrous to the gas system in the vicinity of these insulating couplings. On the other hand, if the system of insulated negative feeders be applied to the tracks as recommended in the report so that the potential differences between different parts of the networks are reduced to a comparatively low value, the presence of these

insulating joints would be decidedly beneficial, since they would tend still further to reduce the current flow in the pipes, while the potential gradients would be so small that dangerous potential drops across the insulating joints could not arise.

It is recommended that the joints in all the railway systems operating in the city of Springfield be tested at intervals not exceeding six months or a year, and all joints showing resistances exceeding that of 3 ft. of rail should be immediately rebonded so as to maintain perfect continuity of the tracks throughout the city.

It is also of very great importance to have the railway tracks of the Ohio Electric Company and the Springfield Railway Company interconnected electrically at all crossings, both for the sake of economy of operation and for the safety of the pipe system. To neglect this interconnection, or to deliberately insulate the two systems from each other, would invite certain disaster to the underground pipes.

CHOICE OF WOOD IN SOUTH CAROLINA CAR CONSTRUCTION

In a recent report based on an investigation undertaken by the Forest Service in co-operation with the Department of Agriculture, Commerce and Industries, State of South Carolina, statistics on car construction are given, compiled from data covering the calendar of 1912. The statistics are accompanied by illustrations showing views of street cars in process of construction. Seven woods were used in South Carolina during 1912 for the manufacture of street cars, railway passenger and freight cars. Longleaf pine headed the list in amount, and was placed as car sills, frames, floors and the heavier timber parts of both railway and street cars. The shortleaf furnished siding, ceiling and decking of freight cars. The white oak was quartered and converted both into finish and into the exposed parts of street and railway passenger cars; red oak was employed in the same way, some of it also going into freight cars. Ash and yellow poplar were finish woods and were used mostly in street car vestibules and for sides, finish and panel work in railway passenger cars. The birch was all made into finish for passenger cars. Over 99 per cent of the material was grown in South Carolina. The highest-priced wood was birch and was procured in Pennsylvania. Longleaf pine cost less than shortleaf because the material was procured in large amounts and in dimension sizes, while the shortleaf was good grade material, sawed into smaller lumber. The report states the average price of car stock in this State to be \$16.56 per 1000 ft. and the amount used annually under 1,345,000 ft.

At the present time there is perhaps no section of the country that is being so rapidly developed as the South. Contributing in a large measure to this are the development of its water-power resources and the consequent attractive inducements that are being made to manufacturers to locate there. A development of 31,000 hp ultimate plant capacity, known as the "Stevens Creek Development," is being built by the J. G. White Engineering Company for the Georgia-Carolina Power Company on the Savannah River, about 8 miles above Augusta, to supply the power market in the vicinity, and a development of 29,000 hp ultimate plant capacity, known as the "Parr Shoals Development," is being built by the same firm for the Parr Shoals Power Company on the Broad River, about 27 miles above Columbia, S. C., to supply a rapidly growing demand for power in and about that city.

Effect of Rate of Fare on Riding Habit

There Are So Many More Important Factors than Fares Which Stimulate Riding that Its Effect Is Practically Negligible—The Author Cites Record from Different Cities to Support This Contention

BY F. W. HILD, GENERAL MANAGER PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.

Safety first, service next, rates last.

This, in the opinion of students of public utilities, is the logical order in which regulation of public service corporations should be approached. Far too often, however, the order has been reversed, and regulation frequently has taken the form of reduction in rates first.

In the street railway field it is becoming painfully apparent that the economic limit of reduction in prices for service has been generally reached and in some instances passed. Nevertheless, when it has been shown that still further reductions will usually mean serious loss of revenue and that the company so fortunate as to enjoy a margin of return above operating cost might better devote a portion of this margin to the public in the form of additional facilities to promote safety or to give added service rather than to enforce fare reductions, the reply of the advocates of the latter policy almost always is that "the lower fares will induce so much more travel as more than to offset the losses due to the lower rates."

This generalization, without figures to support it, constitutes the chief and almost the sole argument of the active proponents of lower street car fares, who usually are politicians seeking to retain or obtain political preferment and to whom "safety" and "service" do not appeal as being such potent vote-getters as "lower fares." Unfortunately, this unwise counsel has been allowed to prevail in a number of American cities, and others are threatened by it. But the sober thought, good sense and fairness of the American people may be relied upon to check this as they become familiar with the economic problems involved.

There is a business maxim that "lower prices will stimulate business," and experience has shown that this operates within certain practical limits.

In general, stimulation may be expected to be proportional roughly to the degree of price reduction; hence relatively small reductions will create relatively small stimulation, while relatively greater reductions will create larger stimulation. Furthermore, the percentage of price reduction necessary to create an appreciable increase of business depends upon the unit price. At low unit prices, the cut measured in percentage of price must be greater to cause stimulation than in a business having high unit prices. Every business man seeking to apply this general maximum knows that unless he cuts to certain figures smaller reductions would be absolutely useless for his purpose; that is to say, relatively small reductions result usually in negligible stimulation. Finally, if price reduction is carried to or below cost, the stimulation must reach zero and then become negative, since no business can survive indefinitely operation at a loss.

This general maxim that "lower prices will stimulate business" and its limitations are well understood by every intelligent business man. Certainly the maxim was not unknown to the able, courageous American business men who financed, built and operated our public utilities. Great in number are the instances of voluntary rate reductions by electric companies, gas companies and railway companies, all done with the hope and expectation of increased business. The introduction of universal transfers on American street rail-

ways, thus enormously extending the travel zone for the same price per trip, was certainly a very substantial cut in rate for service and, as expected at the time, created a large volume of additional travel. In like manner the extension of lines as the city limits expand, while the price for the trip remains the same, thus giving greater service for the same charge, is also equivalent to a reduction in rates for service.

The system of charging in proportion to service rendered is generally admitted to be the most equitable. In the railroad field this system, where applied, takes the

DATA ON LENGTH OF RIDE AND RATES OF FARE IN PORTLAND, ORE.

	Longest Ride for Single Transfer.	Rate per Mile in Cents.	
	Miles	Cash	Tickets
1872—First horse car line built on First Street; fare 5 cents. Glisan Street to Caruthers Street...	1.6	3.1	
1887—Three horse car lines in operation; no transfers between lines of different companies. Fourteenth and Savier to Third and Caruthers	2.75	1.82	
1888—First steam motor line in Oregon, built to Mount Tabor; two zones of 5-cent cash fare each, but commutation through tickets sold at rate of 5 cents each.			
1889—First electric line in Oregon; light steam road to St. Johns.			
1891—Several car lines electrified.			
1892—Several new suburban lines in operation; free transfers between lines of different companies; commutation tickets with transfer privileges were sold at rate of 5 cents each. St. Johns to Woodstock.....	15.6	0.64	0.32
About 1893—10-cent cash fare on St. Johns and Mount Tabor lines reduced to 5 cents. St. Johns to Woodstock.....	15.6	0.32	0.32
About 1894—Commutation tickets at 4½ cents each generally introduced. St. Johns to Woodstock.....	15.6	0.32	0.29
School tickets (thirty-three for \$1) were introduced about this time.....			0.192*
1904—Consolidation of two systems resulting in free transfers among all three systems then operating. St. Johns to Lents.....	18.1	0.28	0.25 0.166*
1913—Single fare zone extended. St. Johns to Lents Junction.....	18.7	0.27	0.24 0.16*

*School tickets.

unit distance traveled as the basic factor. It finds expression in the charges figured at a certain number of cents per mile for passenger service on our American steam and interurban railroads and in the European zone system of charges for street car service.

Successive reductions in rate for service are disclosed by a review of the street railway history of almost any American city. For example, the numerous increases in length of maximum ride, while representing the extreme, operated very strongly to reduce the average charge per mile. The experience of practically any American city may be taken for illustration; hence the accompanying data concerning Portland, Ore., which were available to the writer, will serve for demonstration. The years given are those when the various things stated are known to have been in effect. They do not necessarily mean the years when the various steps were initiated.

The rates per mile in this table, as stated, are the lowest rates charged on the system; the average rates were, of course, higher. The average rate per mile paid by the passengers, under either the zone system or

the American system, cannot be feasibly ascertained with any degree of accuracy as it involves determining where each passenger boards and alights from the cars.

In British cities, which for the most part use the zone system without transfers, the rate per mile for each of the several zones is definitely fixed and usually legislative enactment is required to change it.

In American cities, owing to the transfer and to the constantly increasing length of average haul or trip with the stationary charge per ride, the average rate per mile has been and is constantly diminishing. This constantly diminishing average rate per mile, accelerated by forced reduction in fares by legislation, has brought the American street railway as an industry to the lower limit of the general maxim; that is, the rate for service is generally at or about cost, and in some instances—notably Cleveland—it is below cost. Unlike the manufacturer or merchant, who when threatened with ruin can stop or move his business to another more favorable place, the street railway is a public necessity in the city of its location and cannot be permitted to be destroyed. But the economic law that a continuing business must have a margin of revenue above cost is inexorable, no matter what or where the business is. Hence, if the unwise counselors of fare reductions continue to have their way, the present stockholder of the street railway must step down and out, and the taxpayer must step up in his place and must make up through taxation the difference between cost of service and charges for service, so that the revenue derived from the riders and the taxpayers combined shall always equal or exceed the cost of the service.

The advocates of fare reductions generally seek to support their contentions by vague references to other cities where fare reductions have been made. They ignore entirely the different conditions of operation and travel which obtain in the various cities. Even so conservative a body as the Wisconsin commission has allowed itself to fall into this error and to indulge in this generalization without supporting data.

The Superior (Wis.) fare case the commission, in its decision and order of Nov. 13, 1912, says:

“The reductions in the earnings of the respondent that would be brought about by the use of such tickets (six for 25 cents), based upon the experience in other cities of about the same size, would not be unreasonable under the circumstances.

“General observation indicates that the introduction of a ticket rate as described will do much to induce more riding, or, in other words, increase the riding habit and consequently bring a higher density of traffic. The expense of carrying such additional traffic would be more than offset by the increase in revenues due to a higher load factor.”

The commission submitted no figures which proved that “the expense of carrying such additional traffic would be more than offset by the increase in revenue due to a higher load factor.”

RIDING HABIT

The number of rides per inhabitant per annum is a measure of the street car patronage, often spoken of as the “riding habit,” and is obtained by dividing the revenue rides per annum by the population. Fig. 1 shows the “riding habit” for a number of American and British cities having populations greater than 150,000.

It is quite clear from the chart that a low rate of fare is by no means the important determining factor in the creation of the riding habit. If it were, we should naturally expect to find the British cities with their smaller zone charges heading the list, while in the United States we would look for Cleveland, the champion low-fare city, at the top of the list, with Toledo next

and Columbus, Toronto, Indianapolis, Milwaukee and other reduced-fare cities ranking close behind. As a matter of fact, the riding habit is to be greater in cities having straight 5-cent fare (Seattle’s twenty-five tickets for \$1 do not carry transfer privilege). Cleveland is about midway and Toledo near the bottom of this list of American cities, while the British cities, despite the lower charges per ride, are far below American cities in the extent of street car patronage.

FACTORS FAVORING THE RIDING HABIT

In the judgment of the writer, the riding habit or the street car patronage by the people of a city depends upon:

(1) Facilities. Without facilities there can, of course, be no street car patronage. On the other hand, the more and better the facilities, the greater the incentive to ride. The amount of trackage per capita and the number of cars operated per capita are probably the fairest measure of street car facilities in cities which have no rapid transit system like subways and elevated railroads. In this respect the Pacific Coast cities lead the world, and this is reflected in the high degree of patronage they enjoy. In like manner, the rapid transit facilities of New York encourage the high riding habit of

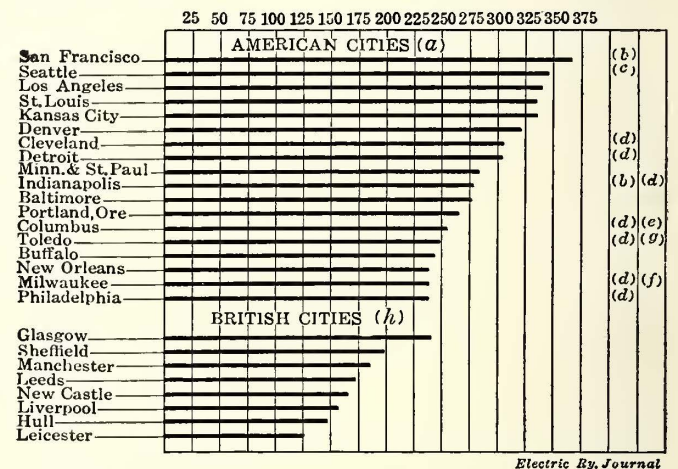


Fig. 1—Riding Habit—Annual Revenue Rides per Capita

Only cities exceeding 150,000 population were considered in the comparisons.

(a) 1910 census and 1910 statistics, except as noted. Most of data from McGraw’s Manual of Electric Railways or direct from companies.

(b) Partial data.

(c) Statistics for 1911-1912. Population estimated.

(d) Low fare, i.e., majority of revenue passengers pay less than 5 cents per ride.

(e) Statistics for 1911, strike in 1910. Population estimated.

(f) Includes free, as well as revenue, passengers.

(g) Statistics for 1912. Population estimated.

(h) Data from Garcke’s Manual of Electrical Undertakings, 1913.

that city. This is strikingly brought out in Fig. 2, which is taken from the admirable report on rapid transit in Philadelphia prepared by the director of city transit of that city with the assistance of Ford, Bacon & Davis as consulting engineers.

(2) Topographical Conditions. People living in hilly cities will naturally ride more frequently than those in flat, level cities. Thus we should expect to find cities like San Francisco, Kansas City, Seattle and Pittsburgh show a high riding habit.

(3) Climatic Conditions. Cities enjoying a great deal of sunshine and clear weather invariably show a higher street car patronage than cities where climatic and weather conditions are less favorable. During the bright, pleasant days people will come out for purposes of pleasure and convenience as well as business. In other weather they come out only of necessity. This is proved by the experience of each city considered by itself in connection with the seasonal fluctuation of

travel. Los Angeles, New York and tropical cities like Havana have favorable climatic conditions, and the effect is shown in the street car business. Such cities generally attract a relatively large floating population, which, of course, helps out in the street car patronage.

(4) Temperamental Characteristics. A pleasure-loving people are usually liberal spenders, and they generally patronize the cars quite freely, as in Havana. People in mining communities are known everywhere to be more liberal spenders than those in agricultural or mercantile communities. Cities which originated in the mining camps seem to have perpetuated these proclivities, and this characteristic is reflected in the riding habit. Thus one would expect San Francisco, Denver, Seattle and Pittsburgh to rank high in this respect.

(5) Rates of Fare. At the rates of fare which now prevail, changes in rate, unless very radical, will have the least effect of all the factors which determine street car patronage. If fares were abolished and transportation were free, the riding would, of course, vastly increase, while, on the other hand, if the present fares

clearly. I take the liberty of abstracting from his work the following:

"In December, 1911, the Glasgow Corporation decided to make a concession by way of experiment for three months; passengers were to be entitled to travel two of the original (half-mile) halfpenny stages for a halfpenny, or, in other words, the distance which might be traveled for a halfpenny was doubled."

The accompanying table shows the number of passengers carried at different fares on the Glasgow Corporation Tramways during the five weeks ended Jan. 14, 1911, and January 13, 1912.

"If a comparison is instituted between the first five weeks during which the new system has been at work and the corresponding period of the previous year, it will be seen that the number of passengers carried has increased by some 5,000,000, though it is impossible to say how many of these additional passengers have

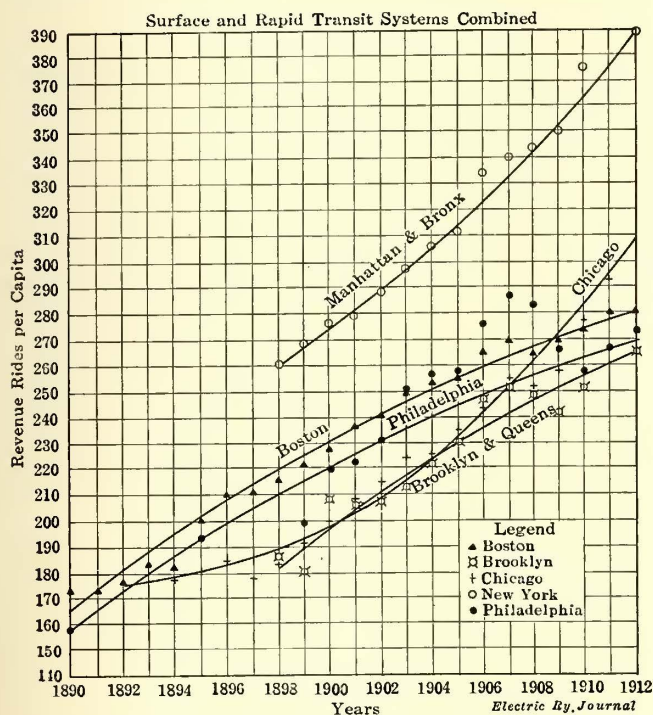


Fig. 2—Riding Habit—Revenue Rides per Capita

were doubled or otherwise very radically increased, the riding would naturally fall off. All this assumes that the facilities for urban transportation remain about the same. Increase of facilities, either in the form of greater comfort or in more widespread, quicker or added service, may stimulate enough travel from another group of patrons to counterbalance that lost by the higher charges. Thus, when the New York surface lines were separated under receivership proceedings, the transfer privileges were materially cut down, but the decrease in number of riders, if any, was more than made up by the patronage of the subways, for, as shown in Fig. 2, the points of the curve of riding for New York have constantly increased. A further demonstration of the principle is the liberal patronage created by the Pullman service of the railroads and the popularity of many extra-fare trains.

A recent example of radical fare reduction resulting from increased travel is that of Glasgow. The cut was equivalent to 50 per cent in the halfpenny zones, which alone were affected. Professor Knopp, in his interesting book on "Municipal Trading," discusses this very

TABLE SHOWING PASSENGER TRAFFIC BY ZONES IN GLASGOW

Fares	Passengers Carried During Five Weeks Ended Jan. 14, 1911		Passengers Carried During Five Weeks Ended Jan. 13, 1912. (First Five Weeks of Double Halfpenny Stage)		Increase (+) or Decrease (-) in Five Weeks Ended Jan. 13, 1912 as Compared with Corresponding Period for Previous Year	
	Number of Passengers (Last 000 Omitted)	Percentage of Total	Number of Passengers (Last 000 Omitted)	Percentage of Total	Number of Passengers (Last 000 Omitted)	Percentage
½ d.	6,632	28.29	16,872	59.41	+ 10,239	+ 154.44
1 d.	13,751	59.07	8,585	30.23	- 5,165	- 37.57
1½ d.	1,921	8.25	1,929	6.80	+ 7	+ 0.38
2 d.	550	2.36	561	1.98	+ 11	+ 2.04
2½ d.	211	0.91	229	0.81	+ 18	+ 8.67
3 d.	111	0.48	113	0.40	+ 1	+ 1.61
3½ d.	87	0.38	90	0.32	+ 2	+ 3.20
4 d.	13	0.06	13	0.05	+ 0	+ 1.97
	23,280	100	28,395	100	+ 5,115	+ 21.97

NOTE.—The new system came into force on Dec. 10, 1911.

been induced to travel by the lengthening of the distance which can be traveled for a halfpenny.

"Roughly, half the increase in the number of halfpenny passengers was due to the transfer of 5,000,000 from the penny class; the other half was accounted for by some 5,000,000 persons riding short distances who had previously walked."

The results of this experiment with reduced fares in Glasgow are not applicable to American cities with their uniform fare for all distances. Short riding can be stimulated only by making the fare so low that people wishing to travel easy walking distances will take to the cars because the charge is of slight consequence, and it is only where the zone system of charging is employed that such low fares are practicable. Wherever the uniform fare is adhered to, it is impossible materially to stimulate short riding without reducing the fare below the average cost of carriage.

That the Glasgow fares are relatively higher than American fares seems to be the conviction of at least one American street railway company, for the Detroit United Railway, through the columns of its sparkling weekly publication *Electric Railway Service*, has repeatedly offered to operate the Detroit system at Glasgow rates and to continue to pay Detroit wages, which are about double Glasgow wages. The investment per capita in street railway facilities is also much greater in Detroit than in Glasgow.

Among American cities, Cleveland's 3-cent fare is probably the lowest. This was reached after a succession of reductions, and certainly the able exposition of the Cleveland situation by C. N. Duffy at the association meeting last October, wherein was demonstrated that the system is being operated at a loss, can give no support to those who claim that the "lower fares will so stimulate travel as more than to offset the losses due to the lower rates."

In regard to street car fares in America, even the political gentlemen whose economic ideas are governed by the vote-getting aspect of the issues they raise have come to realize that anything like a substantial reduction in American street car fares is to-day out of the question. Even they have begun to see the folly and possible disaster of repetitions of the Cleveland 3-cent fare experiment, so their efforts are usually for six or seven tickets for 25 cents. Such reduction, which is slight in respect to the individual riders, falls within the second limitation of the maxim, and the stimulation resulting from the reduction has been correspondingly slight or negligible. This was the experience of Milwaukee, Cleveland and Detroit with six and seven tickets for 25 cents, and all of these cities report large loss of revenue as the result of the use of these tickets. From the standpoint of the company, the reduction, though benefiting only very slightly the individual rider, is multiplied by millions of passengers carried annually and aggregates annual losses running into the hundreds of thousands of dollars.

Detroit's recent experience is illuminating. Beginning Aug. 15, 1913, the rate of fare on the 5-cent lines was reduced to seven tickets for 25 cents. The rate of eight tickets for 25 cents between 5:45 a. m. and 8 p. m. on the so-called "3-cent lines" continued in effect.

The average fare per revenue passenger for the first month with the reduced fare was 3.67 cents, compared with 4.38 cents for the corresponding month of the preceding year, a drop of 16.2 per cent. That this reduction had but little effect in stimulating traffic is shown by the following statistics:

	Per Cent Increase
1909, twelve months	12.31
1910, twelve months	15.38
1911, twelve months	19.43
1912, twelve months	14.76
1913, Jan. 1 to July 31	16.67
August (fare reduced)	16.03
September (fare reduced)	19.42
October (fare reduced)	16.41
November (fare reduced)	14.65

Certainly no "stimulation sufficient to offset the losses due to the lower fares" can be discovered in this table.

A recent effort to enforce the sale of six tickets for 25 cents in Portland caused the writer to investigate the probable effect of this reduction, particularly since the same old generalization was urged that "lower fares would create enough additional travel to make up for the loss due to the tickets."

Five cities which gave six tickets for 25 cents stated that the percentage of revenue passengers using tickets were as follows:

	Per Cent
Milwaukee	84
Indianapolis	82
Washington, D. C.	80
Toledo	80
Ottawa	78

The operating data from Portland for the year 1912 are:

Total passengers	89,869,096
Revenue passengers	64,768,170
Operating cost per total passenger revenue and transfer, exclusive of investment return	2.63 cents

On the basis that 80 per cent of the 1912 revenue passengers would have used the six-for-25-cents tickets, the loss in revenue would have been about \$387,403.

The number of additional 4:167-cent passengers which would have to be carried at a cost of 2.63 cents in order to overcome the loss of \$387,403 would, of course, be

$$\frac{387,403}{4.167 - 2.63} = 25,300,000$$

If to this number we add 64,768,670, or the number of revenue passengers carried during 1912, we would obtain 90,068,670 as the total number of passengers. This sum represents an increase of nearly 40 per cent in passenger traffic. As the estimated city population of Portland in 1912 was 236,000, this would mean 385 rides per inhabitant per annum, which is higher than obtains in any other city in the world. It would be some 25 per cent higher than Cleveland and some 55 per cent higher than Toledo, cities having the lowest fares in the United States.

Among cities of more than 150,000 population, Portland ranks with Los Angeles as one of the two leading cities in the world in extent of street car facilities when measured by the amount of trackage per capita and cars operated per capita. It certainly then fulfills the first and most important essential for creating "riding habit" or street car patronage. It already enjoys a rate of 4½ cents for tickets sold in lots of fifty. The other three factors, however, of topography, climatic conditions and temperamental traits are not so favorable to development of the "riding habit," so that world leadership in that regard cannot be expected.

People rarely take to street cars for the sake of the ride itself. They ride as a means to some other end, such as a visit or business or other objective. The ownership and fostering of amusement parks by street railway companies is evidence that something more than the street car journey is necessary to induce people to ride. The difference of a fraction of a cent in the cost of the ride would influence them only very slightly.

The ELECTRIC RAILWAY JOURNAL, in its issue of March 30, 1912, discussing editorially the influence of fare on volume of traffic, puts it this way:

"It may be said, first, that low fares generally stimulate some extra traffic; second, that high fares generally discourage some extra traffic. People will ride more freely when the fares are low. But the traffic stimulated by low fares may be undesirable because it may develop at rush-hour periods and cost so much to handle that the expected margin of profit may disappear in loss.

"Furthermore, the street railway cannot, as is often possible for the steam railroad, restrict reduced fares to out-of-the-season travel. Its rate for one is the rate for all. The regular patrons supply the bulk of the traffic, and if a reduced rate applies to them as well as to the extra riders who are induced to travel solely because of the economical opportunity offered, the average revenue passenger dwindles materially. The ability of the company to provide proper service and to maintain its property is therefore curtailed in corresponding measure."

Since reductions in rate of street car fares are necessarily limited to extremely small reductions in the charge per ride and because of the many other factors which enter into the determination of street car patronage, the stimulation of travel due to such reduction cannot be quantitatively measured beyond the general conclusion that it will be slight even to the degree of negligibility.

GENERAL

"Lower prices stimulate business" as a business maxim has an important corollary which is sometimes expressed: "In the long run you get exactly what you pay for, no more, no less." Thus good prices justify the expectation of fair goods and liberal service, while "cheap prices mean cheap goods." The latter maxim, indeed, but exemplifies an important phase of the natural struggle for self-preservation which is a law of business as well as of nature.

In the street railway field the operation of this corollary is significantly shown in the accompanying charts of trackage per capita (Fig. 3) and of cars operated per capita (Fig. 4), which combined are a fair measure of the investment per capita for street railway purposes. Thus the 5-cent fare cities lead the "reduced" fare cities in street car facilities. Cleveland, famous as having the lowest fare in the United States, has since the beginning of the 3-cent car service in 1910 added only 5 miles of track, despite the fact that its average increase of population has been and presumably continues at the rate of about 18,000 per year. Its total of trackage and cars operated per capita rank it below other cities which so far have escaped the fallacy of "reduced fares."

The absence of data as to "cars operated" in the British cities makes it necessary to consider the British "cars owned" in the cities compared. The charts of trackage and cars per capita strikingly bring out the superiority of American cities. To just what extent low fares or the deadening inertia of municipal owner-

fect or complete in its service to its community. Extensions and improvements are ever necessary. The best of safety precautions should be everywhere required as soon as the utility can afford their installation, every person should ultimately be served, wires should ultimately go underground, and the sooner all these take place the better for all concerned. But how can they be done if the very foundation, the revenues for their accomplishment, are cut away? So if the utility is earning more than the "fair and reasonable" return, then before reducing the rates charged for service the utility should be required to invest excess profits, first, in that which will properly and consistently make for safety in the service; next, in added service and extensions where properly and reasonably required, and, finally, when the community is well served, let us consider enforced rate reduction. If the utility is publicly owned, then, after safety and service, the excess revenues may be well applied to relief of taxes.

Enforced rate reduction at this stage of utility devel-

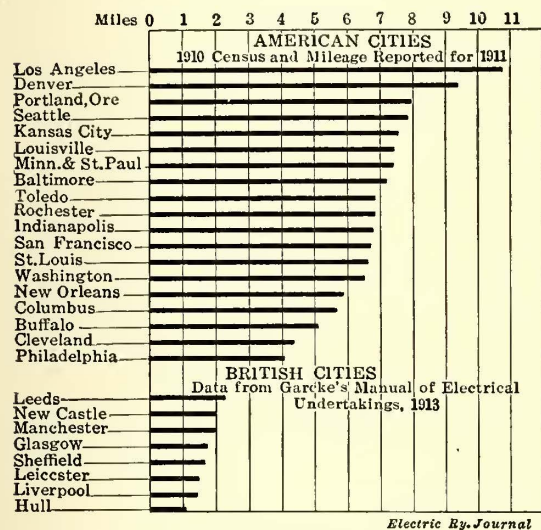


Fig. 3—Riding Habit—Miles of Single Track per 10,000 Inhabitants

Only cities exceeding 150,000 population were considered in the comparisons.

ship is responsible for the marked inferiority of the British systems, in the extent of street car facilities, is difficult to state. But no doubt both contribute to the showing.

CONCLUSION

In the opinion of the writer, prices for utility service should generally be left to the natural workings of business economies. Ordinary business practice will not allow prices to be held excessively high, for then there would not be enough revenue to support the investment, and experience shows that compulsion is not necessary to reduce prices for service in order to expand the business.

Rate reduction by means of legislative power, except to remove unfair discrimination, is a serious blunder and generally vicious in the present state of utility development. The writer does not wish to be understood as favoring exorbitant or unlimited profits from utility operation; on the contrary, he is a firm believer in regulation which will be reasonable and fair to all. By all means, let us determine what is "fair value" and what is "fair return on utility investment" and then allow and maintain both.

Enforced rate reduction is a serious mistake at this time, for no utility, whether public or private, is per-

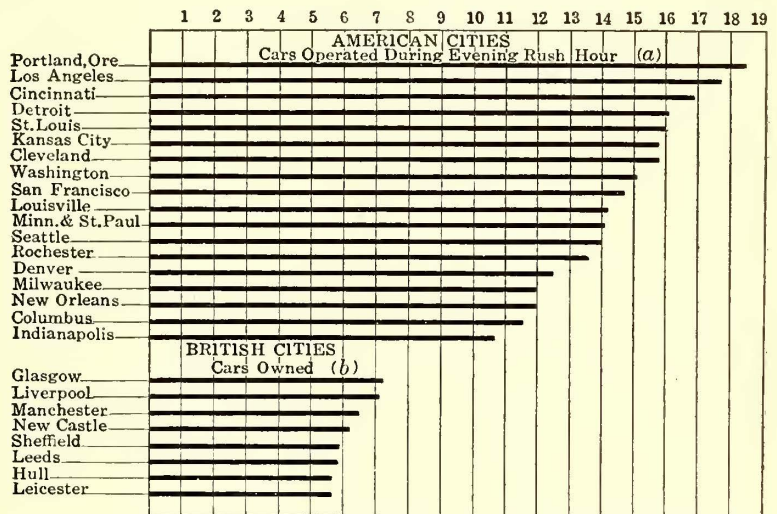


Fig. 4—Riding Habit—Cars Operated During Evening Rush Hour

Only cities exceeding 150,000 were considered in the comparison.

(a) Data for cars operated supplied by the companies in December, 1912.

Population taken at 1910 census plus one-fifth increase of last decade.

(b) From Garcke's Manual of Electrical Undertakings, 1913.

opment is generally vicious, for in nearly all cases the motive is found in the selfish interest of some politician or some demagogue or some other small group of individuals who, for their own petty gain, are quite willing to sacrifice the best interests of the vast majority whose unfamiliarity with the economic problems of the utilities permits the few thus to take unfair advantage of the many.

In conclusion, let us then repeat and urge: Safety first, service next, rates last.

A light railway near Stockholm, Sweden, will shortly be converted to electric traction on the single-phase system. The line runs from Nyäs to Södertörn Villastad and is to be extended to Stockholm. The total length will then be about 36 miles. According to the *Elektrotechnische Zeitschrift*, the single-phase locomotives will be supplied with current at 15,000 volts, fifteen cycles, and the annual energy consumed will reach nearly 6,000,000 kw-hr. The running costs are estimated at 16 cents per locomotive mile, or 0.096 cent per ton mile, on a total annual traffic of 81,400,000 ton miles.

The Midyear Banquet

Abstracts Are Published of the Speeches at the Banquet Which Was Held at the Waldorf-Astoria on the Evening of Thursday, Jan. 29, for the Delegates at the A. E. R. A. Midyear Conference

The annual banquet was held at the Waldorf-Astoria on Thursday evening, Jan. 29, and as usual was a most enjoyable affair. Guests and management were so prompt that the dinner began at 7.30. An orchestra, soloists and an operatic quartet offered most pleasing entertainment in addition to the usual volunteer singing.

The first speaker was Charles N. Black, president American Electric Railway Association. Mr. Black's address follows:

PRESIDENT BLACK'S ADDRESS

"By virtue of the high office you have honored me with, I to-night propose to sound a call to arms, and any man among you who fails to volunteer promptly will be drafted without delay.

NEED OF PUBLICITY

"The industry in which we are so deeply interested has reached without question the most critical period of its history. It is being attacked in front and rear as well as on both flanks, and it behooves us to rally all of our strength if we are not to be utterly routed. Some few of these attacks are inspired by political motives, but whatever the motives may be, the attacks we have most to fear derive their strength from the ignorance of our industry on the part of the public. This ignorance is all the more dangerous by reason of the fact that the public generally, far from realizing its absolute lack of knowledge of the transportation business, on the contrary firmly believes and vigorously maintains that nothing could be simpler than the operation of an electric railway. There is scarcely one man in a hundred in any community who is not ready and willing to make any number of suggestions for the improvement of the service, and it is difficult for him to understand why these suggestions should not be adopted.

"To the man or woman, tired after a day's work, who attempts to board a street car in one of our busy American cities between 5 and 6 o'clock in the afternoon, only to find every available inch of space occupied, it would seem that by operating a few more cars these intolerable conditions could be easily remedied. They condemn the management of the railway company for not doing what apparently is such a very simple thing.

"The cars operating over tracks laid in the streets are about all the average man sees of the complicated and intricate system and organization required to operate a modern electric railway. To the uninitiated the only apparent difference between the present and the old horse-car days is the elimination of the horses and the installation of some overhead wires.

"Of the vast sums that have been expended in bringing about this superficially slight change, the public has no knowledge, and of the economic difficulties with which every transportation company has to contend know it even less.

"The question of public relations has been the subject of numerous articles in our technical magazines, and during the past three or four years it has been discussed at almost every convention and meeting this association and the National Electric Light Association

have held, as well as at practically every meeting of the allied or affiliated associations. Committees consisting of the ablest men interested in our railway and lighting companies have been devoting their time and energy to bettering these relations. However, up to the present time their combined efforts have, apparently, produced but very meager results, entirely disproportionate to what we might expect.

"There must be some good reason for this lack of success, and, in my opinion, it is entirely due to the failure on our part to appreciate and understand the public's attitude. We have been altogether too ready to bow down to the demagogue's accusation that all public service corporations are overcapitalized and have been subject to gross mismanagement. We have tacitly assumed that this is the fundamental cause of the public's hostility, while in reality it is primarily due to our own negligence in not telling our story in words that can be understood by the average man.

"The owners and managers of our electric railways are as efficient and honest a body of men as can be found in any walk of life, and our business requires as much ability, efficiency and skill as any other, and more than most.

"While in most ordinary commercial enterprises the capital is turned over from one to four or five times every year, in the electric railway business it requires from four to seven or eight years to turn it over even once. This fact naturally makes it far more difficult to recoup losses due to mistakes or any other causes.

"It has developed probably more rapidly than any other industry the world has ever known, and it is hardly surprising that the layman knows so little about it.

"It is a herculean labor, this education of the masses, and as General Harries said in his presidential address at our last convention, 'Education of the mass, as a mass, is impracticable'; but the individual can be educated, and if we educate enough individuals, we will finally secure an educated mass. This can only be accomplished, however, through a broad and carefully planned campaign, carried forward not only through the technical press, but also by means of the daily papers, weekly periodicals and monthly magazines, as well as through every other available method of publicity. It cannot be accomplished in a day or in a year, but it must be accomplished before we can hope for any material improvement in the attitude of the public toward our business. Every one of you gentlemen here to-night can do his part, and it is his duty to lend every assistance to the cause if he is interested in the welfare of the industry.

"In the meantime, municipal ownership and municipal operation will inevitably develop in some of our cities. This is by no means without its compensating features, and will probably be as important an educating factor as any we could possibly devise.

"In San Francisco we already have a municipally operated street railway, and in that community it has permanently laid at rest several questions which have vexed and harassed the street railroads in many of the more radical cities of the country, such as, for example, the no-seat no-fare ordinances, the overcrowding of cars during the rush hours and a number of others which I might mention.

DEPRECIATION IS DEFERRED MAINTENANCE

"This, however, is by no means the only important problem confronting us. During the past few years a large number of the states have appointed public service commissions with, in many instances, practically plenary powers. The men appointed to these commissions have been drawn principally from the legal fraternity, and while, naturally, many of the questions which the commissions have to decide have been of a legal character, the most important ones are economic in their nature and should be decided upon economic principles rather than upon legal ones. This, no doubt, explains some of the unfortunate decisions that have been handed down by several of the public service commissions, and even by the Supreme Court of the United States.

"Lawyers, generally, have had but little experience in business matters. The average lawyer is no more qualified to decide an important economic question than would the ordinary business man be competent to pass upon some abstruse question of the law. No more striking illustration of these unfortunate and unsound decisions can be given than those in many of the so-called rate cases, in which the rate of return has been fixed, based upon the depreciated value predicated upon reproduction cost of the property being investigated. From an economic point of view, this method in its last analysis is absolutely confiscatory. It is surprising that it has been tacitly acquiesced in by so many of our steam railroads and public service corporations.

"Why should a consumer for the same service equally efficiently rendered be entitled to a lower rate from a property which is, for example, five years old than from one which is absolutely new? But such is bound to result if the charge for service is based upon the depreciated reproduction cost.

"And how would the owner of a mortgage on improved real estate view the proposition that he should be entitled to the interest on a decreasing capital each year although he was assured that his principal was being protected and kept intact by a sinking fund which would be turned over to him at maturity?

EXAMPLE IN DEPRECIATION

"But let us consider an even more elementary example. A man with, say, \$5,000 goes to a savings bank to deposit it for a period of five years. The prevailing rate of interest is 5 per cent and the bank president tells him that he will be allowed 5 per cent on \$5,000 the first year, 5 per cent on \$4,000 the second year, 5 per cent on \$3,000 the third year, 5 per cent on \$2,000 the fourth year, and 5 per cent on \$1,000 the fifth year, but at the end of the fifth year his \$5,000 will be returned to him. Is it probable, other things being equal, that any man would place his money in that bank? But this is exactly in accordance with many of the decisions of the commissions and even with that of the Supreme Court of the United States in the Minnesota rate case. I was simply astounded the other day in reading the report of a special committee of the American Society of Civil Engineers which had been appointed to investigate this subject to notice that it practically acquiesced in this fallacious doctrine.

"Is it surprising, under these conditions, that it is becoming more and more difficult to raise money for investment in public utilities?

"All of this misapprehension, in my opinion, would be cleared away if we could only forget the word 'depreciation' and substitute for it the words 'accruing or deferred maintenance.'

"Maintenance is recognized by every commission and every court as an operating expense. Accruing or de-

ferred maintenance, or so-called 'depreciation,' is fundamentally the same, the only difference being that maintenance proper is taken care of by an actual expenditure of money during the past fiscal period, while accruing or deferred maintenance should be provided for by the setting aside of a sum of money to be used for an identical purpose, namely, the upkeep of certain parts of the plant at some future period.

"That this accruing or deferred maintenance should be deducted from the reproduction cost of a plant for rate-making purposes is logically unsound and economically confiscatory, but unfortunately it has been so generally acquiesced in that it will be most difficult to correct.

GOING VALUE

"Such is not the case, however, with another mooted question in connection with the valuation of public service corporations, namely, that element which is sometimes termed going value. We all know that there is such an element of value, but who has defined it clearly and accurately or pointed out the way to estimate it correctly?

"The Wisconsin Commission recognizes it but identifies it with the cost of developing the business and measures it by the deficits which usually occur during the early years of operation of a property, as illustrated in its decision of Aug. 14, 1913, in the case of the City of Milwaukee vs. Milwaukee Gas Light Company. There is a dictum in this decision, however, which appears to me absolutely inconsistent with the conclusions reached. In its criticism of the method employed by John W. Alford, in his estimate of the going concern value, the commission uses the following language: "The cost of development must not be confused with what an investor would be willing to pay in the market above actual physical value for an established business."

"The commissioners thus apparently admit that there is some element of value in a going concern or established business in addition to the physical value and cost of developing the business, but in their findings they fail to make any allowance for it.

"This admission, however, from one of the ablest commissions in the country is significant and encouraging. We should lose no time in clearing up our own minds if we are to hope for a just recognition of this important element of value.

"In these questions and many similar ones all public service corporations are equally and vitally interested; they are economic in their character and should be settled by business men rather than by lawyers or engineers and they are of such vital importance that it seems to me no more fertile field of work lies within the horizon of our association than their careful and systematic study and solution.

PUBLIC RELATIONS

"To-day we held a meeting of the public relations committee. Last October in making up the list of names to serve on this committee I had the importance of the work to be done in mind. I appointed this committee with the full intention that it do more than similar committees had done in the past, or that it should report back to the association that public relations all over the country were in such good condition that no work along this line was necessary. [Mr. Black then read the names of the members of the committee on public relations.]

"Most of these men were present at to-day's meeting of the committee, and a very thoughtful and thorough discussion took place. The work to be done in general was gone over, and it was the unanimous opinion of



Members and Guests at the Joint Banquet of the A. E. R. A. and the A. E. R. M. A., Held at the Waldorf-Astoria Jan. 29, 1914

all present that the committee should get busy and that, with the co-operation of all the member companies, the manufacturers and all others interested, a most effective work can be accomplished during the present year. To this end the following resolution was adopted:

"That a sub-committee of five be appointed by the chairman to draft a set of principles for the association, setting forth the association's view in general terms on the problems confronting us, and outlining a comprehensive plan of educational publicity along the lines suggested tentatively by Chairman McCarter, and to prepare a plan for raising a publicity fund of \$50,000 or more, all of which is to be submitted to the full committee, it is hoped, within a month's time.' The chairman then appointed the following committee: James H. McGraw, chairman; Guy E. Tripp, C. Loomis Allen, Frank R. Ford and Col. T. S. Williams, with Chairman McCarter a member ex officio.

WORK OF THE SUB-COMMITTEE

"This sub-committee has already arranged for a meeting to take place early next week, and it is my thought that it will draft a plan that will be approved by the full committee, and I bespeak for this committee your active and earnest co-operation in this most important work to be done, including the raising of this sum of money for publicity purposes. The committee has it in mind to get in touch with the public policy committee of the National Electric Light Association, which has done splendid work during the past several years, and with a similar committee in connection with the gas interests, and possibly other similar national organizations.

"The committee on public relations is enthusiastic and progressive, and at the same time is conservative. You may depend upon it that it will not do anything rash, but we are all looking to it to do a most helpful and constructive work. The sum mentioned is to be used for the first year's work. If the efforts of the committee prove satisfactory, some means, such as raising the dues temporarily, may be devised to continue the work."

PROPOSED SAFETY MEDAL

President Black then read a communication from the American Museum of Safety in which announcement was made that a gold medal with silver and bronze replica, in memory of the late Anthony N. Brady, would hereafter be granted annually to the American electric railway which did most to promote the safety of its service. The suggestion was made that this award be granted in accordance with the conditions and recommendations set forth by a committee of the American Electric Railway Association. President Black announced that this subject had been referred to the executive committee and that he would appoint a committee to comply with the Museum's request.

The second speaker was Cornell S. Hawley, President American Electric Railway Manufacturers' Association, whose speech follows.

MR. HAWLEY'S ADDRESS

"We manufacturers are often styled 'specialists,' and I thought we were, at least in the matter of arranging for good dinners; but this joint banquet is such a huge success that I feel sure our railway friends have also found time for specializing along these lines.

"In the office of a prominent railroad official I recently saw a card bearing the following: 'Some people grow under responsibility, others merely swell.' Now, the latter part of that statement was never intended to apply to railway officials in this country. The public

demands and the criticisms in the public press are alone sufficient to prevent any swelling on their part. I had the pleasure of meeting President Black some thirteen years ago, when I first came to New York. He was prominent then in the engineering line, but we know that he has done no swelling but has grown rapidly under the many responsibilities he has since assumed, resulting in his present high position with a large railway system and his election to the presidency of your railway association.

"The railways have problems not common to manufacturing companies, and as Howard Elliott has said in one of his great speeches on the subject of railroads: 'The railway owner, if he does not like his investment, cannot shut up shop and wait awhile until business is better. He cannot even abandon his business and pocket his loss. He must go on, whatever the conditions may be, with the hope that the ultimate good sense and justice of the American people will give him even a part of that protection and encouragement that are given to those who may be engaged in agriculture and in manufacturing.'

"The manufacturers devote much time and study to the development of new devices for electric railways, and they work with the railway men in the endeavor to perfect appliances for more economical operation and to meet the constantly increasing demands of a critical public.

"Probably no industry has been compelled to scrap and replace so much valuable machinery and equipment within a period of a few years as the electric railways. A striking example is the short life of the style of an electric railway car, as shown by a street parade in this city about a year ago. Seven distinct types of cars were shown, four of which had been adopted within a period of five years. Again, at the New York Street Railway Convention at Brighton Beach last summer seven classes of Brooklyn surface cars were shown. These had all been developed during a period of fifteen years.

"The early history of the street railways is described by Mr. Joseph Smith, of Boston, in the following expressive paragraph:

"In former days, if we are to believe the traditions handed down to us by spavined hackmen and rheumatic liverymen, a street railroad was a bunch of bobtail cars, run on two rusty, billowy tracks, pulled by horses and pushed by asses, the horses supplying the muscle and the asses the money to transport a greedy and ungrateful generation. When the prices of horses, selectmen and aldermen became prohibitive, the trolley was invented, the horses were transformed into pony coats for ladies, and the selectmen and aldermen into starters and motormen; live wires pushed the cars and live-wire pullers rooted for the systems; the almighty dollar was retired, and the plugged nickel of the people was introduced into society."

OTHER SPEECHES

The third speaker was Guy E. Tripp, chairman board of directors Westinghouse Electric & Manufacturing Company. Mr. Tripp's address on "Public Relations" appears elsewhere in this issue.

The last speaker of the evening was Henry W. Anderson, vice-president Virginia Railway & Power Company, Richmond, Va. Mr. Anderson's address on "The Relations of Public Service Companies and the Public" appears elsewhere in this issue.

On motion of President Black a vote of thanks was tendered to the banquet committee. The meeting concluded with "Sixty Seconds of Optimism" by Past-president Harries.

Public Relations

In This Speech, Which Was Delivered at the Banquet Thursday Evening, the Inherent Stability of the Railway Business Is Emphasized and the Companies Are Urged to Take Certain Steps to Improve Public Relations

BY GUY E. TRIPP, CHAIRMAN WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY

I represent a company which depends in a large measure upon the prosperity of public utilities. All the problems and difficulties which confront them also confront us, and nothing good or bad can happen to them that does not also affect our business. When they are prosperous and cheerful we are also prosperous and cheerful because then they buy our goods and our factories are full. Our 20,000 employees are then busy and their families well cared for. Therefore, every man on our payroll whose job is jeopardized when your trade falls off has a vested right in your vested right to protection in the honest pursuit of your business. That is why I feel within the bounds of propriety in speaking here to-night.

It is evident that the business as a whole is not prosperous because the needs of a growing population call for more facilities and investors do not buy enough securities to furnish the money. Temporary expedients such as short-time obligations have only added to your financial burdens instead of lightening them, and, notwithstanding that they may appear so outwardly, public utilities will not be really and soundly prosperous until all their fixed investments in plant have been permanently financed with stock or long-term bonds. It is a bad thing to have a debt that you never intend to pay and never can pay, and that is what such short-time notes are.

If your troubles were due to unreliable machinery and apparatus, and in consequence of it your service had failed to secure the confidence of the public in your ability to serve their needs, the responsibility would rest largely on the manufacturers. But the reverse is the fact. We manufacturers have expended money, time and thought without reserve in producing year by year lower-priced and more efficient apparatus, and you have courageously adopted the new and scrapped the old until to-day the street railway is a modern, efficient, up-to-date plant and fully capable of doing its work well. Not only that, but the savings which have been thus jointly made have not resulted in additional profits to you or to ourselves. It is impossible to trace the actual distribution of these economies, but the public has received the entire benefit of them through increased wages, reduced rates or otherwise.

If the street railway is as good a plant as I have described, why can it not readily sell its securities, and, if it is a necessity, why is it not encouraged more by the community which it serves?

The answer involves so many human impulses and economic checks and counter-checks that to marshal them in order of their importance would be too great a task for me; but to consider this subject from the standpoint of cold business logic, ignoring the human side of it, is only half to consider it.

While it is true that the primitive instincts of all human beings are the same, the mental processes of different races differ widely, and our particular institutions were founded on the peculiar mentality of the Anglo-Saxon race. Now, I do not believe that such people turn naturally to socialism, although they may be temporarily misled by a misunderstanding of a subject and led astray by misguided leaders of one kind or another; and when men who apparently do not con-

sider themselves a part of the public refer to the "peepul" in more or less contemptuous language, they do not remember that under our form of government the people have the power to get anything that the majority wants, except of course when checked by economic or natural laws, and that the moderation of an irritated public with that supreme power is ample evidence of its deep sense of justice and right.

Of course, we find in this country many standards of ethics, ranging from the highest to the lowest, and we find people roughly grouped by these standards, following the theory that birds of a feather flock together. In consequence we have many grades of men representing the people in public office. But to characterize broadly the representatives of the people as incompetent and unfair is as untrue as it is foolish, when it comes from the mouths of public service corporations. If it were true we should be certainly in a bad way and wasting our time in a discussion looking to the improvement of public relations. Anyway, there they are, and you must deal with them, for the monopoly of a public necessity is not and ought not to be an unrestricted private business.

EDUCATION OR CO-OPERATION?

How shall we deal with the people? Shall it be through education or co-operation?

I think education is a poor term to use even if it describes the same work that co-operation does, which it does not. The very use of the word education tends to place our minds crosswise to the trend of the times, and, instead of being instructors, we are in danger of becoming obstructors who never furnish constructive suggestions. We should also remember that public service corporations have received quite as much education during the past twenty years as the people have; in fact, both sides are becoming fairly well educated.

Public service corporations now understand that regulation and competition are the only alternatives lying between unrestrained operation for private profit and governmental ownership. They have also learned that regulation is better than competition, and that it is possible to prosper under a system that would have been regarded as visionary and ruinous only a few years ago. I also believe the people understand that regulated private operation is a great deal better than governmental ownership, and that regulations or laws which run counter to natural or economic laws defeat themselves. With all this painfully acquired education behind us I believe the time is ripe for co-operation, and that results will follow from it that would have been impossible a few years ago.

By co-operation with the people I would not have you understand that I mean co-operation with those self-appointed advisers of the people who fill our magazines with misstatements of facts and upon such premises build their attractive and popular arguments. For an example, take the misstatement by Mr. Brandeis in *Harper's Weekly*, that the Westinghouse Electric & Manufacturing Company and the General Electric Company are only alleged competitors. If all his facts are as false as that one (and I know that one to be false), his conclusions are worthless.

As to this dangerous influence (dangerous because it is irresponsible and has nothing to lose by any damage that it may work), I think a well-organized bureau should be maintained for the purpose of correcting authoritatively and widely all misstatements of facts as fast as they appear. While it is gratifying to note that the number of these disseminators of misinformation is dwindling, it is well to bear in mind that the ablest of them still remain and that they can only be disarmed by publicity. This work should be done temperately. Correction after correction, proved and repeated again and again, must eventually make an impression upon the public mind, and gradually the real prophets will be separated from the false ones. The real representatives of the public with whom we must co-operate are those men who are elected and appointed by the people and who are responsible to the people for their words and actions. When the officers of a public utility meet the official representatives of the people, two responsible agents are in conference, and the outside skirmisher contributes nothing to the argument. But where there is no mutual confidence there can be no co-operation, and when the agents of public utilities say in effect that they have no confidence in the people they are deluding themselves; otherwise they have no right to continue offering their securities to investors.

NECESSITY OF GOOD FAITH IN CORPORATIONS

I venture to say that when the time comes that the public shall have as much confidence in the good faith of public service corporations as you really now have in the public, your securities will sell on a very low interest basis; for, excepting government, state and municipal bonds, I know of no fundamentally safer investment than the securities of a public utility whose business and financial methods deserve and have the confidence of the people. There is no business less subject to fluctuations and whose growth is more continuous and even. Public service securities ought to be a favorite and preferred investment, and I believe they will be so when public confidence has been secured.

The work of co-operation must start from conditions as they now exist or it will not start at all. An attempt to punish public utilities or penalize their customers for past actions will create a situation which prohibits co-operation. Not only that, but it is equitable to begin anew with the present.

A company which in the past has been unwisely or dishonestly financed, engineered or administered ought not to assess its patrons for the ills which time has not yet cured and which still remain to plague it. In like manner, the public, which in the past has granted or dishonestly sold franchises, accepted premature extensions of service or other benefits and has not shown any disapproval of past financing or of past interpretations of law by the courts, is now estopped from repudiating the results if they are unsatisfactory. Therefore, taking its stand that the past is a dead issue, I think that the American Electric Railway Association should bring the street railway industry before the people as a public utility that wishes to co-operate for the future.

This association is the accredited representative of the industry, and, while it cannot interfere in the local problems of its members, it can establish a standard of business ethics. It can proclaim and publish a platform of principles which will be effective if it has the courage not to avoid a single embarrassing issue, and I believe that this platform of principles can be so full and fair that it will be a text for the new co-operation. I fully appreciate that the step is a very important one and that it is forging a weapon to be used against those whose methods do not in the future square with the

new gospel; but we cannot have our cake and eat it too. To be effective as an agent to co-operate with the public this association must have definite principles, and there must be no mental reservations when they are announced.

DECLARATION OF PRINCIPLES

For the purpose of illustrating my ideas as to the character of the platform I have in mind, I venture to suggest a few of the important things upon which the public will probably expect us to state our position.

How do we analyze and define the principles governing a fair return on a fair investment in the street railway business?

A fair return is, of course, one that will cause capital to flow into the business; but, as it varies with the time and the locality, it cannot be permanently fixed. If a permanently fixed rate cannot be established, can this problem be solved for the future in any better way than by the sale at the best prices obtainable of securities which have been approved by a public service commission on a certificate of public necessity? If so, what is that "better way?"

When the question is raised that the return on past investment is inadequate or excessive have we any better basis for a determination of the facts than a valuation of the property involved? If so, we should suggest it. If we haven't a better suggestion we should co-operate in defining principles that should govern such valuations and catalog the items for which a public utility is entitled to credit, in a valuation looking to a fair return on a fair investment; for example:

The cost to reproduce new.

Discount on the sale of securities.

Engineering commissions.

Promotion service.

Cost of developing a going concern.

We should also decide whether as a matter of principle we are entitled to a cumulative fair return for the future only, or whether we should also be reimbursed for past deficits.

If a company has not provided for past depreciation, it will be compelled by the force of logical events eventually to withhold earnings from its security holders until depreciation is cared for.

But is the force of logical events the one that should be relied upon as the best way to remedy past errors of this kind with the least disturbance or chance of disaster? Of course, I believe that it is the best way. At all events, I believe it would be as absurd to deduct depreciation from valuations made for the purpose of determining a fair basis for a fair return as it would be to charge "less for eggs because the hen is growing older," as a lawyer friend of mine has aptly put it.

The public would like to hear our opinion upon the approximate relative proportions of mortgage bonds and stock that should be maintained on a public utility in order to keep within the limits of safe financing. Also, under what conditions bonus or watered stock should be issued; whether the amount should be governed entirely by the exigencies of a given situation; whether, instead of being merged with other securities, it should be tagged in some manner; or whether the practice should be entirely condemned and some other method adopted of paying the projector and pioneer the wages that he must get, for otherwise he will not do the development work.

Of course, having once agreed upon the principles governing a fair return upon a fair investment, it theoretically makes little difference to the consuming public how many or what kind of securities are outstanding upon the property which serves it.

But the people generally do not hold to this theory,

and the investing public is without doubt vitally interested. Therefore, the more definite our announced principles upon this important question can be made, the more confidence we will receive from the public.

HOLDING COMPANIES

A new factor has appeared during the past few years which undoubtedly has been a great engine of force in the development of public utilities, and that is the holding company and syndicate form of operation. And it is quite likely that, so far as the public is concerned, this new element has now become the most important and least understood influence in the public utility field, and possibly more securities are offered through this channel than by all the "single-barreled" companies added together.

Holding companies vary widely in organization and method of conducting their business, extending from the ownership or control of contiguous, homogeneous properties to the ownership or control of widely separated properties of entirely different characteristics. They range from syndicate control of individual properties, each one having its own security issues, to consolidations holding from bare control of its subsidiaries on the one hand to complete ownership on the other.

This is comparatively a new evolution, presenting so many angles that it would be a brave man who would undertake to formulate an ideal plan upon which all holding companies should be built; and it will require a few years to grade them according to their deserts. But the principle of a centralized ownership or control of public utilities by non-resident corporations and the issuance by these corporations of securities based on those of subsidiary local companies is one that can be properly and profitably dealt with in the declaration of principles uttered by this association.

It will be wise for this association to give this question attention, because it ought to anticipate a visit of inspection by the public while it has the opportunity. It will be profitable to the industry because we can bring to the attention of the sponsors for this new development the great responsibility that rests on them to conduct their business in such a manner as to create and preserve public confidence in our public utilities.

That those in control of these centralized organizations should so conduct their business that no injury will result either to the public service industry or other business interests is a principle the importance of which cannot be overestimated. For example, the support and approval of my company and its stockholders cannot be expected in those cases where centralized control results in a door closed to our fair competition and a serious loss to us. It will be still further profitable because with your indorsement in principle the securities of the well-financed and well-managed holding company will be assisted in becoming what they really are—a high-grade investment—because of the fact that they are not subject to the varying fortunes of a single company or locality and because they can obtain money at lower rates than an isolated company can.

TIME TO BEGIN IS NOW

I shall not undertake to set out a complete platform of principles in this talk. I am simply trying to illustrate my ideas upon the subject with a few examples. I feel, however, the time is ripe for the association to do good work in the direction of co-operating with the public, and I believe the street railway business in particular is coming into its own very soon.

For many years the earnings per car mile have been slowly increasing. The lesson of over-extension and long haul has been learned, the public has almost become convinced that the business is not a gold mine, and

I believe the industry is on the eve of blossoming once more.

Therefore, it is especially essential that relations of greater mutual confidence shall be established between the street railway and the public it serves, to the end that the hopeful prospects for the future may not be entirely wiped out by additional burdens imposed by a misled and irritated public.

I know that it will be difficult for strong men to moderate their ambitions for profit and power, and that it will also be difficult for public servants to refrain from playing politics; but, if both sides can agree on a platform of principles and be a little ashamed every time they fail to live up to it, they will gradually grow more and more sincere with each other.

ELECTRIC RAILWAY DEVELOPMENT IN UTAH

Owing largely to its extensive electric power development systems, Utah has shown a noteworthy extension of its electric railway facilities during the past year. On page 87 of the issue of the ELECTRIC RAILWAY JOURNAL for Jan. 10 an account was published of the new Salt Lake & Utah Railway, but the two other principal lines in Utah have also been making extensions.

Thus the Salt Lake & Ogden Railway (Bamberger line) has purchased during the past year eight new electric motor cars, one 40-ton electric locomotive and fifty box, brick and flat cars, and has built in its own shops one high-speed emergency line car and one caboose. Other improvements include large expenditures to secure better power supply. The company has also announced its intention of building carhouses at Ogden large enough to hold all of the equipment of the system.

The Ogden Rapid Transit Company has completed surveys for a new line from Ogden to Logan, about 60 miles, and contract work is to be started in April. The company is also laying out a line from Ogden to Huntsville through Ogden Valley, and enough track work has been done on it to enable the line to be placed in operation within sixty days after work is inaugurated on the new portion of the line.

The pay-as-you-enter type of street car will be another improvement on the Ogden city lines during the coming year. The company has already purchased six of these cars, and as soon as they are placed in operation the other cars now in use will be converted to the same type. The heart of the Ogden city system, at the intersection of Washington Avenue and Twenty-fifth Street, is to be rearranged early in the year at an approximate cost of \$15,000. This point will be double-tracked in every direction to facilitate the increased schedule and the number of cars now passing this corner. Before the opening of the summer season an automatic block signal system will be installed on the Ogden Canyon line.

The prospect of still another electric interurban line connecting Ogden with the cities and towns of northern and southern Idaho is held out by the activities of the Ogden, Lewiston & Northern Railway Company, which purposes to construct a line between Ogden and Preston, Idaho. Surveys have already been made for the proposed line, which will extend through Cache Valley, Ogden Valley and Ogden Canyon.

A newspaper dispatch dated Jan. 27 states that the French banking firm of Perrier & Company has obtained a concession to light Jerusalem by electricity, to establish a water supply and to construct a tramway from Jerusalem to Bethlehem.

The Relations of Public Service Companies and the Public

This Speaker at the Banquet of the Association Defined the Contractual Relations Between the Utilities and the Public and Suggested that the Utilities Educate Themselves to Take a Broader View of Their Duties

BY HENRY W. ANDERSON, VICE-PRESIDENT VIRGINIA RAILWAY & POWER COMPANY

The companies engaged in every branch of public service in this country are confronted by very serious conditions. Unwise and often destructive legislation, in response to public agitation or prejudice, and regulations imposed by various commissions have reached a point where the companies themselves are left with but little, if any, discretion in the management of their properties and are forced to adopt methods which are not only unprofitable but often economically unsound. They are thus in the position of supplying money for the public service without control or authority over its expenditure or use.

This separation of control over the operation and administration of such properties from the responsibility for the financial or operating results has impaired the credit of the companies and greatly increased the difficulty and cost of securing the necessary capital for their continued development. Unless the evil in these conditions can be traced to its source and some effective remedy applied, the end must prove disastrous not only to the capital invested but also to the public interest.

PUBLIC SERVICE A CONTRACT

There is no primary obligation upon any man or body of men to provide public utilities or to discharge the functions which are usual to public service companies. This obligation, if it exists at all, arises only as a result of the contract between the company formed for that purpose and the public.

The contract is embodied in the charter of the company and the state or municipal franchises under which it undertakes to render a specific public service. The public, through its proper legislative body, grants to the company certain rights and privileges to be exercised in a certain manner and for a specific purpose, while the company, on its part, assumes certain definite obligations expressed in the contract or necessarily arising therefrom.

The general effect is to create a relation which partakes of the nature both of a partnership and of principal and agent. It is a partnership in mutuality of interest in and benefits from the enterprise, a relation of principal and agent in that the company is an agency for certain specific objects and the public reserves the right of regulation and control of the business. The company undertakes to provide the capital for the construction and operation of a necessary public work; to dedicate the same to the public use, not generally, but for the specific purpose and to the extent and upon the conditions prescribed in, or implied from, its contracts, and undertakes so to operate its properties as to render a reasonable service for a proper and reasonable compensation. The public undertakes to guarantee to the company the enjoyment of the rights and privileges granted, upon the faith of which the capital is invested, including always the essential right to charge a reasonable rate for the service rendered, and to afford to the private property so employed in the public service that protection guaranteed to all private property by the constitution and laws of this country.

The public, though a party to the contract, reserves

the right of such reasonable regulation and control over the properties of the company as to insure the service called for by the contract at the rates therein prescribed, or, in the absence of any specific provision for service or rates, then a reasonable service at reasonable rates.

PUBLIC POWER TO CONTROL INVOLVES POWER TO PROTECT

The resulting position of the property of a public service company is peculiar. It is neither private property in the ordinary sense of that term nor is it public property, but it partakes of the nature of both. It is private property to the extent that it cannot be used by the public for any other service than that provided by the contract and then only for a fair and just compensation and subject to conditions that may be prescribed in the contract. It is public property in the sense that it is subject to the public use upon the conditions of the contract. If property is employed in an ordinary commercial enterprise and it is found that owing to unfavorable conditions or other reasons the enterprise is not profitable, the business may be discontinued and the capital withdrawn, but when once a public service corporation is established it must continue its operations. This power to deny to the owner of the property the right to discontinue the business or to withdraw the capital from the public service when once it has been so engaged, together with the unusual power in one of the parties to the contract to regulate and control the performance thereof by the other party, imposes upon the public to a peculiar degree the obligation to protect the company in the enjoyment of its contract rights and to protect the property used in the public service to the full extent required by the principles of justice and fair dealing. This power to control necessarily involves the duty to protect.

Where the rights, duties and obligations of the respective parties are defined by contract or arise therefrom and where their interests are thus in common to the extent that the success and prosperity of one is dependent upon the success and prosperity of the other, it would seem natural to expect that their relations would be comparatively simple and that they would be found working in harmony for the advancement of their common welfare. But we know that such is not the case, that the history of the development of public service companies in America is but the record of one long series of controversies in and out of the courts, and that these controversies have now reached the stage where it is a question whether the companies can continue to secure the capital with which to render the service for which they were created.

WHY ARE PUBLIC SERVICE COMPANIES UNPOPULAR?

There must be some reason for this condition. The source of the trouble must be found before any effective remedy can be applied. This involves an inquiry as to how far the companies and the public have lived up to their respective obligations.

The primary and important duty of a public service corporation is to render a reasonable service in its

chosen field of operation, at reasonable rates. Speaking generally, I believe that an unprejudiced examination of the record of the public service companies in the United States will demonstrate that they have discharged this obligation. I do not mean to say that there are not many cases in which the companies have failed to render a reasonable service or have charged excessive rates. But, taking the situation as a whole, the public service companies may justly claim that, from their inception, they have rendered a reasonable service, having regard to the surrounding conditions and circumstances and that this service has been given at low and constantly decreasing rates.

The conditions are such in the United States that any comparison with a similar service in other countries is liable to be misleading. In most foreign countries the public utilities are operated under entirely different conditions as to density of traffic and extent of territory served, and the zone system of charges is largely applied. In America the rapid growth of our cities has created a public demand for the extension of lines into suburban territory, which are often unprofitable, while the system of fixed rates for the service rendered without regard to the distance or territory covered tends to produce a constant decrease in the rate of compensation charged for the more extensive service, at the expense of the company and to the profit of the public.

The records of rate reduction and improvement in service demonstrate that whatever may have been their shortcomings in other respects, the public service companies have supplied to the public an essential convenience with constantly improving service and decreasing rates, while the cost of all other public necessities or conveniences has increased.

Let us turn for a moment to the other side of the case. We have seen that in consideration of the capital invested and service rendered the public is under obligation to protect the company in the enjoyment of the rights and privileges granted, and so to exercise the power of regulation and control as to encourage, rather than embarrass, the legitimate development of the public service property. How have these obligations been discharged?

In the early stage of public service development broad and liberal rights and powers were granted to such companies as an inducement to the investment of capital in experimental and hazardous enterprises. Even then the business was rarely successful and failure followed failure, with one reorganization after another, resulting in heavy loss to the original investors. When at last the business had been developed to a point where it gave promise of profit and the companies began to exercise the powers so granted, the public took steps to limit and restrict these powers in every manner permitted by the constitutional provisions against the impairment of contracts. In many instances the companies were forced to yield to the public demands to the extent that the old contracts and franchises were surrendered and new franchises accepted imposing harsh conditions and requiring a more extensive service at lower rates.

GROWTH OF REGULATION

Under the name of regulation, the companies have been required to extend their service into unprofitable territory, to the great profit of the public and enhancement of property values, but often at great loss to the companies themselves.

Although not contemplated in original contracts, the public has undertaken to supervise all financial arrangements and to regulate operations to a point which has, in effect, deprived the companies of any substantial con-

trol over their properties, and this regulation and control have often been exercised by agencies wanting in experience and knowledge of financial and operating problems.

The properties of public service companies have been segregated as special subjects of taxation and thus deprived of that equality before the law which is essential to justice. The public has appropriated their revenue in the form of taxes until to-day many of these companies are paying in excess of 10 per cent of their gross revenues to the support of the public.

Special legislation has been passed imposing liability upon the companies for accidents and for other causes to which other classes of industry in the community are not subject.

Even in the courts, the prejudice of juries has resulted in constantly increasing verdicts, frequently in cases which are without merit, so that the expense of accident and personal injury claims often consumes from 5 to 10 per cent of the gross revenues of the company.

The demands of labor for constantly increasing compensation have the public support, and at the same time in many communities the companies are required by legislation or franchise provisions to furnish special rates at certain hours of the day, thus giving special privileges to this large class.

At every meeting of a State legislature numerous bills are introduced, which if passed into laws would render the successful operation of the companies impossible. Thus the companies are constantly on the defensive and their energies and resources are consumed in efforts to safeguard their properties which the public is under obligation to protect.

In the face of these harsh conditions and many others which might be enumerated, the public insists upon a constantly improved service at decreasing rates. It is willing to pay more for all other necessities and conveniences of life, but when it comes to the service rendered by public service companies it insists that it shall get more and pay less.

The reasons for these conditions must be understood before an intelligent effort can be made to find or apply a remedy.

It is very human to try to blame others for our troubles. I am afraid we are too often disposed to condemn the public for a spirit of unfairness and injustice in dealing with public service companies, just as the public is disposed to question the honesty of purpose and sincerity of the companies themselves. We will always have demagogues and dishonest men, but to contend that any large proportion of the public is dishonest or intentionally unfair is to contend that society is a failure. Nothing is gained either by the public or the companies by criticism or recrimination. It is essential that each of the parties to the arrangement should recognize the honesty of purpose of the other as a condition precedent to any mutual understanding or co-operation.

DEFECTS IN PRESENT CONTRACTUAL RELATIONS

There are certain inherent defects in the contract or relation between the companies and the public which tend to produce the conditions which I have just described.

The power of regulation and control of public service properties is reserved in the public, while the responsibility for their financial success rests upon the company. The results of the exercise of this control are direct in their effect upon the owners of the property, while, to a great extent, they are indirect in their effects upon the public. If this power is unwisely exercised it results in immediate loss to the owners of the

property, but a service will still be rendered by receivers or otherwise and the effect upon the public interests will be seen only in the indirect consequence, depreciated public service and resulting restrictions upon the prosperity and development of the community. The public, therefore, fails to realize that these conditions resulted from its own unwise action, blames them upon the company, and seeks by imposing additional regulations and restrictions to remedy the evils which have resulted from too much or unwise regulation.

PUBLICITY AND PARTNERSHIP

Much may be done to remedy this condition by impressing upon the public the direct interest which it has in the success of the public service companies. A large proportion of the revenues of such companies goes to the public either in payment for wages and material or taxes and public charges, and the benefits to the public in increased values of property resulting from the public service rendered far exceed the benefits derived by the owners of the property from its operation. If the public could realize these essential facts, it could then see that it was to its interest to promote and encourage the successful operation of public service companies.

A further remedy may be found in the modification of the existing contract so as to give the public a more obvious and direct financial interest in the success or failure of the public service companies and in the revenues derived from their operation through some profit-sharing scheme. Self-interest is a most potent factor in human action, and if some plan were devised by which the public would share directly in the profits and losses from the operations of such properties, it would go far to restrain the unwise or unjust exercise of the power of regulation and control.

I believe that one of the most important duties confronting those interested in public service companies is to devise some fair and judicious means by which this result may be accomplished, not only as a remedy of existing conditions, but in order to offset a growing tendency toward schemes for public ownership and operation which, if not economically unsound, are wholly unsuited to the political and other conditions existing in this country. We cannot stand still in any field of human endeavor. If you whose interests are at stake and who are students of the questions involved do not open the way by which progress may be attained along sound lines, then the public will make its own experiments, often under ignorant or selfish leadership, and at your cost.

But of course the fundamental source of error and injustice on the part of the public in dealing with public service companies and in the exercise of the powers of regulation and control is ignorance and prejudice.

It could hardly be expected that a partnership would be successful or co-operation would be secured where one partner having the power of control and regulation of the business was ignorant of its conditions and requirements, or was prejudiced against or suspicious of the other. The same would be the case if we regard the relation as that of principal and agent.

This condition is due to some extent to a general indifference of individuals to public affairs and obligations, but more largely to the mistakes or omissions of the companies themselves. The company furnishes the capital and is the managing partner in the enterprise, or, if you please, the agent of the public for achievement of the purpose of its organization. It is therefore its duty not only to render the service for which it was created, but to see that the powers granted and the capital employed are used and applied only to this purpose and to keep its partner, the public, fully in-

formed as to the affairs of the partnership not only that it may know that the business is being honestly and fairly administered, but to the end also that the powers of regulation and control may be intelligently exercised.

Frankness compels the admission that in too many instances the powers granted for public purposes have been used to promote private ends, that instead of striving to keep the public informed the companies have too often contested every effort on the part of the public to secure information as to their affairs. Many of the controversies in the courts and elsewhere to which I have referred have resulted from this attitude on the part of the companies.

Such conduct on the part of a managing partner or an agent in private enterprise would result in ignorance of the business and prejudice and suspicion in the mind of his partner or of his principal. Naturally, it has created these results in the minds of the public, especially when this ignorance has been played upon and this prejudice and suspicion cultivated by the activities of demagogues and grafters.

Happily the last few years have witnessed a great improvement in these conditions and a clearer realization on the part of managers of public service companies of their essential obligations to the public as a partner in the enterprise. But the education of the public mind, ignorant of the conditions and requirements of a complicated business, and the removal of prejudice and suspicion once created, is a slow and difficult process. The task must be performed by the companies themselves, not only because they are in a large measure responsible for these conditions, but for the reason that it is essential to their successful existence. It can only be achieved by a full and complete recognition of the rights of the public not only to an adequate service at reasonable rates, but to that information and consideration which is due to a partner in a common enterprise or to a principal by an agent.

SELF-EDUCATION IN PUBLIC RELATIONS A NECESSITY

When once the source of the trouble is appreciated the remedies are obvious but their application is sometimes difficult. I submit only a few suggestions to this end among many which will occur to you.

In order to inform the public we must begin by educating ourselves. The entire organization of a public service company, from the board of directors to the least important employee, should realize that they are public servants and that they owe to the public a duty as direct as that which they owe to the company.

This applies with special force to those officers and employees who are constantly in touch with the public. We hear a great deal about the "man higher up," but in public service companies much of the difficulty is with the "man lower down." The public fails to discriminate between the unwise, unjust and inconsiderate action of an agent or employee and the action of the company itself, and the company is held responsible.

The companies have been successful in rendering a good service at low rates, but have been unsuccessful in their public relations. They should, therefore, place strong men at the points of weakness and strive to provide intelligent, efficient and courteous employees at every point of contact with the public.

The technical side of the business has been fully developed, but the public side has been neglected, and here there is urgent need of reform and improvement.

The companies having thus brought themselves to a proper appreciation of the importance of public relations and of their duties and obligations to the public, and having strengthened their organizations where they come in contact with the public, should encourage all

efforts to secure and disseminate accurate information, and co-operate with governmental agencies established for that purpose.

RELATIONS WITH AND DUTIES OF REGULATING BODIES

Public service commissions with legislative, executive and judicial powers are not entirely consistent with our theory of government, but they are born of necessity and have come to stay. The companies should realize that it is better for them as well as for the public that some agency of this kind should be established through which accurate and complete information can be obtained as a basis for the regulation and control, and that such regulation and control should be exercised by trained men after judicial inquiry, than that this end should be accomplished by indiscriminate legislation, often passed without correct information or in response to the appeals of demagogues or to meet the exigencies of a political situation. A properly organized and conducted public service commission is an effective instrumentality, not only for the regulation of public service companies, but for the prevention of injudicious and ill-considered public action.

It is the duty of the public to see that proper men are appointed to such commissions, and the duty of the commission to recognize that it is not a prosecuting body, but that it represents and must protect the companies as well as the public. This should be strongly emphasized.

These commissions have made mistakes which have been costly, both to the companies and the public, but this is to be expected in all human institutions. Upon the whole, as in my own state, they have been helpful, and, even where they have been radical or unjust in the exercise of their power of regulation and control, they have been better, both for the public and the companies, than constantly changing legislative bodies seeking to exercise the same powers.

If the companies will give to such commissions sympathetic co-operation and support, furnish them full and accurate information and recognize the rights of the public in the premises, they can greatly facilitate the proper discharge of the duties of such commissions and make them important instrumentalities in the protection of public service companies and in overcoming public ignorance and prejudice.

PERFECTED PUBLICITY

With the management of the companies thus alive to their duties and obligations to the public and their organizations perfected with special reference to the points of public contact; with the companies working in harmony and co-operation with the public service commissions and other agencies for their regulation and control, the task of educating the public to an appreciation of its duties and obligations to the companies and its interest in their success or failure should not be difficult.

The numerous instrumentalities—the press, the court room, the forum, and every other legitimate channel for conveying to the public the information to which it is entitled and which is necessary to a proper appreciation of the problems involved—should be used. These vary with the conditions existing in the different communities. But care must be taken in every instance to give to the public the whole truth on the subject discussed. The half truth is often worse than falsehood and only increases public prejudice and distrust.

There are now evidences of improvement in sentiment with regard to public service companies. This is due to some extent to a clearer understanding on the part of the companies themselves of their duties to the

public and of the obligations growing out of their contract relations, but the public has also learned an important lesson through experience. The withdrawal of capital from public service enterprises and the resulting business depression has taught the public that economic laws cannot be violated with impunity and that harsh and unjust regulations of public service companies lead to public disaster. The time has now come to press the campaign for the overthrow of ignorance and prejudice.

My appeal to-night is for a broader statesmanship on the part of the managers of public service companies. Technical knowledge they have displayed, but it has been demonstrated that this is not sufficient. Democracy moves forward, not backward. In its natural development we are destined to see many changes in the prevailing ideas with respect to the rights of property and community interests. It is therefore incumbent upon those charged with the duty of serving the public and with responsibility for the successful administration of public service companies to anticipate these changes, to study public questions, to gather from past experience the light to guide them in the solution of future problems. By this course they may be able to direct public sentiment into safe channels and to effect these changes with the least injury to property interests and to the public, and to battle successfully with the forces of ignorance and prejudice, remembering always that it is as true to-day as it was nineteen hundred years ago that "the truth shall make you free."

MEETING OF EXECUTIVE COMMITTEE OF MANUFACTURERS' ASSOCIATION

The executive committee of the American Electric Railway Manufacturers' Association met on Jan. 29, Cornell S. Hawley, president, being in the chair.

The other members present were: Charles R. Ellicott, Westinghouse Traction Brake Company; S. K. Colby, Allen & Peck, Inc.; Edwin H. Baker, Galena-Signal Oil Company; W. L. Conwell, Transportation Utilities Company; F. A. Elmquist, Sherwin-Williams Company; Henry C. Evans, Lorain Steel Company; Thomas Farmer, Jr., Consolidated Car-Heating Company; B. A. Hegeman, Jr., U. S. Metal & Manufacturing Company; James H. McGraw, McGraw Publishing Company; Charles C. Peirce, General Electric Company; D. W. Smith, the Peter Smith Heater Company, and H. G. Connaughy, Dearborn Chemical Company.

Several standing committees reported. It was announced that Thomas Finigan, chairman of the local committee for the San Francisco convention, had appointed the following members on his committee: W. E. Amman, Galena Signal Oil Company; J. H. Steiger, American Brake Shoe & Foundry Company; C. E. Heize, Westinghouse Electric & Manufacturing Company; H. S. Crocker, Westinghouse Air Brake Company; A. V. Thompson, General Electric Company; H. R. Hoack, Pierson, Roeding & Company.

Messrs. Baker, Conwell and others then spoke of the several plans which had been proposed for increasing company membership in the Manufacturers' Association.

Mr. Colby reported for the efficiency committee, and the executive committee discussed several details of organization procedure which were suggested by Mr. Colby's committee. The chair announced that, in addition to the four vice-presidents, the president and the secretary-treasurer, who under the by-laws make up the convention location committee, he would appoint Charles C. Peirce, General Electric Company, as a member of the location committee for the 1914 convention.

Proceedings of the Midyear Meeting

The Fifth Annual Midyear Conference of the American Electric Railway Association Was Held in New York City on Jan. 30—An Account of the Proceedings Is Published Together with Abstracts of the Papers Which Were Presented Before the Association

The fifth annual midyear conference of the American Electric Railway Association was held at the Engineering Societies Building, New York City, yesterday. The president, Charles N. Black, of San Francisco, called the meeting to order at 10.50 a. m. and asked Mr. Schreiber, member of the committee on company sections and individual membership, to present his paper entitled "An Appeal for the Support of Company Membership." This paper is published in abstract on another page.

At the conclusion of this paper the president read a letter to Mr. Schreiber from Mr. Mortimer of The Milwaukee Electric Railway & Light Company. It said in part:

"Our two years' experience in Milwaukee with the local company section has indicated that it possesses fields of activity which were not contemplated at the time the section was formed. We are confident of the opinion that the local company section movement is capable of doing a great deal of good work throughout the country, and from our standpoint it serves three general functions: (a) educational, (b) development of company spirit, (c) improvement of public relations.

"With an organization such as a local company section, it is possible to add features to the programs other than those falling within the above classification, and it gives fruitful opportunity for the development of good fellowship among all the employees of the companies represented in the association."

Farley Osgood, Public Service Electric Company, Newark, N. J., said that there was one feature which Mr. Schreiber had not brought out in his paper which was interesting, because the Public Service Corporation operates not only a railway system, but also an extensive lighting system. The Public Service Electric Company, the lighting company, had its branch section of the National Electric Light Association, and the company made a point of having the lighting members of the organization join hands with the railway members of the railway organization, in order that the work of the two companies and the engineering features of the two companies might be harmonized. This kind of association work could be well carried on by interchange of membership, particularly on properties operating more than one kind of service.

JOINT USE OF POLES

The president then called for the report of the special joint committee on the joint use of poles. This report was presented by W. J. Harvie, chairman. This report is published in abstract elsewhere in this issue. The report was approved.

REGULATION AND PROFIT SHARING

The president then introduced Halford Erickson, of the Wisconsin Public Service Commission, who was to read a paper on "The Economic Aspects of Regulation Compared with Profit Sharing with Municipalities." In introducing Mr. Erickson the president said that Mr. Erickson was peculiarly fitted to treat this subject as he had been an accountant with the Omaha Railroad before he entered political life. Prior to his appoint-

ment as a member of the Railroad Commission in Wisconsin in 1905 he had been a commissioner of labor, an office which involved the compilation of statistics of employment in the various industries. His then associates were Prof. B. H. Meyer, now of the Interstate Commerce Commission, and the Hon. John Barnes, now of the Wisconsin Supreme Court. The high standing of the Wisconsin Commission and the frequency with which it has been quoted, the speaker said, had been largely due to the comprehensive knowledge and views of Commissioner Erickson. Mr. Erickson's paper is published in another part of this issue.

At the conclusion of the address General Harries proposed a standing vote of thanks to Mr. Erickson for his sound and valuable paper. This was given with applause.

ADDRESS OF MR. BRADY

Arthur W. Brady, Anderson, Ind., first expressed his appreciation of the excellent paper presented by Commissioner Erickson. Mr. Brady stated that the debt of gratitude owed to Commissioner Erickson for his work as a member of the Wisconsin commission was a debt not owed solely by the electric railway industry but by all public utility industries of the country and that Mr. Erickson had done more to establish proper relations between the public and the utilities than any other member of any State commission, past or present.

Mr. Brady said that Commissioner Erickson treated his subject as one of "regulation by commission," as contrasted with that of "regulation by franchise contract," but that to himself the matter of profit-sharing was the same whether the system of regulation was that by a regulating body or by franchise contract. According to Mr. Brady, the question of profit-sharing was one that was involved in all questions of franchise creation and regulation, whether or not there were any profits to be shared. On the question of profit-sharing public utilities might be classified in three divisions. The word "profit-sharing" as ordinarily used meant the giving of profits in the form of some lump payment to the public authorities, probably into the general fund to be used for the general purposes of the community. This form was probably seen in this country in its fullest flower in Chicago, where large sums were being paid into the city treasury under the franchise terms there existing. Under another form of profit-sharing, exemplified in Cleveland, what would be a profit was distributed to the patrons of the company by a reduction in the rate of fare. Still another form, the common one, provided that what might be profits, in the sense of something more than the mere cost of the capital, was returned to the public in the form of increased service, extensions of lines, etc. This last form existed whether the regulation was by franchise contract or by a commission.

As to the merits of the three, Mr. Brady felt that there might be differences of opinion. Chicago appeared to be satisfied with its system; Cleveland appeared to be satisfied with its system, and the trend among commissions was toward the third form of profit-sharing. It would not do, however, to say that the patrons of the industry were entitled to all of the

profits arising from the industry and properly belonging to the public, for part of these profits, in some cases, might very well go into the general treasury. The reduction in fares was often so slight that to the individual it meant nothing, and yet when millions of fares were considered, some large sums might be created, even with a very low rate of fare, which could properly, at least in part, be paid into the city treasury. The last form of profit-sharing, however, that of increasing service, making it more luxurious, extending lines into the undeveloped portions of the municipality and the outlying districts, was the form of profit-sharing that was entitled to the especial favor not only of the industry but of the public itself. The other forms, the reduction in the rate of fare and the payment into the corporate treasury, as pointed out by Commissioner Erickson, in the long run were likely to be a burden upon, instead of a benefit to the public. They were likely to have the effect of throttling the local industry or restricting its growth, for it was impossible to improve the service or the plant in any way without the cost being replaced in some manner by the earnings of the property. If the payment into the corporate treasury under a profit-sharing system was such as to burden the industry, the public would have to pay the bill.

Upon this question of local regulation as compared with state regulation, it would appear the present system of state regulation was probably here to stay for some time; at least, it would have a long and thorough trial. There could be little doubt that the preponderance of advantages was in favor of the system advocated by Commissioner Erickson. The question whether the present system of regulation should prevail or whether there should be public ownership of public utilities was one that would have to be met fully and frankly within the next few years. The tide in favor of local municipal ownership had sensibly abated, but the campaign in favor of public ownership on a larger scale appeared to be gaining force. The last report of the Postmaster-General recommending the taking over of telegraph and telephone systems of the country, the action of the United States Senate in passing the bill for the building of a railroad in Alaska, the speech of Senator Kenyon of Iowa advocating the taking over of the entire 250,000 miles of the railroads of the United States by the national government, all these were evidences of this tendency toward national ownership. Instead of deprecating the discussion of this question it should be threshed out thoroughly at this time.

So long as the fair value of the property was returned and no repudiation and confiscation on a grand scale was made, stockholders, officers and operating men in the electric railway field had, it is believed, from the standpoint of their individual interests, no objection to public ownership. No class of men in the country, however, was better capable of forming a dispassionate conclusion as to what public ownership of the railroads and other public utilities would mean than those who are actually concerned in these properties, whether as owners, investors, stockholders, bondholders or officers. They saw the inability of the government to operate these properties as they should be operated without destroying the economies that had been effected, increasing the cost of operation enormously and thereby adding to the burden which the people of the country might be subjected to, and also injecting into the political system a hazard far greater than ever before.

As to the question of economy under government operation, the speaker suggested, it was necessary only to go to Washington and see the departments there

turning out their thousands upon thousands of employees at the late hour of 4.30 p. m.; employees who had been at work, hard and long, from 9 a. m. with a half-hour for rest, a seven-hour day. He remarked that one had only to think of the actual work that these people were doing at the very center of our government, and then consider whether it was possible for the government to effect economies in the operation of the railroads of the country, as some people were proposing.

If the question of the day was whether there should be public ownership or regulation by commissions, had anyone found anything better than regulation by commissions? There were dangers in regulation by commissions, just as there were dangers in any form of government. Some of these dangers had been pointed out by Commissioner Erickson, but when the people should have a chance to consider the question thoroughly he had no doubt what the final answer would be. He believed the best thing which could happen in this country would be to have the matter threshed out so that the different specters which had frightened those interested in public utilities would vanish and the managers would be able to secure the capital required to develop these industries to the fullest extent.

There was no government in the world which up to this time had attempted to regulate the railroads and the other public utilities in the comprehensive way in which this country was now undertaking to regulate them through state commissions or federal commissions. It was peculiarly an American system, but time would be required to work these things out.

The indeterminate franchise had been referred to, but Mr. Brady said that while he understood the theory of the indeterminate franchise he did not understand its application or how it was regarded by the courts.

It was to be hoped that through the indeterminate franchise a method would be worked out placing these utilities, so far as their franchise features were concerned, in a state of absolute permanence, with fairness to the public, but that was something which evidently was going to take time to accomplish. Up to the present there unquestionably had been a feeling of distrust. That was evidenced in Wisconsin by the fact that only a comparatively small number of the utilities there had taken advantage of the law allowing them to convert their local franchises into indeterminate permits, and the Legislature had therefore converted all the local franchises into indeterminate permits. That was permissible under the constitution of Wisconsin, but probably would not be generally permissible under the constitutions of a large number of the states. Until one knew exactly what the indeterminate franchise was in practice, whether it was something that accomplished what it was expected to accomplish, there would naturally be a certain amount of distrust regarding it. In conclusion, he expressed his appreciation of the paper of Mr. Erickson.

ADDRESS OF MR. ROSECRANTZ

Clarke M. Rosecrantz, counsel The Milwaukee Electric Railway & Light Company, said that as a resident of Wisconsin for many years he took great pride in the Wisconsin commission. He said that he was familiar with the history of the present Wisconsin commission law and the personnel of the commission had always been of the highest. Nevertheless, it was evident, looking at the country as a whole, that some people felt that they were not getting everything they wanted in the way of rate reduction, and there was a somewhat widespread feeling in favor of municipal control as distinguished from state control.

An example of the relative merits of state and mu-

municipal control was illustrated by two instances in Wisconsin. Shortly after the commission was formed a petition was filed for the reduction of rates upon steam railroads. The rates were 3 cents a mile in Wisconsin. The commission carefully investigated the question and decided that the lowest rate which should be ordered was 2½ cents a mile. The ink was hardly dry on the report which the commissioners made when a senator, angry because he had difficulty in checking his trunk from some point in Wisconsin to Chicago, on account of the fact that there was a 3-cent rate and a 2-cent rate, introduced a bill within the last six or seven days of the session, without any investigation, and the bill was acted upon by men who had never had anything to do with the operation of a railroad or with the financing of a railroad and of necessity could not inform themselves in the few days left before adjournment, and a statute was enacted reducing the rate to 2 cents a mile. That was a fair sample of the manner in which rates are fixed by legislatures. The roads acquiesced in it, and it may be thought that that was indicative that the commission's ruling was improper. But the public has had to bear the inconvenience necessarily following this drastic legislative action, because the railroads were obliged, in order to comply with the law, to reduce the service which the public had theretofore been receiving. Municipal regulation was often equally arbitrary and unwise.

There had been, of course, very little experience with municipal ownership in this country. The people who advocated it were always talking about the marvelous results of municipal ownership in other countries. There was always a pot of gold at the end of the rainbow. The climate was always fine at the other side of the globe, but when the situation was investigated one of two things would be found present: either the method of operation as pursued by the foreign country was not in accordance with American practices and demands or the roads did not give good service.

Those gentlemen who sought municipal regulation did not represent the great mass of the people, merely those who were influenced by the haranguing of the demagogue, who wished only to get something for nothing. It therefore became incumbent upon this association and similar associations so to conduct their business that they would not give material for such gentlemen as desire to assail the present condition of affairs. The speaker emphasized the statement that it was of the utmost importance to this industry, of the utmost value, that this paper of Commissioner Erickson's presented that morning—because coming from him as a high authority on this subject—should be widely disseminated, as it would be believed by all thinking people and would be a convincing argument against the claims of any one who was insisting that they should return to the old order of things.

The question of exacting tolls by inserting provisions in the franchises in which certain percentages of gross or net returns shall be turned over to the public had a most attractive sound, and it was one which these gentlemen who desire to get into or stay in public office were very eager to seize upon, as Commissioner Erickson said, that they might go down into history as shrewd bargainers with public service corporations in the public behalf.

Much had been said about a model form of franchise, and much had been written about it. The articles on them seemed to have been written by gentlemen who spent their time in the cloister rather than out in the world engaged in the conduct and operation of railway utilities. They provided all sorts of fanciful things. They went into detail as to what should be in the franchise so that the municipality

could control the company, and those model franchises were most dangerous in that while they contained provisions to safeguard the utility, such provisions would not be included in the proposed model franchise, while all the conditions for harassing of the utility would be there. As an illustration, in a recent publication where a long discussion of a model franchise appeared, the author in all seriousness said there should be a provision in the franchise which should prohibit the utility from settling any claim against it out of court. Such a clause, of course, would be absolutely contrary to public policy. Everything should be in favor of settlements out of court.

A model franchise, it seemed to the speaker, should not be very long. There was no occasion for it. When a street railway engaged in business, it assumed a public duty and the Railroad Commission had full authority over it, no matter in what terms the franchise might be couched. But a street railway franchise should properly contain a provision that in the event the municipality should desire to purchase, it might do so. It should not be entitled to purchase overnight; a certain period of notice, say five years, should be required. Furthermore, so that the public might not suffer, it might not be improper to put in a provision that the road might be turned over to another operating company in the event that the utility would not or could not perform its public service properly. Otherwise, the speaker said, the franchise should be without date of expiration, indeterminate, because, whether the franchise was for ten, twenty, thirty, forty, seventy or 100 years, some portion of the gross returns must be set aside in order to take care of the possible loss in value at the time the franchise expired. And whenever such a sinking fund should be set up the public would not be getting what it should get, and what it wants—that is, adequate service at the lowest possible rates.

The morning session then adjourned.

AFTERNOON SESSION

President Black called the afternoon meeting to order at 2.50. In the absence of F. W. Hild, general manager Portland Railway, Light & Power Company, his paper, entitled "The Effect of Rate of Fare on Riding Habit," was read by Professor Richey. It is published on another page.

RATE OF FARE AND RIDING HABIT

The first one called upon to discuss Mr. Hild's paper was Luther R. Nash, of Stone & Webster, whose remarks in the main are published elsewhere in this issue. During his discussion, however, Mr. Nash said that since his remarks had been prepared an increase had been reported in the fares for the Cleveland service to take effect very soon. Mr. Nash said that he understood that this increase was to cover a charge for scrapping and abandoning certain equipment so that the new 4-cent fare would provide for past depreciation as well as for current operation. In the understanding of the speaker, however, there would be no provision in this increased rate for current depreciation on the facilities in Cleveland, which, as Mr. Hild had shown, were far below the average in comparison with cities where the full 5-cent fare obtained.

The next speaker on the program to discuss Mr. Hild's paper, S. G. McMeen, president Columbus Railway & Light Company, was absent, and the discussion was continued by R. B. Stearns, vice-president and general manager Milwaukee Railway & Light Company, whose remarks are published elsewhere in this issue.

F. R. Coates, president Toledo Railways, next presented a few facts concerning conditions in Toledo.

According to Mr. Coates, each of the four political parties in Toledo has as one of its principal planks the 3-cent fare. An ordinance was enacted in March, 1911, compelling the company to operate the straight 3-cent fare. In January, 1912, a temporary fare arrangement was begun and at that time another drastic ordinance was put through the council. A compromise was made by giving 5-cent cash fares, six tickets for a quarter, and four hours a day, from 5.30 to 7.30 in the morning and 4.30 to 6.30 at night, 3-cent fares with transfers. There was also a 1-cent fare for children under one year of age.

At the time the temporary rate was instituted, in January, 1912, an agreement was made with the city officials that accountants in whom they had every confidence should be appointed, to be paid by the company. These accountants were to go over the company's books for a period of one year, and at the end of that time the city was to reopen the franchise negotiations and base the rate of fare on what the report of the accountants would show. The city, stated the speaker, was then under an independent administration. An accountant was selected who had been one of the auditors for Tom Johnson. For the year 1912, according to their report, the company averaged 3.13 cents per passenger; 44,000,000 paid passengers and 55,000,000 total passengers were carried. The expenses for taxes, maintenance and operation were 2.82 cents; 0.18 cent for taxes, 0.82 cent for maintenance and 1.82 cents for operation. If the 3-cent fare had been applied and the same proportions used as in Cleveland to-day, there would have been a return of 2.39 cents per passenger, or a loss of 0.43 cent for each passenger.

Asking his hearers to bear in mind that the temporary arrangement went into effect on Jan. 1, 1912, Mr. Coates then presented additional figures from Toledo reports. The population of Toledo is 200,000, and there are 116 miles of track, with 300 cars operated in rush hours.

COMPARATIVE EARNINGS IN CENTS AND CAR MILES OF TOLEDO SYSTEM				
	1910	1911	1912	1913
Earnings per pay passenger	4.76	4.76	4.00	3.93
Earnings per passenger	3.74	3.75	3.15	3.05
Car miles	7,257,114	7,488,026	7,582,233	7,701,584

PERCENTAGE OF FARES COLLECTED ON TOLEDO SYSTEM							
Year	Trans-fers	5-Cent Fares	3-Cent Fares	1-Cent Fares	Tickets		
					11 for 50 Cents	6 for 25 Cents	5 for 15 Cents
1910..	25.65	65.09	0.52	0.38	23.11	9.15	1.75
1911..	25.25	65.35	0.52	0.39	22.94	9.09	1.71
1912..	25.70	26.95	3.46	2.02	0.52	42.19	24.86
1913..	28.05	21.67	2.95	2.09	....	46.60	26.69

The paid passengers for the year 1910 were 35,204,090; the total passengers carried, 44,845,108. For the year 1911, paid passengers were 37,199,889; the total passengers carried, 47,234,917. For the year 1912, the paid passengers were 43,464,546; the total passengers carried, 55,235,734. For the year 1913, the paid passengers were 47,877,673; the total passengers carried, 61,686,164. The fact seems to be, stated Mr. Coates, that where a company puts in lower-fare tickets the 5-cent cash fare breaks down, for these cause a material reduction of the 5-cent cash fares. Based on what Detroit is doing with seven tickets for a quarter, the company would receive only 2.95 cents per passenger. On the Cleveland basis, where they charge a cent for the transfer and do not redeem it, the company would receive 3.1 cents per passenger. According to the speaker, the action of President Black in appointing the committee on publicity was one of the best things that the association could have done to combat the continual talk about low rates of fare.

LABOR LEGISLATION

Following these remarks Mr. Tingley, second vice-president of the American Railways Company, then presented his paper on "Present-Day Influence of Labor on Legislation." It is published in abstract on another page. There was no discussion.

The president then suggested that a vote of thanks should be extended to the committee on subjects and to its able chairman, James D. Mortimer, who had furnished such an excellent program for the convention. He also suggested a vote of thanks to those who had presented papers. After these had been voted the meeting adjourned.

HEARING ON INTERSTATE BILLS

Members of the committee on federal relations of the American Electric Railway Association spoke at a hearing before a sub-committee of the House of Representatives committee on interstate and foreign commerce at Washington on Jan. 23. The meeting was called to consider bills providing for steel cars and other bills which would affect electric carriers engaged in interstate commerce.

Statements in regard to the bills were made by Arthur W. Brady, chairman of the committee and president Union Traction Company of Indiana; Charles L. Henry, president Indianapolis & Cincinnati Traction Company; Bernard B. Weadock, Detroit United Railway; A. E. Potter, Rhode Island Company, and L. E. Fischer, Illinois Traction Company. Several others attended the hearing but did not make statements. These included Robert I. Todd, president Terre Haute, Indianapolis & Eastern Traction Company; J. M. Barrett, president Fort Wayne & Northern Indiana Traction Company, and Albion E. Lang.

NOVEL CAUSE OF POWER INTERRUPTION

A heron recently caused the electric lighting and railway service of the British Columbia Electric Railways Company, Ltd., Vancouver, B. C., to go out of commission. The heron was flying over the peninsula between the Fraser River and False Creek one night and came in contact with the three high-tension wires of the company along the line of the Lulu Island railway. A short-circuit resulted, about 1 ft. of each of the three wires at the point being burned away. The resulting surge put the substation supplying energy for Vancouver out of business. The cause of the short-circuit was not known until the following morning when the lineman discovered the dead heron lying at the side of the track. The company made good use of the dead bird from a publicity point of view. It was roughly mounted and displayed in the window of a newspaper office on the principal street of the city with a placard hanging from its bill on which was printed, "Why the Lights Went Out Last Night." This exhibit was seen by thousands during the afternoon and evening, the burned leg and body of the bird telling at a glance the cause of the interruption of the company's street-car system, and thereby showing without further explanation the difficulties of the company in maintaining uninterrupted service over a large territory. Pictures of the bird were also printed in the daily newspapers of Vancouver, accompanied by explanations of the accident.

The *Bulletin Commercial*, Brussels, states that it is proposed to construct electric tramways in several important towns in Turkey. The places where matters are at present most advanced are Adana-Aleppo and Jaffa-Jerusalem.

Papers at the Midyear Conference

Abstracts Are Given of the Shorter Papers Presented at the Midyear Conference of the American Electric Railway Association—The Report of the Committee on Joint Use of Poles Is Included

At the midyear conference of the American Electric Railway Association held in New York on Friday, Jan. 30, a number of papers were read and the report of the committee on joint use of poles was presented. These are given below in abstract form.

REPORT OF JOINT COMMITTEE ON JOINT USE OF POLES

BY W. J. HARVIE, CHAIRMAN

At the October convention the report of your committee on joint use of poles was followed by a resolution suggesting "that the report be referred back to the committee with instructions that it ascertain the sentiment of the association members with respect to the agreement and specifications and report at the midyear conference."

Following those instructions, a circular letter enclosing a copy of the report was sent to each of the member companies with the request that the report should have the attention of all departments concerned in order that criticism and suggestions might be offered which would assist the committee in further investigation of the entire subject. It was especially asked that each member offer any criticism or suggestions which occurred to it along the line of public policy and legal phases of the contract and engineering details of the specifications.

The nature of most of the replies received should be gratifying to the association, as well as the committee, in showing a general desire to assist in the production of a suitable agreement of this kind and a general appreciation of the fact that a suitable agreement will be useful and advisable.

In answer to our inquiries, replies were received from 109 member companies, of which seventy-seven either expressed approval or made no specific suggestions at all. The remaining thirty-two member companies replying offered 148 suggestions, some of which were very timely and some of which were entirely influenced by the local situations obtaining in their territory. Many of these replies did not come in until after follow-up letters had been written, so that it has not been possible for the committee thoroughly to discuss and analyze the criticisms at this time.

A general analysis of the 148 criticisms made shows that seventy-six relate to the agreement and seventy-two to the specifications. A further analysis shows that certain particular sections were the subject of a large portion of these criticisms, while a few were scattering.

Of the seventy-six criticisms on the agreement portion:

- Section 5 (relating to the method of division of expense in making changes) was criticised by...14 members
 - Section 6 (removal of attachments) was criticised by..... 4 members
 - Section 7 (maintenance of rented poles) was criticised by..... 5 members
 - Section 9 (attachment rentals) was criticised by17 members
 - Section 11 (accounting for attachments) was criticised by..... 4 members
 - Section 19 (liability) was criticised by...16 members
- The remaining sixteen criticisms were scattering.

Of the seventy-two criticisms on specifications:

- Sections 2 and 3 (relative to voltage limitations) were criticised by.....12 members
- Section 6 (size of line wires) was criticised by 7 members
- Section 12 (ground wires) was criticised by 5 members
- Section 13 (terminal box locations) was criticised by 2 members
- Section 16 (guying) was criticised by....13 members (Seven of the last thirteen referred to insulators used in guying.)

The remaining thirty-two criticisms were scattering.

In addition to the above, six companies sent in copies of existing agreements for joint use, and one a pamphlet containing the state law now in force in one of the Western States. The Pennsylvania Street Railway Association sent in a general protest against the form of agreement but without specific criticisms. Some of the criticisms were very clear and ample; others left the committee very much in doubt as to the intent of the criticism which it was desired to present. Several of the companies replying did not seem to have clearly in mind that the proposed agreement and specifications were at best intended to be a suggested form, and not one seemed to realize that the entire use of the specifications would not be obligatory upon their company.

Your committee could not hope, since the date of receiving the later criticisms, to give all of the suggestions received the attention required in time to analyze them thoroughly and revise, if necessary, the report presented at the last convention. Your chairman, therefore, was instructed to present this general analysis of the suggestions received. Your committee will be in session about Feb. 18, at which time it will carefully analyze the suggestions made and get out for circulation such revisions as in its judgment are advisable, these to be in the hands of the member companies and others interested not later than May 1. Two months will then be available in which to place before the committee expressions of approval or disapproval of the agreement and specifications as then submitted.

During July the committee will meet for its final action and will have its final judgment in your hands in ample time for distribution before convention.

It is necessary that three phases of the situation be kept firmly in mind by the members of this association:

First—That the committee cannot do full justice to this subject without having criticisms from the prospective users in writing before it, together with their suggestions on the point under criticism.

Second—That the proposed agreement and specifications are merely suggested forms, and the use of these is not binding upon the members of the association.

Third—That any agreement and specifications such as the one proposed are essentially a compromise and must be treated as such. Any section may be rewritten to meet the requirements of any company or community without destroying the value of the agreement.

These points are brought to your attention at this time for the reason that a number of the letters received either indicate or show distinctly that the above points are not clearly understood by those replying to our circular letter.

Details will always be subject to individual interpretation or revision for any specific existing condition.

A PLEA FOR COMPANY SECTIONS

BY MARTIN SCHREIBER, MEMBER COMMITTEE ON COMPANY SECTIONS AND INDIVIDUAL MEMBERSHIP

It may properly be said that one of the greatest considerations with which the American Electric Railway Association has to deal is the importance of increasing its membership. This is a subject that many of us have treated too lightly in the past. Indeed, some assume that our campaigns for increasing membership are simply to enlarge the financial resources of the association, when the fact is that to-day we are giving the individual material value substantially equal to the amount which the member actually subscribes. We should realize that the more members we have, the more representative our association is of the railway industry and the greater effect we may hope for in molding public opinion and policy. Our very existence, success and progress depend on individual members—they are the "heart blood" of our association.

When you stop to think that there are 406 company members in the association (these companies employing some 400,000 men) and that our individual membership is only 3428, we certainly must recognize a weakness. A conservative estimate would be 10,000, and we have a logical right to plan forward to a reasonable representation of the industry.

Now, assuring ourselves that an increase in individual membership is necessary, let us see if it justifies the individual or the electric railway that employs him. The fact is that the interests of the company and the employee are so closely interlocked it is difficult to separate the advantages accruing to each. But below are some of the rewards that should be claimed.

One is the receipt of the yearly *Proceedings* of the association, which contains the established rules and policies, with important data carefully thought out and formulated for the use of the men engaged in the actual operation of electric railways. Last year the *Proceedings* covered 2375 pages and represented the efforts of 394 committeemen, specially trained in the subjects with which they dealt.

Another is the official monthly publication of *Aera*, which contains the live and important topics in connection with the electric railway industry, from the broad general questions of policy to the smallest details of operation that are to be found in the Question Box. *Aera* also fills the gap between our annual conventions.

Then there are the Engineering Manual, System of Accounts and other rules. The Engineering Manual in itself is a treatise which required a tremendous amount of work, in that the entire proceedings of the Engineering Association since its origin had to be gone over, item by item. The essence of all these deliberations will be a large practical assistance to the designer and operator of an electric railway. The Engineering Manual already contains twenty-two standards, eleven recommended practices and thirty-three other recommendations, and will continue to grow more valuable from year to year.

The advantage of special data pertaining to the electric railway industry that is filed at the central office is significant to those making reports, investigations or comparisons. And even if information desired is not readily available from the secretary, in most cases he will be only too glad to obtain what you want from the most reliable source. In this connection it might be well to bring to your attention the new Rate Research Bureau recently organized.

Identification with the association through committee work, discussion of reports or at conventions, gives the individual poise and confidence in expressing his views.

The importance of this fact is not generally appreciated. It matters not how much one knows in any profession or business, it is equally important to market his goods, even if a mediocre success is anticipated.

Again, you have the opportunity to attend the annual conventions, where the most influential and able railway men in the country assemble to exchange their views of the industry, also the opportunity to examine the latest appliances that are in the market for operation of electric railways.

Several years ago it devolved on the writer to show how the company with which he is identified got its money back for the men in his department who attended the annual convention. The particular convention to which I refer was at Atlantic City in 1911. After receiving the approval of the general manager, the following plan was inaugurated: Each representative was instructed to make a special report on the convention, noting anything that in his judgment was worthy of investigation, looking to the adoption of the method or device on our property. So, after returning home, each man received a method or device to investigate that had been suggested by the conventional letters, and he was instructed, after making a careful study of the case (in some instances trial apparatus was purchased), to make final recommendations of just how the device was to be applied on the Public Service Railway property to effect actual economy. Some eight devices and seven methods were thoroughly investigated. Six of the devices were reported upon unfavorably, and two were adopted. I am glad to say that these two devices saved the company, in a single year, the expenses of the departments attending the convention. This same plan of making the convention "pay" is still in vogue, and there is no reason why all companies shouldn't obtain similar results.

I merely mention these facts to convince some that demand their "pound of flesh" before they take any action and do not consider the indirect advantages that sometimes are claimed by association advocates.

The good of individual membership to the company employing the members is that from the members who are eligible to join the American Electric Railway Association or its allies the public, to a large extent, forms its opinion of the industry and what it is actually doing to give proper service. The better the company's employees are trained and educated along the lines of the industry they represent, the more able the men are to think, to talk for themselves, to defend the railway's position and to assist the general manager in satisfying the public and operating the railway.

The advantage of a railway company promoting individual membership through the company section movement, in my opinion, is even more marked. The discussion may be had of the local problems which are a matter of vital importance and concern to the company. It is not possible to bring one of these operating problems that are met with day by day to the attention of a body of men who are directly interested without gaining some knowledge or new thought that may be capitalized by the railway company.

I think we are able to prove clearly the advantage of individual membership through the company section on the Public Service Railway. The organization has been in existence since May 10, 1912, and at its first meeting had an attendance of 140 members. It now has an enrolment of 350. I should be glad to have any one present examine the bound proceedings of the Public Service Company Section that I have here. It includes a report of the meeting of October, 1913, containing 396 pages of reading matter upon practically all branches of the electric railway industry with which we have to deal. The plan of the monthly meetings was to have one

principal paper, with discussions, that brought out the viewpoints of all departments as well as the department directly interested.

Our record shows that eighty-two members have appeared before the section, from our president down to the man in the ranks. Then we have had occasional guests to talk to our members on appropriate subjects. The business co-operation and good-fellowship that has been created in these meetings is almost beyond description. Everyone seems to do all in his power to support the meetings, and I am sure that this underlying spirit would not exist unless beneficial results were so clearly apparent. We even look forward to our program a year ahead. The following is the list of subjects for 1914:

January—"Maintaining the Way."

February—"Keeping the Company's Department Store."

March—"Inspection of Rolling Stock."

April—"Developing the Timetable."

May—"Training the Train Men."

June—"Panama Canal."

September—"Reducing Accidents."

October—"Newark Terminal."

One of the principal developments that have been shown as a result of the Public Service Company Section meetings was the exceptionally large amount of knowledge which seemed to come to the surface that otherwise we would have no way of knowing existed among us. This fact impressed me so much, shortly after the section started, that I personally offered to give a medal to the man producing the best paper of the year. The prize was awarded to A. F. Thompson and D. H. Rozzel, division engineers, for a joint paper on "Car Derailment and Its Prevention." It was a signal honor to the company, as well as to these two young gentlemen, that when consideration was given for the awarding of the gold medal by the American Association, their paper was a close second to the prize winner, who was a high official in a large railway company, with a long experience in the industry.

It was only during this past week that our general manager had occasion to assign the task of an important report to one of our engineers. When this report was submitted the "earmarks" of education in the Public Service Company Section were readily apparent by the excellent and intelligent manner in which it had been prepared.

It appears that if there were more company sections in the industry many railway officials would not have to look so much outside their own property to obtain good material to run the railway. Everyone knows it is good business to build up an organization from your own ranks, as it prompts a fine *esprit de corps*, the value of which is difficult to estimate.

I regret that there is not sufficient time to talk further on the results of the public service company section with which I have had actual experience, but I assure you that our entire committee feels that the benefits, direct and indirect, derived by the individual and railway companies and proved by the company sections now in existence, cannot be challenged. Any company that can get together forty or fifty association members would not go amiss by inaugurating company sections, and the present number of three company sections might be well increased to fifty.

In summing up, it should be admitted that there are few properties that would not present a continuous field for improvement. The employee of a railway may be greatly assisted in the work of increased efficiency by keeping in touch with the American Electric Railway Association. Indeed, it seems hardly possible for anyone to know the best practice of the day without identi-

fying himself with it; otherwise one would be compelled to travel around the country and spend considerable time and money for experimental research.

PRESENT-DAY INFLUENCE OF LABOR ON LEGISLATION

BY C. L. S. TINGLEY, VICE-PRESIDENT AMERICAN RAILWAYS COMPANY

What is the influence of labor on legislation? Who can say? How is its influence exerted? By the lobby? Perhaps. At home in the constituency? Surely! We have the word of no less a person than the President of the United States that the lobby exists, and those of us who have kept in touch with legislative affairs are assured of it of our own knowledge. And why not? The first amendment to the Constitution of the United States provides:

"Congress shall make no law . . . abridging the freedom of speech or of the press or of the right of the people to assemble and to petition the government for redress of grievances."

The lobby, properly conducted, is the exercise of the right of petition guaranteed by that amendment. Furthermore, those of us, again, who have been in touch with legislative affairs, and who have been at times denominated "lobbyists," know that the labor organizations do maintain, both at Washington and in the state capitals, an efficient and energetic lobby.

Personally, I look upon the lobby as the "dress parade," so to speak, of legislative influence. It makes considerable noise and makes considerable show, but of its direct influence upon legislation I have serious doubts, for I have seen legislation backed by a well-organized, energetic and vociferous lobby effectually and efficiently beaten by well-organized work in the constituency. The work in the constituency is the work of the army in the field and is the work that wins battles. Therefore we are not able to judge of the influence of labor upon legislation by the dress parade or activities of the lobbies at the various seats of legislation.

We are told in Holy Writ that "By their fruits ye shall know them." We are, therefore, compelled to seek for the influence of labor upon legislation in the legislation which is ultimately written upon the statute books.

We have become very familiar of late years with the cry of "conservation." It has a very taking sound and its gospel was preached by one of the most effective and energetic campaigners this nation has ever seen. That catchword has been taken up by the labor organizations and they preach the gospel of the conservation of men. John Mitchell, one of the most conservative and best known of the labor leaders, has toured the country preaching this gospel. As the result, at least in part, of this crusade there has been enacted the federal law "To provide an exclusive remedy and compensation for accidental injuries resulting in disability or death to employees of common carriers by railroads engaged in interstate or foreign commerce, or in the District of Columbia." Following in the wake of this legislation have come the workmen's compensation acts of Arkansas, California, Illinois, Kansas, Massachusetts, Maryland, Michigan, New Hampshire, New Jersey, New York, Nevada, Ohio, Rhode Island, Wisconsin, Washington and West Virginia. A number of other states have attempted to pass legislation along the same lines, but for one reason or another the bills have failed of passage.

A notable instance was in the State of Pennsylvania, where, as the result of the introduction of a number of

bills into the Legislature in 1911, the Governor appointed a commission, composed of lawyers, manufacturers and labor leaders, with a professor of the University of Pennsylvania as the secretary. This commission, known as the Industrial Accidents Commission, presented an elaborate report and recommended the enactment of six acts and a joint resolution to amend the constitution, which amendment would be necessary before the full scheme of compensation could become effective. The joint resolution passed the Legislature, but the compensation bill failed of passage, largely, I believe, by reason of amendments which were made to it in committee which would have made the compensation in some cases very excessive.

DIFFERENCES IN LAWS

The scope of these laws varies very much. In most cases they are made practically compulsory by depriving the employer of his common-law defenses of "contributory negligence," "fellow-servant" and "assumed risks of the business." They vary in scope from compensation paid directly by the employer to the employee or his heirs to state insurance. As the earliest of these acts were passed in 1911 and as many of those have since been amended, it is too early to pass judgment upon which is the better method.

They also vary from all employees absolutely to those employed in dangerous occupations or especially dangerous occupations; or, as in New York, to all except employees of railroads; or, as in two states where they have attempted to exempt domestic servants and farm labor, by applying it to all industries employing five or more workmen.

In 1911 Illinois passed its first workmen's compensation act, which, while practically compulsory upon the employer, left the employee free, and it is worthy of note that as soon as the company with which I am connected posted its notice of acceptance of the act all its union employees promptly filed with the commissioner of labor their rejection thereof. In 1913 this law was amended so that it is practically compulsory on both parties.

There is an organization which can hardly be classified as a labor organization, namely, the American Association for Labor Legislation, officered largely by college professors and social workers. It carries a list of distinguished names among its officers and executive committee, including that of the President of the United States, who is a vice-president. This organization has prepared the draft of a model bill entitled "An act to promote the public health by providing for one day of rest in seven for employees in certain employments."

This brings us to the consideration of another phase of labor legislation, namely, that of limiting the hours of work—a very commendable purpose and one which undoubtedly appeals to the humanitarian instincts of every right-thinking man. It has, however, its limitations; and if the statement be true that at the last meeting of the American Federation of Labor a serious effort was made to commit that organization to a six-hour day, one can readily see that our friends of the labor unions are seeking to establish a real "leisure class."

HOURS OF LABOR

We have been for many years familiar with the factory laws limiting the hours of labor in factories, and more particularly the hours of labor of women. The federal government has enacted a law restricting the hours of continuous labor on interstate carriers by rail and fixing the maximum of sixteen hours, to be followed by ten hours off duty. The State of Ohio last year en-

acted a law which required that all employees of electric railways shall have eight consecutive hours off duty. The State of Illinois attempted to pass a law at the last session of the Legislature fixing a nine-hour day to be completed within twelve consecutive hours. This law would have applied to interurban electric railways. It, however, failed of final passage.

Massachusetts passed a law requiring one day's rest in seven in factories and mercantile establishments, which exempts, however, employees who care for machinery, who are engaged in the preparation, printing, publishing, sale or delivery of newspapers, or those engaged in any labor called for by an emergency which could not reasonably have been anticipated, employees of hotels, restaurants, drug stores, livery stables or garages and employments for manufacturing or distributing gas, electricity, milk or water. The law regulating the hours of work of street car employees is amended to include guards, drivers, gatemen and brakemen, as well as motormen, conductors and trainmen employed on street or elevated railroads and to limit the hours to nine a day, to be performed within an eleven-hour day, but an employee may work overtime for extra pay.

In New York employees in factories and mercantile establishments must have at least twenty-four consecutive hours of rest in every seven consecutive days. The law does not apply to janitors, watchmen or superintendents or firemen in charge, or to employees whose duties include not more than three hours' work on Sunday in setting sponges in bakeries, caring for live animals, attending to fires and making repairs to boilers or machinery. The regulation of hours on steam and elevated railroads has been extended to include electric and subway roads. Hours of labor for employees on roads 30 miles or more in length are limited to sixteen consecutive hours and must be followed by ten consecutive hours off duty. An employee who has been on duty aggregating sixteen hours in any twenty-four must be allowed eight consecutive hours' rest before beginning work again, except when an accident or unexpected delay of a train prevents his reaching his terminal.

Ohio and Texas have been added to the twenty-four states and the federal government which have enacted laws limiting hours of labor on public work to eight a day. A number of the states have also enacted the so-called "full-crew" law. This does not affect very many of the electric carriers, but it has added a burden of many hundreds of thousands of dollars to the steam carriers.

A review of labor legislation of 1913, issued by the American Association for Labor Legislation, states:

"An important feature in the railroad legislation of this year is the requirement of full crews in nine states, making a total of nineteen states with such laws.

"Other legislation relates to the qualification of trainmen, headlights on engines, covered sheds for employees on repair tracks, construction of caboose cars, keeping tracks free from obstructions, and requiring street cars to be provided with wind shields, heated vestibules, air brakes and seats for the carmen.

"In Wisconsin mail, express, baggage or passenger cars made principally of wood may not be used between the engine and two or more cars made of steel or similar material.

"In those states where railroad or public service commissions exist there is a marked tendency toward giving the commissions power to require all practical safety devices and to inspect for compliance with their rulings.

"In Indiana the law requiring the Railroad Commission to call an annual convention of railroad officers

and employees to consider accident prevention is amended to allow the convention to be called once a year or at such times as the commission may decide.

"In Massachusetts the street railway companies must equip their cars with 'other safety devices' as the Board of Railway Commissioners may require.

"In New Jersey electric passenger trains with three coaches and baggage car must carry four persons, a motorman, a conductor, a flagman and a baggageman; with four or more coaches and a baggage car, the same with a brakeman or guard added."

LABOR UNIONS AND SHERMAN LAW

A notable fight has been made by the American Federation of Labor to nullify the effect of the decision of the Supreme Court of the United States in the Danbury hatters' case by amending the so-called Sherman anti-trust act to exclude from its operations labor and agricultural associations. This fight has been so far successful that Congress included a provision in its appropriation bill for the Department of Justice providing that no part of the appropriation to the Attorney-General should be used to prosecute labor organizations. This, of course, is legislation by indirection, but shows that the federation has been making some headway, and doubtless it will not rest content with this but will push for a direct amendment of the act itself.

A number of years ago there was created in the State of Pennsylvania a small but efficient body of state constabulary, composed of about 250 officers and men, divided into four troops, stationed two in the eastern portion of the State in the anthracite coal region and two in the western portion of the State in the bituminous coal region, portions of the State which have been notorious for their turbulence and lawlessness, particularly in times of labor disputes. These men have been most carefully selected and are, I do not hesitate to say, the most fearless and efficient body of men in this country to-day. They have been notably successful in preserving the peace and have been used solely for that purpose.

At every session of the Pennsylvania Legislature since this body has been created there has been an insistent demand from the labor organizations that it be abolished, and in every session there has been a bill introduced to abolish it, so far unsuccessfully, but at the session held in 1913 the appropriation for its maintenance was reduced. This compels the concentration of the constabulary into the four barracks and greatly hinders the men in the performance of their duties.

It is the avowed purpose and, I believe, a cardinal point in the creed of the labor union, and more particularly of the Amalgamated Association of Street & Electric Railway Employees, to create work for more men by the shortening of the working day. About ten years ago—if my memory serves me right—Mr. Mahon, the president of that association, announced as the ideal of that organization a ten-hour day for a two-dollar wage. We—most of us—know that that ideal has since been changed to a nine-hour day and a three-dollar wage; and, I presume, in the not-distant future, if wages continue to advance, the ideal will again be shifted, to an eight-hour day and a four-dollar wage.

I would be the last man to grind the face of labor or to work it unreasonably long hours. I don't believe that it injures any healthy man to work outdoors for nine hours a day or even ten. I believe that every man should have all the compensation that the traffic will bear, but with a ten-mile ride for a nickel you can't keep on boosting wages; and, as the present tendency of labor is to push legislation to attain the ends of higher wages and shorter hours and as that influence is exerted more powerfully in the constituency, it is

'up to' the employer to educate that constituency and to exert his influence at the same spot.

Before closing I wish to call John Mitchell as a witness. In his recent book "The Wage Earner" he says:

"A desired rate of wages is enforced by statute on public works. In railroad and mining work, maximum legal hours are, in instances, prescribed. Militant labor in these cases adds to its own bargaining abilities the powers of the law.

"All union wages are the results, not of laws, but of the cohesive power of union members exerted in the labor market.

"A step further was taken when commissioned organizers became a regular factor of the unions and assisted the international officers, together forming a corps equipped for their duties as men for a profession, familiar with the labor laws, experienced as negotiators with employers, acquainted with the markets for the output of industries and accustomed to watch legislators.

"They [the unions] enter a field not touched by philanthropy when they shrink the workday and expand the wage bill they present to the employer."

Trade unionists every day overcome Mr. Kirby's "natural law of supply and demand" by a method equally natural—they refuse to sell their labor in competition.

One of the most notable achievements, if not the most notable, of labor in recent years was the creation of the Department of Labor with a labor leader seated as a member of the President's Cabinet.

DISCUSSION ON MR. HILD'S PAPER

BY L. R. NASH, STONE & WEBSTER

The paper which Mr. Hild has prepared for this conference contains arguments and statistics which are not only convincing but also particularly opportune. The quotation which he gives from a commission decision, in which an increase in riding habit is predicted from a proposed reduction in street car fare, is illustrative of the opinion of many regulative bodies, municipal officials and others who are interested in public service matters. Lower fares enter into a large proportion of the important franchise renewal negotiations; they are the ground for many commission investigations, and, as the author has pointed out, they are the perennial stepping stones of ambitious politicians. The financial condition and problems of the street railway industry are of such serious moment that strong, concerted, intelligent action is necessary to combat these and other economically unsound tendencies.

We are in a period of rate reductions in public service, although other commodities have with few exceptions steadily increased in price. The most noticeable reductions have been in electric lighting and power and gas services. To the credit of the industry be it said that a very large proportion of these reductions have been the voluntary result of broad-minded business judgment rather than a yielding to commission mandate. Many of these reductions have been widely advertised and contrasted with other cost tendencies. It may be stated in a general way that from the time the electric lighting industry was first definitely established to the present time there has been a reduction in its maximum lighting rates of approximately 50 per cent. One hears comparatively little about similar reductions in street car fares. The popular impression prevails that they have remained generally stationary at the original nickel. That such an impression is grossly misleading and unfair is clearly shown by the statistics

which the author presents from the excellent system of which he has charge. Rightly assuming that the fair basis of comparing rates is the passenger mile, he shows that there has been a reduction in charge for the maximum ride from 3.1 cents in the early horse car days to 0.24 cent at the present time.

This reduction of over 90 per cent in the unit charge has been accompanied by an almost immeasurable improvement in comfort and speed of travel. It is not contended that any considerable number of passengers take the maximum possible ride, thereby securing the minimum fare per mile, nor that such passengers can be carried without serious loss. It is, however, believed that no other industry can show a proportionately greater increase in the service which it renders for its hire, or a greater reduction in its unit charge. In spite of or in ignorance of this fact the agitator continues his activity for still lower fares and will probably so continue until a general campaign of education has eliminated the ignorance on which his ambition feeds. No politician would dare to launch for personal prestige a low-fare campaign if he suspected his constituents might know it was founded on an economic fallacy.

STIMULUS FROM REDUCTION

In considering possible reasons for stimulus to riding the author has laid down a general principle of importance, namely, that stimulus from reduction in price is proportional to the degree of reduction, with the limitation that in the case of single low-priced units the percentage reduction must be large to produce any noticeable stimulus. This principle, with emphasis upon its limitation, is particularly applicable to street railway service where the price unit is low, and it is believed to offer the fundamental and unanswerable argument against lower fares.

While proponents of the 3-cent fare undoubtedly still exist in spite of its obvious failure, the usual plea is for six tickets for 25 cents, a saving of less than 1 cent per ride. While such a repeated saving is of moment to some people, the existence in our large Eastern cities of 1-cent, 2-cent and 3-cent newspapers, all in prosperous condition, and the general charge of 5 cents in Western cities for such papers, is an argument against the controlling importance of such small variations. It appears from Charts I and II in the paper that in this country, where street car riding is the most highly developed in the world, there are only two cities where the rides per capita average as high as one per day. The average for the large cities shown is less than 300 rides per year. At this rate the average saving per capita from six rides for 25 cents instead of a straight 5-cent fare is slightly more than 20 cents per month. Granted that an average includes many who do not ride, it is still true that a regular rider to and from his daily work would save less than 50 cents per month.

A study of Charts III and IV shows clearly that reduced fares mean relatively poorer service, evidenced by less frequent and more crowded cars, less track with consequent longer walk to the home or work and, by inference, correspondingly poor track and unsatisfactory equipment. It is submitted that the average street car patron spends more than 50 cents per month for comforts and indulgences of less consequence to him than adequate transportation facilities. It is also urged that transportation should be adjusted to the needs of the average patron, neither curtailed for the part of the minority which would be satisfied with cheaper service nor expanded for another part which could afford to pay for better.

A public official who urges a measure in the inter-

ests of a few of his constituents and thereby sacrifices the interests of a majority is unworthy of his trust. Our officials are in large majority working for what they believe to be the public interest. They establish parks, playgrounds, museums, libraries, schools, hospitals and charitable institutions, conducting them with funds derived from taxation. The approximate annual per capita expenditure in the city of Boston for parks and recreation is \$2.40, for hospitals and public health \$2.30, for libraries and education \$9.50 and for protection of life and property \$6. As compared with such large voluntary public expenditures, the \$2.50 per year which may be saved in street car fares for the average person is too trivial for the frequent and prolonged attention given the matter by city officials and commissions. The time and expense also devoted to opposition to fare reductions by company officials might better be directed to improvements in service. When our officials deliberately place upon their constituents a burden of taxation for recreation and amusement alone amounting to \$2.40 per capita, why should they assume that 5-cent car fares cannot be afforded by the same citizens and, through reduced fare ordinances, force a personal saving of a similar amount in transportation costs, which inevitably means increased discomfort and possibly risk from curtailed service? A liberal policy of civic improvements and reduced street car fares are inconsistent and should not be found together in a normal self-governing community.

BETTER SERVICE AT EXISTING COST

One other reason for lack of increase in the riding habit from lower rates, as compared with the stimulus found in other kinds of public service, may be emphasized. It is the very general experience in the electric lighting field that a reduction in rates occasions a proportional increase in consumption, the customer being satisfied to continue paying the same amount for the convenience or advertising value of the additional light obtainable. Is it not safe to reason from this example that the average patron of street cars would also prefer better service at the existing cost rather than pay a lower price for the same service if the company which serves him has surplus profits to share with him in one way or the other? Street railway business is different from other forms of public service in that it does not offer similar inducements or opportunities for added patronage with decrease in price. The paper clearly points out that the ride is a definite means to an end, a time and energy saver between home, office and shop. The opportunities for saving car fares by walking or otherwise are limited and the use of street cars for pleasure riding is correspondingly small.

Turning now to the statistics of "riding habit" given in the paper, it is quite clear that no evidence of stimulus from reduced fare is discernible. At the same time it should be pointed out that a comparison of the riding in different cities is not conclusive. The author discusses a number of factors other than rate of fare to which he attaches greater weight, such as facilities, topography, climate and temperament. These and temporary conditions must all be considered before the effect of rate of fare is determinable. It is believed that more definite conclusions can be drawn from a comparison of riding before and after a change in rate in a particular community, and the paper includes some data of this kind.

Aside from other influences there is always an increase in per capita rides with increase in population. Engineers have expressed this increase as the n th power of the population, the value of n lying between one and two, approaching the latter figure in large, expanding cities. It should be pointed out that n can-

not be greater than two unless territorial expansion leads to a reduced density of population, and that any such high rate cannot continue indefinitely.

Reserve financial resources of public utilities, particularly street railways, are assets which are rarely appreciated in programs of municipal development and expansion in which they are very important factors. Such resources may be of vital importance in such calamities as the floods which last year devastated the Central States, in which a considerable proportion of the large reduced fare cities are located. The remarkable energy and liberal public spirit with which some of the utilities whose resources had not been curtailed attacked the general problems of relief and rehabilitation after the 1913 flood should long remain an object lesson to those who would deprive such companies of all except the bare immediate necessities of their existence.

In support of the general contention that slight changes in rate of fare do not affect riding, the experience of some companies which have raised their rates may be of interest. Not long ago a comparatively small company in the Middle West abolished its six tickets for 25 cents. There was no perceptible reduction in riding and no public outcry against the change. About six years ago a number of suburban and interurban railways in Massachusetts received authority to increase their fares from 5 to 6 cents, the former rate being unprofitable. This increase also, which is still in effect, was attended in the case of one company particularly examined by no loss in patronage.

The figures given in the paper with reference to the Portland reduced fare agitation are of particular interest in showing the practicability of demonstrating definitely in advance the impossibility of securing sufficient additional riding to offset the loss in earnings from the reduction in rate. It may be pointed out that something more than this increase would be necessary. If the estimated 40 per cent was added to the company's traffic, a very large, although probably not proportional, increase in investment would be necessary. The charges on this additional investment would require a further increase in riding. This riding would in turn call for still further investment, then more riding, more investment, until the pyramid would rival the products of antiquity except in stability. Unfortunately it would differ from them in being the other end up.

No further comments are necessary on Figs. 3 and 4, which substantiate our general impressions and experience that low fares do not permit adequate service in the larger cities. Such cities have always before them the problem of crowded tenement districts with their toll of disease and wasting vitality. This problem is most acute in European cities where, as shown in the charts, low fares have led to inadequate service. It is beyond dispute that our American cities have no more potent factors toward reduction in congestion of population than their admirable transportation facilities which encourage suburban homes and healthful environment.

Some smaller cities may get fair results from reduced fare service if they are satisfied to forego a safe provision for their future development. The question for each community to decide is as to the kind of service it is willing to pay for in the long run. If it wants good service—and Americans are rarely called stingy—it should pay not less than the faithful nickel. The “not less” cannot be passed over lightly, for the inadequacy of the nickel is the real problem of the large street railway to-day. It is indeed unfortunate that our energies and attention are so often distracted from this problem to its antithesis, the subject of our present discussion.

DISCUSSION ON MR. HILD'S PAPER

BY R. B. STEARNS, VICE-PRESIDENT THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY

Mr. Hild's paper properly undertakes to define the principal of the various factors that affect the street car riding habit. He designates five principal factors, viz:

- (1) Facilities.
- (2) Topographical conditions.
- (3) Climatic conditions.
- (4) Temperamental characteristics.
- (5) Rates of fare.

No one of the foregoing factors appears adequately to account for the well-recognized increases in riding habit accompanying increases in population. Some students of the subject have endeavored to show from statistics that riding habit increases as the square of the population, and such an assumed law has in a number of instances been used for prognosticating street car riding in the future, arising from increases in population.

That the relative geographical distribution of housing and amusement facilities and commercial and other industrial activities of importance is affecting riding habit seems certain and evident from every-day observation. The density of population and its geographical distribution are without doubt of importance. A city of elongated rectangular shape, with residence territory constituting the northern half, manufacturing the northern quarter of the south half and commercial the southern quarter, would for the same population probably show a larger riding habit than a city in which the same activities were distributed in concentric ring form around the commercial center. The presence of detached business centers originally designed in the main to serve particular nationalities making up the population also has an important effect on riding habit. In general, any distribution of population that tends to shorten the distance between the places of residence and the places of labor and trade will reduce riding habit, and similarly an opposite tendency will increase riding habit. In fact, the walking habit will decrease as the riding habit increases.

The effect of tributary population not counted in the census enumeration of the city in question and of a transient population participating in the commercial life of the business center is also important in determining riding habit.

Industrial activity—that is, value of business—has its effect on the riding habit of the community. A rapidly growing city may show a higher riding habit than one where the growth of population is small or nothing.

All the factors mentioned appear to affect riding habit and contribute to an explanation of the differences in the figures shown in Fig. 1, accompanying Mr. Hild's paper. There might properly be added to the five factors enumerated in the paper the following:

- (6) Relative geographical distribution of residence, commercial and manufacturing districts.
- (7) Tributary and transient population.
- (8) Industrial activity.

Fig. 1 shows that for the cities selected a large riding habit figure is not necessarily associated with low rates of fare. It appears to be a proper statistical conclusion from the data submitted by Mr. Hild that there is no correlation between riding habit and rates of fares and that other factors must be the determining ones in explaining high and low figures for riding habit in various cities.

The Glasgow data are interesting and indicative but not conclusive. In the halfpenny and penny zones there was an increase of 25 per cent in the number of zone fares when the two periods are compared. The lengthening of the halfpenny zone from $\frac{1}{2}$ mile to 1 mile resulted in a reduction in the walking habit in the zones so affected. Walking is the principal competitor of street car riding. Competition is naturally keenest in short distances and gradually vanishes as distances increase. To develop an increase in riding habit car service must divert travel from its competitor. This field of competition lies in the short-distance travelers. When the fare is reduced to the point for such travelers that the comparative sacrifice of money on one hand and effort and time on the other is less in the first instance, the travelers will be diverted to the cars.

That measures of this comparative sacrifice will vary according to the standards of value of the travelers affected seems certain. Since personal standards of value depend largely upon wage or income, the comparative sacrifice depends upon the wage or income of those so to be affected. Thus the rate for short distances would have to be lower for the laborer than for the merchant and lower for the mechanic in Glasgow than for the mechanic in America. If these considerations be true, it follows that the Glasgow fare change produced a larger proportional effect in Glasgow than the same change would have produced under a similar fare scheme in America. In fact the differences in the scheme of fares and the wage standards are so great as to make it impossible to apply Glasgow experience to America or to draw any significant conclusions therefrom.

EFFECT OF REDUCED FARE IN MILWAUKEE

As illustrative of the effect of rate of fare on riding habit, there are given in the accompanying table data

Year	Rides per Capita	Rate of Fare
1897	100	5 cents cash
1898	110	5 cents cash
1899	120	5 cents cash
1900	134	5 cents cash; 6 tickets for 25 cents and 25 for \$1, good during two morning and two evening rush hours.
1901	141	
1902	153	
1903	161	
1904	160	
1905	179	5 cents cash; 6 tickets for 25 cents and 25 for \$1, good during all hours.
1906	195	
1907	208	
1908	205	
1909	218	
1910	235	
1911	240	

for the city of Milwaukee which show the development of the riding habit over a period of years in which the rates of fare were changed two times.

The table discloses the fact that with the introduction of commutation tickets the riding habit increased from 120 in the year 1899 to 134 in the year 1900. This is not a large increase and was probably due to industrial conditions and growth of the city rather than to reduced rate of fare during rush hours. Comparing the years 1904, 1905 and 1906, it will be noted that the riding habit was 160, 179 and 195 respectively.

Recollection of industrial conditions during these years indicates that the increase in riding habit was no doubt again largely due to the great industrial activity that obtained during the years 1905, 1906 and the first half of the year 1907. The effect of an industrial depression is shown in the year 1908, when the riding habit fell from 208 in the year 1907 to 205. While it is true that the riding habit increased from 160 in the year 1904, when reduced rate commutation tickets were good during the rush hours only, to 179 in

the year 1905, when the commutation tickets were good during all hours, an increase of nineteen, it is also to be noted that there was an increase of sixteen rides between the years 1905 and 1906 and an increase of seventeen rides between the years 1909 and 1910.

From a study of these figures we have come to the conclusion that the effect of the introduction of commutation tickets did not necessarily increase the riding habit in the city of Milwaukee. The increases which the facts disclose were accompanied by other conditions which are well known to have a very marked effect on street railway traffic.

It is to be hoped that other similar data will be submitted in this discussion or otherwise become available in order to permit a more general conclusion than seems justified by the figures that are shown in this one instance.

The other charts contained in Mr. Hild's discussion, showing cars operated or owned per 10,000 inhabitants and miles of track per 10,000 inhabitants, are not conclusive in demonstrating that facilities are less adequate in low-fare American cities than they are in cities where the standard fare prevails. The layout of the transportation system, method of car operation and all the various factors previously defined as affecting riding habit, have an important bearing on the track mileage and on the number of cars required to accommodate the rush hour travel.

A great many of the cities of this country have still in operation many miles of car routes that came into existence in the early days of street railway development when competition was prevalent and which now serve no useful purpose, and the abandonment of which is regarded as either unwise or impossible on account of adverse statutes or ordinances. The maximum number of cars required during rush hours on any system can be reduced by the more accurate fitting of car capacity to the passenger distribution. It may be true that the necessities of economy brought about by low fares in certain American cities and the absence of adverse municipal regulation have resulted in greater accuracy in fitting the car capacity to the passenger distribution.

CONCLUSIONS FROM DISCUSSION

The conclusion of all this discussion seems to be the following:

(1) Riding habit depends upon a number of factors, among which is rate of fare.

(2) The effect of rate of fare on riding habit in urban communities is limited to short-distance travel.

(3) The reduction in rate of fare possible under the American flat rate is not sufficiently large to induce any appreciable extra riding.

(4) If a zone system of fares should be developed and applied to American street railways involving a substantially lower initial payment than is now common, we cannot say with any confidence that no extra short-haul traffic would be developed.

While Mr. Hild's paper in this discussion dealt so far only with the influence of rate of fare on riding habit developed in urban railway systems, the matter of interurban riding habit is of great importance to many of our railways. Individual experiences could no doubt be cited and the conditions generally affecting the ratio of passengers to tributary population defined, but in view of the relatively small rate of growth shown by passenger earnings of interurban railways, the economic aspects of fare changes should be studied, and it is to be hoped that in the not far distant future someone will assemble and present before this association data and conclusions derived therefrom, bearing on the influence of rate of fare on interurban travel.

Regulation or Profit-Sharing?

In This Paper, Presented Before the Midyear Conference of the American Electric Railway Association, the Author Discusses the Economic Aspects of Regulation Compared with Profit-Sharing with the Municipality

BY HALFORD ERICKSON, MEMBER RAILROAD COMMISSION OF WISCONSIN

To touch upon the high points of some of the many vital problems involved in the mild-sounding title of this paper is all I shall undertake to do. The subject is not of my choosing. It was suggested to me by J. D. Mortimer, the able executive of the Milwaukee street railway. It is a subject that is much too big for adequate discussion in one short paper. In fact, if Mr. Mortimer had deliberately set about to box the compass, so to speak, by selecting from the whole circle of problems pertaining to the development and regulation of public utilities the one which presented the greatest number of knotty questions he could hardly have succeeded better.

It will be assumed here that the regulation referred to means state regulation through a commission; and that profit-sharing with the municipality is municipal control through franchise under which the utility pays to the city for the privileges obtained a percentage of the earnings or a stipulated sum in the form of a rental, in addition to the regular taxes. The latter is comprised in what is coming to be known as the "home-rule" program, which some cities are now advocating. In another sense the whole subject can be said to be included in the question of state regulation through commission by local regulation through franchise. State regulation to-day means something far removed from the state regulation of forty years ago, or even from that of fifteen years ago. It would make a highly interesting paper in itself to trace the development of public utility regulation in this country for the past few decades, if for no other reason than to note the relation of the action each upon the other of modern economic thought and the trend of court decisions. Such a paper would do much toward dissipating the fallacy so often repeated in one form or another, that all the courts of the country are mired in the bog of precedents. The Supreme Court of the United States may or may not always, as Mr. Dooley humorously charges, follow the election returns, but it and many of the courts of the different states are generally guided by recognized economic principles known to be sound.

By regulation through a state commission I have in mind such regulation as that which is embodied in the work of the Railroad Commission of Wisconsin and of similar commissions of many other states. By local regulation I have mostly in mind such regulation as is ordinarily provided in local franchise and other ordinances. It has been clearly asserted in the English common law, and earlier in the Roman law, that because certain occupations had a very direct and close relation to the public welfare the right to carry them on could only be granted by the sovereign power of the country, and must be subject to certain restrictions.

Under the common law, however, the operation of the principles of regulation was rather one-sided in character. They touched only the power of the crown or of the Legislature to prevent extortionate charges on the part of enterprises and callings affected with public interest. There was little, if anything, to indicate that those who served the public were also entitled to protection. To-day the situation is different. In the Wisconsin and other public utility laws and in the decisions upon them it is recognized that the truest protection

of the public also involves proper protection of the instrumentalities which serve the public; that arbitrary and unjust treatment of those instrumentalities or interests by which the public is thus served is in the long run quite as injurious to the public as to those interests; that after all there can be no justice to the public which means injustice or wrong to those who serve it. And thus has now grown up a public sentiment and legal provisions which have given us, so to say, the newer and more equitable doctrine that those who serve the public should for such service, when adequate, receive reasonable compensation.

POWER OF THE LEGISLATURE

It is essential to clear thinking upon this subject that we comprehend first that a state regulating commission, whatever its form, possesses only such powers as the Legislature specifically grants to it. It is equally essential to understand that the Legislature cannot delegate a power which it does not possess. The power to regulate public utilities is inherent in the Legislature, and a commission created by it cannot exercise at any time any powers which it is not entirely competent for the Legislature itself to exercise. Likewise, when a municipality undertakes to exercise regulating powers it is but acting as the specifically authorized agent of the Legislature. Clearly, then, the state through its Legislature is always paramount in authority to either a commission exercising delegated authority or a city exercising delegated authority. The United States Supreme Court has very plainly set forth this principle in 196 U. S. 548.

Again, the Legislature is restricted in its power to regulate public utilities by the state and federal constitutions. In its widest stretch, then, state commissions and local authorities exercise only those powers which the courts construe as not in contravention of constitutional provisions.

The commission being clothed only with the power delegated to it by the Legislature, and the municipality in its relation to public utilities being possessed only of the power delegated to it by the Legislature, and the power in each case being adequate to secure justice to the private consumer, and the Legislature not having divested itself of any of the power inherent in it by its selection of agents, the question that naturally arises is, which of the three instrumentalities can most efficiently serve the public through the exercise of the regulative power? Can the Legislature itself do it as well as either a state commission or the municipality? If it cannot, then it should delegate its power of regulation to the one or the other of these two agencies that can perform the best and the most equitable service in this respect.

Some light as to which one of these agencies is the best adapted for such duties may be obtained through the analysis of the functions of such regulation and the work it involves. Laws for the regulation of public utilities and the administration of the same are chiefly concerned with the protection of the public against unjust practices and methods in connection with the furnishing of such service as these utilities render. The people ask for adequate service at fair rates. To this they are entitled in law and in equity. It is the duty of the utility to furnish such service at such rates. To

furnish service for compensation is also the purpose of a utility. The public thus desires that which it is both the duty and the purpose of the utility to furnish. The sole reason for granting rights and privileges to a utility is to administer to or promote the convenience, comfort and welfare of the public. There is no other ground either in law, economics, or morals upon which franchises should necessarily be granted.

PROPER USE OF MONOPOLIES

Now, the public in its desire for this service should not be made the victim of injustice in any form. Its needs for this service and its willingness to pay for it must be fairly met. In other words, such utilities being monopolistic in their nature with great powers and furnishing services that in fact are necessities must not in any way use their position to the detriment of the public. It is largely to prevent this that regulation has come about.

The work involved in such protection is comprehensive in its nature and far-reaching in its effects. Adequate service for instance involves the regulation of the voltage and of the equipment used in the electrical field, the prevention of lower than a reasonable heating value and pressure in the gas field, the avoidance of the introduction of impurities in the water supply and of too low pressure for fire protection in the case of water works, the promotion of promptness and accuracy in furnishing telephone calls and of seeing to it that the telephone service is up to the standard in other respects, the securing of proper routing, headways, cars and other equipment in the street railway field and much other work of this kind. The services needed in this work cover the mechanical, electrical and chemical sciences and the scientific equipment that is needed in connection therewith is expensive and, being often difficult to operate, requires skilful handling.

The establishment of reasonable rates requires the appraisal of the plants, the auditing of accounts and records, the collation and analysis of all sorts of financial and operating data, the installation of proper accounting systems, the passing upon operating conditions of all kinds, sound judgment upon financial and industrial conditions, and much other work that is of a complicated and difficult nature.

The facts and conditions by which regulation must largely be guided are in fact of such character as to differ not only from plant to plant but from one time to another for the same plant. They are in fact of such nature that they cannot often be either adequately or safely covered by general rules or fairly passed upon except after full investigation in each particular case. The telephone service, the power transmission service, the electric railway service extend from one municipality to another and have become state rather than local propositions. Political and other local conditions are also of importance.

FUNCTION OF THE STATE COMMISSION

It would seem quite obvious that in a field as complicated and as changeable as this the Legislature itself cannot accomplish much in the way of direct regulation. No general law can be made to cover specifically each of the numerous and diverging conditions that are met with. Even if this was possible the laws themselves could be of little value unless proper provision were made for their enforcement. About all the Legislature can do therefore is to delegate this power to a commission and to make adequate provisions for the proper administration of the duties involved. What is thus true of the Legislature in this respect is also true for municipal councils where they are charged with such regulation. Such councils are in no better posi-

tion for dealing directly with such matters than legislatures. For effective regulation or for the enforcement of their ordinances they also must depend upon commissions of some sort. As a commission seems to be necessary in either case the question is whether a state or local commission is preferable. From the point of view of the cost alone a state commission has great advantages. For it is almost too obvious to mention that such regulation can be carried on at a much lower relative cost on a large than on a small scale. But there are other and equally important reasons in favor of a state commission often.

The jurisdiction of local commissions, for instance, is restricted to the municipality they serve. This is a serious objection to such regulation, especially to-day, when so many utilities operate in more than one municipality having common as well as divergent interest. Again, the experience of and the data obtained by local commissions, being restricted to the place they serve, would also be much more limited and of much less value than would be the case for a state commission. Many other reasons in favor of a state commission might also be given, but those mentioned illustrate the situation.

What has thus been said about the relative merits of state and local regulation also seems to be supported by experience. One instance in point might be cited. In Wisconsin the local municipalities have about as much power in the way of public utility regulation as the state commission. These powers, however, the municipalities seldom or never exercise. Not only do they fail to do much of anything in this respect for the public directly, but in cases where the municipality itself as such is concerned as is the case when the street lighting situation is involved, they usually prefer to submit their cases to the state commission.

COMMISSIONS ARE HUMAN

While holding that state regulation through a commission is preferable to local regulation through franchises, I do not mean to say that the former has been found wholly satisfactory, either to the public or to the utilities. The public often feels that the state commissions do not go far enough either in their rate reductions or in their service requirements. Local politicians are often vigorously voicing this sentiment. The utilities, on the other hand, often think that the state commissions go much farther in these respects than they should. It is also a fact that state commissions, like all other institutions, sometimes make mistakes. The Wisconsin commission, for instance, has at times erred in both directions. Some of these shortcomings are due to the fact that the commission was not able to estimate correctly in advance the important increases in the cost of operation that have taken place during the past few years. Occasional mistakes, we all know, creep into all human activities. There seems to be no field from which they can be wholly eliminated. With our best efforts, however, they can be reduced in number and importance. They can also in most cases be corrected as soon as discovered and willingness to make such corrections is one of the necessary qualities in a commission. State regulation is also somewhat costly. While this cost is much lower than would be the cost of like regulation through local commissions it is nevertheless used as an argument against state regulation. When everything has been said, however, the fact remains that state regulation, except perhaps for a few of our larger cities, is more effective and less costly than like local regulation. In the long run it also is likely to be found to be the best kind of regulation not only for the public but for the utilities as well.

SO-CALLED PROFIT-SHARING

This brings us to that feature in local regulation which often finds expression in a rental charge or a toll upon the earnings of the utility over and above the regular tax assessment. Such rental or toll is sometimes spoken of as a sort of a profit-sharing plan with the municipality and is often pointed to as an example of wise local regulation and as something to take the place of other regulation. Closer analysis of the facts from an economic and social point of view indicates quite clearly that this toll is in effect a tax levied upon other than sound principles of taxation and that it is an unwise burden upon the service of the utilities.

Before considering these aspects of such profit-sharing with the municipality it is well to give recognition to the fact that this profit-sharing, whether in the form of a rental or a stipulated annual or monthly payment or a percentage of the gross or net earnings, has uniformly the sanction of the courts. When a municipality grants a franchise to a utility it is competent for it to exact payment for the grant in any reasonable form. The courts uphold this right of the city on the ground that such an exaction is not a tax, but a toll. It is not a franchise tax but a rental. "A tax," says the United States Supreme Court in one case, "is a demand of sovereignty; a toll is a demand of proprietorship."

FRANCHISES FOR PUBLIC INTEREST

The primary reason why franchises are granted by cities to public utilities is to promote the welfare and comforts of the public as users of utility services, rather than the subservance of the interests of the public as taxpayers or because these utilities may become a source of revenues to the municipality. These propositions appear to be sound. If this is the case, and it is here assumed that it is, then it follows that the operation of the utilities and the regulation of the same should also be in the interest of their patrons rather than in the interest of taxpayers.

While the interests of the municipality or taxpayers as such on the one hand and the interests of the users of the service as such on the other may not be antagonistic when viewed in their broadest light, they may be and often are divergent upon many single points. Thus there may easily arise in almost any city the question whether it is better public policy to strengthen the revenues of the city by the levying of a toll upon the utilities, or to secure in place of such toll either some improvements in the service or lower rates. Those who favor the levying of a toll would probably argue that this toll would go a good way in supporting the police and fire departments or in maintaining the parks. Those who held the opposite view would no doubt point out that a better and more widely extended service or lower rates would not only benefit the greater number but it would benefit those for whom the service was established and who are entitled to such benefits. The latter may also say that such extensions of the service or such lowering of the charges would tend to increase the use of the service and that this increase, owing to the law of increasing returns, would tend to decrease the cost per unit of service which might mean not only higher profits to the utility but still lower rates to its patrons. If the taxpayers and the users of the service were the same persons, and if there also was a close relation between the amount thus paid as taxes and the use made of the service, then it would make but little difference whether the toll was levied or not. But this is not often the case. In the street railway service, for instance, the patrons or users are largely made up of wage and salary earners and this is also true in other

utilities. It is therefore exceedingly important that the service should not be burdened by unnecessary charges.

PART OF THE COST OF SERVICE

It is assumed here that the toll in question is in the nature of a tax and that it enters into the cost of the service. It is true, as stated, that the courts, because this toll is imposed by the city as a contractual and not as a taxing power, do not call it a tax. This ruling, however, is largely based on a fiction of law and does not change the effect of the toll. Such tolls become as much a part of the cost of the service as taxes levied in the ordinary way. While this toll is in effect a tax it is levied on a basis that is contrary to all sound principles of taxation. Taxes are based on the ability to pay and this ability is measured either by the value of the property controlled or by the income. The toll in question is levied without reference to these principles. It is placed in a lump sum upon a service where it must be borne by those who use this service in proportion to the use they make of it. Where, as in the street railway field, the users are largely made up of workers this toll also falls upon those who are the least able to bear it.

A toll of this kind upon the earnings is also likely to be inequitable between the several branches of the service furnished by the same utility. This fact may be illustrated by what would be the situation of a certain company under such toll which operates a railway and electric business. If the gross revenues of the two departments or branches were about the same, then it is also likely that the toll would also fall equally on each branch. But on account of such differences in the cost of the service in the two cases as are often found, especially outside of the larger cities, the amount available for interest and profits is only half as much for the railway as for the electric business, while the investment for the railway business is about three times the investment for the electric department. It is manifest that in this case the street railway branch would have to bear more than a fair share of this toll. What is thus true in this respect for the different branches of the service of the same utility is also likely to be true as between different independent utilities.

Such increases in the cost of the service as those caused by extra tolls of this kind is seriously felt by the consumer because it tends materially to restrict the amount he can afford to use. It causes him, in fact, at least in many cases, to reduce his demand for service. Prospective customers also find that the cost is higher than they can afford to pay for the quantity needed, and hence resort to substitutes. In this way the proper development of the service is hampered, the consumer uses less than he needs, and the plant is deprived of business. The effect of such charge may be further seen from the fact that for one company a toll that is equal to about 4 per cent on its gross earnings would amount to an increase of 5 per cent in its operating expenses and reduce the amount that is available for interest and dividends by about 1½ per cent.

PUBLIC POLICY IN STREET RAILWAYS

On account of the particular objections to such tolls as here outlined, the application of the same to a street railway is especially inadvisable. Public policy plays a large role in the planning and management of street railways. Such policy often demands the continued construction of outlying extensions so as to relieve congestion in the centers of population and enable people to live in the outskirts under more sanitary and wholesome conditions. Street railways should there-

fore be encouraged by all legitimate means to make extensions into sparsely settled regions and to charge as low rates of fare as possible therein. And yet the very nature of such a toll as that in question is to discourage this policy, for it demands as much relatively of the total revenues of any outlying extension, which probably pays little or no profit, as it does from the total earnings of the most profitable part of the line.

Thus, for one company a toll equal to about 4 per cent on its gross earnings would amount to 11 per cent of the net earnings for its city service, to about 103 per cent of the net earnings for its suburban service, and to about 17 per cent of the net earnings for its interurban service. Again, such a toll would increase the cost per passenger about 0.18 cent, and the cost per car mile by more than 1.1 cents. Further, it reduces the paying car and passenger haul by 0.33 mile. In this case, a toll of this kind would thus absorb 3 per cent more than the entire net earnings of the suburban traffic, while on the rest of the line it is enough of a burden to be a material drawback in the proper development of the service.

What is thus true of street railways is also true for other utilities. Thus, if a gas company or a water company were considering the extension of mains for which the earnings would, to start with, be entirely offset by the operating expenses, it is quite evident that the management would postpone construction still longer if expenses were still further increased by a toll upon the earnings. Consumers entitled to service consequently would be denied it until the revenues from them were sufficient to overcome the influence of such additional and artificial expenses as a toll of this kind.

Utilities are often subjected to a form of competition over which there is very little or no control. This competition comes from isolated lighting, power and heating plants, which sometimes make severe inroads in the utility business, reducing the volume of service supplied by central station and decreasing, therefore, the efficiency at which the service can be supplied. This competition is greatly enhanced when the central station is burdened by such tolls as those in question here, while the isolated plants are relieved therefrom.

A. R. Foote, formerly president of the National Tax Association, says: "If the purpose of those who advocate franchise taxation is to secure the best possible results for the people from the operation of the franchise granted, their proposition is unsound, because a franchise cannot be taxed without adding the amount of the tax to the cost of the service rendered. On exercising its reserved right to regulate rates, the state must take into consideration this tax addition to cost, as the rates it fixes or approves must cover all costs of ownership and operation and yield a reasonable profit. For this reason a tax on a franchise is not a tax on a corporation, it is a tax on the users of the service it renders. A franchise tax is paid by users, not by a corporation. It is a method of plucking feathers from a goose without exciting a perceptible squawk. In fact, by reason of being inadequately informed, or by being misunderstood, a franchise tax is a popular demand made by users, or rather by political vote seekers; it is a form of indirect taxation that has no proper place in the economic policy of intelligent, honest-minded, self-governed people." Whether Mr. Foote's analysis of the situation applies to the regular tax levy or not may perhaps be disputed, but it is very much in point when it comes to such extra tolls as those under discussion.

TAX FOR RENTAL

It is not surprising that the governing body of any city should first lean toward the license fee or rental

system, in dealing with public utilities. It can thus provide a prompt and material revenue to meet the expenses of the city which ostensibly operates to reduce the general tax rate. It furnishes an attractive advertisement for the business judgment of the men who compose the Common Council. There is also, growing out of the fact that privately owned public utilities are the natural and inevitable target of public criticism, a certain amount of *éclat* to be gained by filling the city's treasury through the depletion of that of the utility. It would be a rare city council in the days that are not so long past that could forego such an opportunity to glorify itself. It is so easy a matter to awaken the interest of the taxpayer in this way. He is not likely to figure closely as to the incidence of a tax.

Much might be said upon the purely political complications growing out of the city's levy upon a utility for city purposes. Perhaps in the whole history of municipal mismanagement in this country there has been no more fruitful source of scandal than the negotiations connected with the securing of franchises by public utilities. Conditions in this respect have generally improved in the past few years, but so long as the people do not see the unwisdom, from an economic and social point of view, of the city exacting fees or tolls or rentals from public utilities in addition to other taxes, there will remain the danger of unfortunate political complications and corruption.

One thing, I believe, which impels to aid the profit-participating plan is the wrong conception held of the value of franchises. It is no exaggeration to say that the average alderman in the average city has a grossly inflated idea of the real value of a franchise. Hence, whether impelled by motives of personal gain or the more worthy desire to increase the city's apparent revenue, he considers a utility corporation holding a franchise as a legitimate subject to exercise his schemes upon.

Under the indeterminate franchise law such as is in operation in Wisconsin there is less temptation than in cities of other states for the city authorities to try to increase the city's revenues by this rather indirect way of placing a tax upon its citizens. The indeterminate franchise under state regulation takes away the trading value of a franchise.

How it would ever be to the interest of the public to replace proper regulation by such a toll or levy on the earnings as that discussed herein is indeed difficult to understand. There is nothing in such a toll that tends to bring about either adequate service or reasonable rates. On the contrary, such tolls are more than likely, because of their effect upon the cost, to cause the service to deteriorate and the charges to be excessive. At any rate the latter assumption would at least seem to be more probable than the former.

I do not hesitate to say that from an economic standpoint and from the standpoint of the higher advantage of the people of any given community it is very much better that a utility be so regulated as to keep its service up to a high standard and its charges at a reasonable level, than that the city should, by its power to contract, make a deal for increasing the city's revenues by a rental or a levy upon the utility's earnings.

INDETERMINATE PERMIT

I should like to add a few words about what seems to me to be the proper sort of a franchise, the kind of regulation by which it should be accompanied, and the system of profit-sharing, if any such system is needed, that would seem to be in line with public interest. In doing this I will refer briefly to what is known as the indeterminate permit or franchise. It is recognized by

the railroad and the public utility laws of Wisconsin that public service corporations are in their nature monopolies, and that the interests of the public are best subserved by protecting the monopoly in those industries, at the same time supervising and regulating them in the public interest. To carry out this purpose competition among public service companies in the establishment of new lines and plants is prohibited except under conditions that make its existence a benefit to the public. By virtue of the State's constitutional power to amend or repeal franchises, the State of Wisconsin has changed every municipal franchise into an indeterminate permit, which in effect is merely a substitution of the provisions of the public utilities law itself in so far as rates, service and other matters of this kind are concerned for the extinguished franchise. Without the consent of the commission no competing utility company can enter a territory served by a corporation operating under the indeterminate permit. But whenever the commission finds that public convenience and necessity require the admission of such competition, a certificate so stating may be issued and a new company be permitted to enter the field.

An indeterminate franchise or permit differs from other franchises mostly in this, that it can in effect be revoked when the commission finds that the corporation is not properly serving the public and cannot be made to do so, or whenever the municipality sees fit to purchase the plant. Such franchises frankly recognize that both the public and the investors should be protected; that the former should have adequate service at reasonable rates, and that the investors are entitled to fair compensation for the services they render.

An indeterminate franchise of this kind coupled with a public utility law, the provisions in which are at least as broad as the best now in effect and which are also properly or wisely administered by a state commission, would seem to furnish about as satisfactory a system of regulation as any that has yet been suggested. In fact, where it has had a fair trial and where it also includes the supervision of the securities issued, it has materially contributed in placing the utilities upon a sound investment basis. This proposition is not only supported in reason, but it can be substantiated by facts.

INCENTIVE TO ECONOMY AND EFFICIENCY

But even if we assume that state regulation and the indeterminate permit is superior to local regulation under the franchise and to such tolls or profit-sharing with the municipality as has been explained, and if we further assume that, as Professor Taussig says, reasonably successful regulation is more easy to attain than reasonably successful public management, there yet remains to be solved a problem which, while not very serious to-day, may become so later on. Regulation of public utilities, well founded as it is on economic and legal principles, can, no doubt, be so administered as to take away much of the incentive to economical operation and to the adoption of efficient methods and equipment. If, for instance, the rates are to be reduced so as to wipe out all savings from efficiencies and improvements as soon as such savings appear, then it is not easy to see how in the long run there is to be stimulated and kept up that incentive to improvement that is as desirable in the public utility field as in other lines of human endeavor. If the effect of improvements in the service, the application of new and better devices, the adoption of new arts and methods in production which lower cost and increase efficiency is to mean only the lowering of the charges to the public without any corresponding benefits to owners and managers of utilities, how long can effective regulation, on the one hand, and

progress in operation, on the other, run parallel, or how long can it then be expected that such economies will continue? This may become an important question. Investigators tell us that under government ownership this incentive to progress is largely lost. That there is foundation for this will hardly be disputed. May not this also become the situation under regulation? That in some instances at least public regulation may be so unwisely carried out as to lead to results of this kind is easily possible. Should this come about then it would also become necessary to adopt measures by which it could either be prevented or remedied.

One way in which this danger can be prevented is so to adjust the rates as to preserve all reasonable inducements to the adoption of the best and most effective methods. That it is possible to make such rates as this will hardly be denied by those who have given some thought to the matter. The problem is largely a question of facts. The facts that are necessary to make such rates do not differ very widely from the other elements that should enter into every sound rate schedule. They are no more complicated and may be obtained in very much the same way. They are in fact disclosed when the conditions as a whole are more fully analyzed. The fact alone that, under regulation, the adjustments of the schedule are as a rule several years apart constitutes an important safeguard in this respect, for the intervening periods during which the rates are thus not disturbed offer many opportunities for the profitable employment of improved methods and other economies.

Another way in which it would seem that the danger in question might be overcome is through the adoption of a system of profit sharing under which the savings from efficiencies in operation are shared by the utility as well as by its patrons. While systems of this kind have not been very fully developed or generally tried, enough is known about them to justify the belief that they are feasible should they be found to be necessary or advantageous. Valuable suggestions in this connection may be had from such experiments in this line in other places as are available.

You are all familiar with the so-called London sliding scale under which the gas companies in that city are profiting to the extent of from three-quarters to one-third of 1 per cent on the investment for each 2 cents reduction per 1000 cu. ft. in the price of gas to the customers. This system has been in effect for more than a quarter of a century.

You are doubtless familiar, also, with the experiment of the Boston Consolidated Companies with the reciprocal or so-called sliding scale of profits. That company in 1900 started at an initial price of 90 cents for gas and a standard dividend of 7 per cent on its capital, it being stipulated that for every 5 per cent reduction in the price to the consumer the company might add 1 per cent to its capital returns. The legislative act authorizing the adoption of this profit-participating plan provided also for an insurance fund to equal one-twentieth of the capital of the company which might be used by the company to meet burdens in time of extraordinary drafts upon the treasury or for such expenses as those occasioned by strikes or the destruction of a portion of the plant.

It is undoubtedly true that such profit-sharing plants as those outlined contemplate and presuppose a degree of efficiency and conditions of stability which some utilities, especially in the smaller towns, may not as yet have attained. While it is not as yet clear that such profit-sharing as this is necessary to encourage efficiency, it can, I think, be said that should the need for it arise, it is possible so to develop a system of this kind that it will meet all reasonable requirements.

CONCLUSIONS

In closing a few of the conclusions may be summarized:

State regulation of utilities by commission, where fairly tried, has been reasonably successful in improving conditions for the customer as well as in protecting the interests of the owner. It has also been effective in removing such regulation from the field of partisan politics.

Profit-sharing with the municipality as such in the form of extra tolls or rentals in addition to the regular tax is not a fair substitute for regulation from the point of view of the best interest of those who depend on the utility for service. Such tolls unduly increases the cost of this service and thereby retard its development. Under such systems of tolls the interests of the municipality or taxpayers as such are likely to be held paramount to the interests of those who are using the service.

Profit-sharing with the patrons of the utility under state regulation, if shown to be necessary to promote efficient operation, would seem to be based on sound principles and can probably be so developed as to be found feasible from a practical point of view. It would seem possible, however, so to adjust the rate schedules of the utilities under the ordinary methods of rate-making that through the rates thus made alone the necessary stimulus to efficient operation is afforded the management.

BUSINESS PROSPECTS FOR 1914

Additional letters received from manufacturers of electric railway apparatus indicate that the optimistic attitude evidenced in the letters published in the ELECTRIC RAILWAY JOURNAL of Jan. 17 and Jan. 24, 1914, is prevalent throughout the entire field. It will be noticed from the letters which follow that some of the optimism is based upon the probability of steam railroad electrification and upon the spread of the "safety first" movement:

ARCHBOLD-BRADY COMPANY, SYRACUSE, N. Y.: "Our business for the last few years has turned almost entirely to transmission-line construction. Part of this has been in connection with electric railroads, but most of it has been directly for power and lighting purposes. We have followed all the electric railway prospects we could get hold of, but most of the work has been along the other line. So far as we have been able to observe, I do not see for this year much chance for interurban work. There does seem to be coming, however, a considerable amount of steam railroad electrification which may lead to some rather extensive contracts."

THE CINCINNATI CAR COMPANY, CINCINNATI, OHIO: "At the present time we have the most optimistic feeling regarding the car-building business for 1914. This feeling is based on the orders we now have booked for delivery during the first six months of this year and the large number of inquiries for new equipment which are coming almost daily. From the present outlook our output will be materially increased over that of last year, which was about the average production."

THE CURTAIN SUPPLY COMPANY, CHICAGO, ILL.: "In our estimation the year 1914 opens with prospects of better business than was the case in 1913. We do not believe, however, that the improvement will be sudden but rather gradual, and therefore much more permanent."

Fundamental conditions are sound, and undoubtedly there is better general business sentiment. A very strong factor for improvement in business, in our opinion, would be the granting of the slight increase in

freight rates asked for by the different railroads of the country.

Our own business during 1913 was surprisingly good in view of general conditions. We attribute this partly to an increased effort to perfect our output and push our sales and partly to the fact that we have added considerably to our line of manufactured articles. To curtains, curtain fixtures and curtain materials we have added such articles as Rex rollers, diaphragms, Rex vestibule curtain shields, Rex steel rollers and a number of other specialties which we are submitting to the trade with gratifying results."

W. J. JEANDRON, NEW YORK, N. Y.: "The past year was the largest in the history of my business. An increase of almost 100 per cent was made over the year previous and the outlook for 1914 is very bright. Of course, carbon brushes are required whether the times are good or not, and as the high quality of 'Le Carbone' product becomes better known the demand becomes greater. I am very optimistic and believe that this year will be one of the best in the history of the electrical business."

FONGER FENDER COMPANY, CHICAGO, ILL.: "We are looking forward to the coming year with renewed hope. It is gratifying indeed for us to learn that the railways throughout the country are showing that they can receive a new and promising device with the proper spirit. This fact is evidenced by the increasing numbers of trial orders on our lists. Our tip-tilting automatic fender was introduced on the market a little over a year ago at the electric railway convention in Chicago, and was demonstrated at that time on live persons to convince railway officials of its absolute safety."

Our fender was seen to possess many new and original features that tend to make it a real benefit to a railway rather than a burden. During the past year our fender has been in service and has been strengthened, simplified and improved in many ways, enabling us to offer better quality at a very greatly reduced price.

The tip-tilting or overturnable shield, the unique and original feature of the Fonger fender, has also enabled us to adapt the fender to the automobile truck with great success. This tripping shield makes it possible to carry a very short basket behind it without sacrificing safety, and thus makes the fender practicable for use on automobiles as well as street cars. The chances for increased business for the company during the new year are very promising, not only because of the broader field covered and the liberal spirit being shown by the railways, but also because of the general and widespread 'safety first' movement that is now gripping the country."

NACHOD SIGNAL COMPANY, PHILADELPHIA, PA.: "We anticipate a large demand during 1914 owing to the fact that electric railways are now able to distribute new securities on a fair basis. This means expansion, new equipment and the purchase of such apparatus as will insure safety and facilitate traffic. In anticipation of a large increase in our business, we have perfected manufacturing arrangements with the Hall Switch & Signal Company which insure us unparalleled facilities for prompt manufacture and efficient service. It would appear from the first four weeks of this year that our surmise is probably correct, as we have received an unusually large number of inquiries and orders. This we ascribe mainly to our achievements in the past, the fact that our apparatus is well and favorably known, and that we are able to adapt our apparatus to meet the individual requirements of practically any signal situation."

Midyear Committee Meetings

Reports Are Published of the Meetings of the Committees of the American Electric Railway Association and Its Affiliated Organizations Which Were Held in New York, Jan. 26-30

During the midyear session of the American Electric Railway Association a large number of committees held meetings. Reports of these are given in the following paragraphs. The former report of the committee on joint use of poles is not included as this is published with the abstracts of the papers presented at the midyear conference on another page of this issue.

EXECUTIVE COMMITTEE AMERICAN ASSOCIATION

A meeting of this committee was held on Thursday afternoon and two on Friday. Those present included President Black, Vice-presidents Allen, Henry and Storrs, M. W. Glover representing the Accountants' Association, J. H. Hanna representing the Engineering Association, W. F. Weh representing the Claims Association and H. A. Nicholl representing the Transportation & Traffic Association. Ex-president H. H. Vreeland, ex-President Arthur W. Brady, James H. McGraw, ex-Secretary H. C. Donecker and the secretary, E. B. Burritt, were also in attendance.

The secretary presented a report on the progress and finances of the association. He then stated that invitations had been received from the following cities for the 1914 convention: New Orleans, Galveston, Buffalo, Cleveland, Los Angeles, Boston and Columbus, Ohio. On motion, the president was authorized to appoint a committee of three members to confer with a similar committee representing the Manufacturers' Association, such joint committee to have the power to fix the time and place for the 1914 convention. The president was also authorized to appoint a committee of five to confer with a similar committee of the Manufacturers' Association to arrange the plans and details for the 1915 convention, to be held in San Francisco, Cal.

President Hanna of the Engineering Association then explained the desire of that association to change its method of procedure in adopting standards. The present method is by letter ballot, but, as the results had not been satisfactory, it was proposed to change the approval of these standards, first, by the standards committee of the Engineering Association, then by the association itself, and finally by the executive committee of the American Association. This change was approved by the executive committee, which thereupon approved a number of standards and recommendations which had previously been adopted by the Engineering Association under the procedure formerly in effect.

At this point the former secretary, H. C. Donecker, was presented by President Black, on behalf of the officers of the association and a few of his other friends, with a gold watch and chain, a gold fob with an A.E.R.A. emblem on a gold medallion and suitably illuminated resolutions, expressive of the appreciation of the officers of the association of the work which Secretary Donecker had performed during his term of office as secretary-treasurer.

The Engineering Association was then voted an appropriation of \$4,000 and the Transportation & Traffic Association \$2,750. An appropriation of \$1,750, and in addition the expenses of the committee on classification during its present session, was then voted to the Accountants' Association. The sum of \$1,250 was appropriated for the Claims Association.

The list of new members presented by the secretary was then approved, and the applicants for membership were elected.

Mr. Allen, as chairman of the *Aera* advisory committee, then stated that the outlook for the future of the publication is encouraging, that an advertising solicitor had been employed and it was expected that the publication would soon be self-supporting. Mr. Storrs, as chairman of the committee on individual membership, then presented a report which appears in abstract in another column. Mr. Storrs further said that he believed that all the members of the committee felt that the individual membership was a very desirable thing to further, but that it has been held back to a certain extent by the attitude of the executive heads of the large member companies. It was the intention of the committee to make an appeal to them to acquiesce in the application for individual membership by the persons connected with their corporations. He appreciated that it was not desirable to ask them to approve individual membership, as that might imply an instruction to the members of their organizations to take membership, but the committee intended to prosecute an active campaign for such individual members.

Mr. Nicholl, as a member of the committee on compensation for carrying mail, then presented the report of that committee. Prof. H. H. Norris and H. A. Bullock then made a report for the committee on education. In this connection Mr. Glover referred to a movement which is on foot in the Accountants' Association, by which an agreement is under consideration to be made with a public accountant located in New York City to carry on a correspondence course in accounting at a charge of \$10 for the course for each student, the charge to be paid by the individual who takes the course. The starting of the course is contingent, however, on 400 students taking it up. On motion the committee on education was instructed to communicate with the committee of Accountants' Association having charge of the matter referred to and to report at the October convention.

Reports from committees on the following subjects were then presented: federal relations, joint use of poles, and public relations. The meeting then adjourned until Friday morning.

At the session on Friday morning, President W. F. Weh of the Claims Association presented the following resolution, which had been adopted by the Claims Association:

"Whereas, it is deemed advisable that the Claims Association, A. E. R. A., take some positive and concerted action toward the prevention of accidents; therefore

"Be it resolved, that there shall be constituted and ordained a committee consisting of the ex-presidents of this association, the present officers of the same, together with the executive committee, all of whom shall comprise a Board of Accident Prevention, from whose accumulated and various experience shall be drafted ways and means for the uniform dissemination of information to the individual members of the association toward the prevention of accidents."

On motion, the course proposed by the Claims Association was approved.

A. B. Guigon, attorney Virginia Railway & Power Company, Richmond, Va., then appeared before the committee and urged that another affiliated association, to be made up of the attorneys connected with the various electric railway companies in the country, be formed

under the auspices of the American Association. He said that there were many matters upon which the attorneys connected with the members of the association could confer to their own mutual benefit and the advantage of the member companies. These included methods of handling public questions, suits in courts, the drawing of contracts and agreements. The matters dealt with by the Claims Association concerned one branch of work engaged in by the attorneys of the railways, namely, the settlement of accident claims and the conduct of suits for damages. But while this work was most important, there were many other questions which were dealt with by the attorneys of great importance but were not considered by the claims departments. He believed that the best results could be procured by a separate organization of attorneys rather than to enlarge the field of the Claims Association and possibly interfere with the principal work for which that association was formed.

On motion, the president was authorized to appoint a committee to investigate the matter and ascertain from the heads of the legal departments of the member companies just what co-operation and membership could be expected in an association composed exclusively of the heads of such departments, and what effect it would have, if any, in reducing the membership of the Claims Association, such committee to report back to the executive committee.

Mr. Hanna, for the committee on subjects, then reported that the following subjects had been selected for consideration at the 1914 convention of the American Association:

"Mooted Principles in Valuation."

"The Organization and Functions of a Valuation Staff."

"Electric Securities from the Standpoint of the Corporation."

"The Milwaukee Zone System in Practice."

"Aspects of Workmen's Compensation Acts."

The committee then adjourned with the expectation of holding a meeting later in the day.

The closing session of the executive committee was held on Friday afternoon. The matter of the revision of the scale of dues was considered but no conclusion was reached. President Black announced the appointment of Messrs. Guigon, Weh and Drown as a committee to consider the advantages of a separate organization for attorneys as compared with a combination with the claims association. Messrs. Allen, Storrs and Donecker were appointed a committee on arrangement for the 1914 convention and Messrs. Mortimer, Henry, Donecker, Handlon and Gregory as the committee for the 1915 meeting.

PUBLIC RELATIONS

There were in attendance at the meeting of the committee on public relations Thomas N. McCarter, chairman; Arthur W. Brady, C. Loomis Allen, Col. T. S. Williams, James H. McGraw, Guy E. Tripp, F. R. Ford and J. H. Pardee. After a discussion the following resolution was adopted: "That a sub-committee of five be appointed by the chairman to draft a set of principles for the association setting forth the association's view in general terms on the problems confronting us and outlining a comprehensive plan of educational publicity along the lines suggested tentatively by Chairman McCarter and to prepare a plan for raising a publicity fund of \$50,000 or more, all of which is to be submitted to the full committee, it is hoped within a month's time." Chairman McCarter then appointed the following sub-committee to carry this resolution into effect: James H. McGraw, chairman; Guy E. Tripp, C. Loomis Allen, Frank R. Ford and Col. T. S. Williams, with Chairman

McCarter a member ex officio. This sub-committee has already arranged for a meeting to take place early next week and proposes to draft a plan of action to be approved by the full committee. Later the committee expects to get in touch with the public policy committee of the National Electric Light Association and a similar committee in connection with the gas interests and possibly other national organizations.

FEDERAL RELATIONS

The committee on federal relations of the American Association discussed matters of current importance. The following were present: Arthur W. Brady, chairman; J. N. Shannahan, L. S. Storrs and Frank R. Ford. Horace Clark, Washington representative of the association, was also present.

COMPANY MEMBERSHIP

The chairman, Frank Hedley, was present and reported progress. A thorough canvass of the field has been and still is being made. This field, as far as city and interurban roads are concerned, has been thoroughly covered in the past, many of the roads still remaining outside the fold, being represented indirectly through affiliation with member companies. The others are being systematically presented with the reasons for joining the association. The committee is working under a district plan, each member being responsible for one particular district which he can reach most conveniently.

The committee has not as yet been able to secure the steam railroads for membership. In the opinion of the committee they are in a position to profit even more than companies which have been in the electrical business for a long time. The salient reason for this is believed to be as follows: The public is demanding more and more that terminals in particular be electrified; hence the railroads should prepare themselves by utilizing all existing sources of information. There is no better source than the experience of the street and interurban roads. The association is the natural clearing house for this experience. On this basis the committee hopes in the near future to interest several of the leading steam roads.

"AERA" ADVISORY

The meeting of the *Aera* advisory committee was attended by C. Loomis Allen, chairman; H. C. Donecker, J. C. Collins, C. G. Rice and C. S. Hawley. The chairman reported that on Sept. 30, 1913, the deficit from publishing the magazine was \$7,000 and that after the December, 1913, issue had been published this deficit stood at \$11,000. Beginning with the issue of January, advertising had been resumed, and the committee plans to wipe out all the deficit and have the magazine on a self-supporting basis.

JOINT USE OF POLES

A meeting of the special joint committee on joint use of poles was held on Wednesday morning, Jan. 28.

The committee members present were W. J. Harvie, Hagerstown, chairman, and Albert S. Richey, Worcester; W. S. Twining, New York; E. G. Allen, New York; Farley Osgood, Newark; Percy H. Thomas, New York; F. B. H. Paine, New York, and W. T. Oviatt, Providence. The others present were S. L. Rhodes, New York, in place of F. H. Bethell, committee member; H. S. Warren, New York, and H. C. Donecker, Newark.

Professor Richey presented a detailed statement of the number of suggestions and criticisms which had been sent to the committee. On motion, the chairman was authorized to report to the general conference on Friday, Jan. 30, that the replies indicated the need for

a joint pole agreement, that the changes proposed were under consideration by the committee and that a revision would be sent out to all member companies about May 1 for the purpose of securing further suggestions which will be considered in the preparation of the final report to be presented at the October, 1914, convention.

COMPANY SECTIONS AND INDIVIDUAL MEMBERSHIP

At the meeting of this committee Chairman Storrs announced that the committee had already held two preliminary meetings during the past month and had outlined an aggressive campaign for the increase of the number of individual members and the formation of company sections. He also said that through the efforts of the committee 500 individual members had been secured since the last Atlantic City convention, and a company section organization had been practically perfected in Washington. The opening gun of the next part of the campaign was the paper by Martin Schreiber, presented before the general meeting on Friday. This paper is designed to secure the co-operation of the officials of the member companies in promoting individual membership. The committee is also prepared to give its assistance where desired in the organization of company sections.

EDUCATION

Those in attendance at the meeting of the committee on education were Prof. H. H. Norris, chairman; H. A. Bullock and Martin Schreiber. This committee plans to utilize the experience gained in the past four years to encourage the preparation of courses suitable for electric railway employees by successful existing educational institutions engaged in correspondence and extension work. This work is to be conducted from association headquarters.

COMMITTEE ON COMPENSATION FOR CARRYING UNITED STATES MAIL

The following attended the meeting of the committee on compensation for carrying United States mail of the American Association: Joseph K. Choate, H. A. Nicholl, P. N. Jones, A. R. Piper, H. B. Potter and C. E. Learned. It was decided that the committee should go to Washington at some future time to present the claims of the electric railways for larger compensation.

COMMITTEE ON SUBJECTS

At the meeting of the committee on subjects of the American Association several subjects for discussion at the October convention were approved. The following were present: James D. Mortimer, chairman; Calvert Townley and J. H. Hanna. E. C. Foster approved the subjects by letter.

SECTIONAL ASSOCIATIONS

The attendants at the meeting of this committee were C. L. Henry, chairman; R. P. Stevens, S. K. Colby, H. C. Donecker, E. S. Wilde, J. W. Hancock, Roanoke, Va.; H. M. Stine, Harrisburg, Pa. Mr. Wilde represented the New England Street Railway Club and the Massachusetts Street Railway Association, Mr. Hancock the Virginia Public Service Association and Mr. Stine the Pennsylvania Street Railway Association. After discussion the committee decided not to suggest to the association any modifications in the plan adopted at the Atlantic City convention by which any sectional association could join the American Electric Railway Association, namely, that all of its members were members of the American Association. At the same time the committee believed that this question should continue to receive consideration. It also decided to request the executive committee to set forth the advantages of be-

coming sections of the American Association to the various associations in different parts of the country and to urge them to join.

EXECUTIVE COMMITTEE TRANSPORTATION & TRAFFIC ASSOCIATION

The executive committee of the Transportation & Traffic Association held its meeting Thursday morning. Those in attendance were J. K. Choate, H. A. Nicholl, R. E. Danforth and E. B. Burritt, secretary. Mr. Burritt read a letter from Mr. Hegarty, president of the association, stating that he had retired from railway service and offering his resignation for this reason. Upon motion the secretary was instructed to take a letter ballot of the members of the executive committee to decide whether this resignation should be accepted. The committee also decided to ask for a ballot of the entire committee whether a new joint committee with the Accountants' Association should be appointed, to be known as the committee on transportation accounting. The members of this committee to be appointed by the Transportation Association would be three in number, and the committee would take up such subjects of mutual interest between the transportation and accountants' associations as should be assigned by the executive committees of those organizations.

EXPRESS AND FREIGHT TRAFFIC

This committee held a meeting on Thursday afternoon at 2 o'clock. The following committee members were present: F. D. Norviel, chairman; C. T. Battey, George H. Harris, F. W. Watts and T. C. Cherry. The committee fully discussed the following assigned subjects for the purpose of making definite recommendations in its next annual report: (a) making a compilation and digest of franchise and ordinance requirements; (b) making a study of systematic promotion of this business; (c) taking up recommendations of the 1913 committee for further consideration, including Question 18 (committee's report), and (d) submitting types of organization of freight departments as used by various representative roads. The ultimate purpose of the committee is to formulate a uniform method of compiling rates, divisions, classifications, weights and inspection for the interchange of traffic between electric lines, and to bring about its adoption, as far as possible, by all lines for local use.

FARES AND TRANSFERS

The fares and transfers committee met on Thursday at 10 a. m., with J. V. Sullivan, chairman, and J. M. Learned present. The committee had invited manufacturers of transfer-issuing devices to be present at the meeting and the morning session was spent in an examination of the apparatus of the Automatic Appliance Company, Boston, Mass., and the Ohmer Fare Register Company, Dayton, Ohio. The afternoon session was taken up with reading communications from absent members of the committee and with discussing points about which the committee intends to question member companies, such as the following: the extent to which fare boxes have been perfected; their cost of maintenance; the question as to whether increased receipts result from their operation; the use and original cost of metal tickets; transfer-issuing machines; the practicability and advisability of bodily transfer of passengers in controlled areas; methods of accounting for free transportation, particularly persons with badges or uniforms.

A sub-committee composed of G. K. Jeffries and P. Dohrman was appointed to look into the question of interurban operation, with particular reference to the registering of fares and transfers.

TRAINING OF TRANSPORTATION EMPLOYEES

A meeting of this committee was held on Thursday morning at 10 o'clock. Members of the committee present were J. T. Crabbs, chairman, and E. E. Strong. The committee discussed the following assigned subjects preparatory to making its next annual report: (a) "safety first" movement; (b) bringing up to date the digest of state and municipal regulations affecting employment, as covered by the 1912 committee; (c) recommended practices of handling bulletin boards; (d) study of the various methods of paying wages, that is, the disbursement to the men, and (e) recommendations regarding the standardizing and use of training schools, instruction cars and apparatus for properties of various sizes. It was decided that if the committee found it possible and expedient its report should also include some recommendations based on the constructive work of the committees of previous years.

SCHEDULES AND TIMETABLES

The meeting of the committee on construction of schedules and timetables was held Thursday morning, Dec. 29. The committee members present were J. J. Dempsey, chairman, Brooklyn; Alexander Jackson, Newark; J. W. Howden, Toronto, and J. P. Barnes, Syracuse. The committee first discussed the question of improving running time in city operation through such devices as the skip-stop or limited car service. Of the uncompleted subjects of the 1913 committee, the present committee will take up only that of obtaining individual car mileage. The question of "turn-backs" was then taken up, after which the committee considered the compilation of a list of individual features covering the construction of timetables. The meeting was then adjourned.

COMMITTEE ON LIFE OF RAILWAY PHYSICAL PROPERTY

The meeting of the joint committee of the Accountants' and Engineering Associations on the life of railway physical property was attended by the following: Robert N. Wallis and Martin Schreiber, co-chairmen; Robert B. Rifenberick and Edwin Gruhl. The committee decided that its most important work for the coming year would be to co-operate with the committee of the American Society of Civil Engineers now considering the subject of valuation for rate-making purposes and also with commissions and any other bodies or societies engaged in valuation work. It will also bring the bibliography submitted by the committee at the 1912 convention up to date.

EXECUTIVE COMMITTEE CLAIMS ASSOCIATION

The meeting of the executive committee of the Claims Association was called on Thursday at 10:30 a. m., with President F. Weh in the chair. There were also present W. Tichenor, R. E. MacDougall, B. B. Davis, P. C. Nickel, F. J. Whitehead, S. B. Hare, J. S. Kuba, proxy for C. B. Proctor; H. K. Bennett, proxy for George Carson, and H. B. Brown, ex-president and ex-officio member of the committee. The report of the subject committee was read by the chairman, M. P. Spillane. The following subjects were approved: (1) How claim investigations should be conducted from the legal point of view, with defense as well as adjustment borne in mind; (2) claims department policies and principles, this subject being divided as follows: relations of claim department to the public, the psychology of the claims department, the efficiency of claims department work, and office kinks in the claims department; (3) the question of the benefit of publicity in claim department work and the extent thereof. The motion was made by Mr. MacDougall and passed that the work at the annual con-

vention should be extended to include Thursday morning, and that Wednesday should be devoted to the subject of accident prevention and a general discussion thereon. Heretofore the session of the Claims Association has been terminated on Wednesday.

In the afternoon a joint meeting of the Accountants' and Claims associations' executive committees was held to discuss the subject of the classification of damage accounts. A committee composed of H. K. Bennett and P. C. Nickel was appointed for the Claims Association to meet with a similar committee of the Accountants' Association and to report at the next convention. Resolutions of regret at the resignation of Mr. Doncker as secretary were passed.

TRANSPORTATION ENGINEERING

The meeting of the transportation engineering committee was held on Friday morning at 10:30, with R. N. Hemming, co-chairman, of the Engineering Association, and C. N. Wilcoxon, of the Transportation & Traffic Association, present. Owing to the fact that four members of the committee were unable to be present, only a general discussion was made of the topics assigned to the committee by the executive committee, namely, (a) two or more car operation, covering passenger service and express and freight service, and (b) effect of car and equipment design on the duration of stops. It was stated that a meeting of the committee will probably be called early in the spring in some city of Ohio or Illinois in order that all the members of the committee may find it more easily possible to attend.

CAR EQUIPMENT

The meeting of the committee on car equipment was held on Thursday, Jan. 29. Those present were: F. R. Phillips, chairman, Pittsburgh; L. M. Clark, Indianapolis; J. P. Barnes, Syracuse; W. R. McRae, Toronto; R. N. Hemming, Anderson, and F. J. Doyle, Schenectady. Edgar G. Deis represented W. G. Gove, vice-chairman, Brooklyn.

The first subject considered was wires and cables for car equipment. The committee will elaborate last year's report up to the point of making specifications for wire.

The next matter was that of air-brake hose specifications. It is possible that the committee will take up this matter with the Master Car Builders' and Air Brake associations, which have been very active in this work.

Following this subject the committee discussed the lighting of electric street cars, with particular reference to the application of high-efficiency lamps to semi-indirect and indirect lighting systems.

The committee then considered an outside suggestion for a proposed specification for gears and pinions. The communication was referred to the sub-committee on steel wheels for attention as soon as convenient.

Lightning protection and its best location in the wiring circuit were next considered. In this connection conduit methods, grounded or insulated controllers, shocks to passengers and like questions will be taken up. An extensive data sheet will be prepared to cover numerous features which affect the behavior of lightning protection equipment, even to the insulating qualities of ballast and the influence of steel in car construction.

Mr. Barnes then offered for discussion the minutes of the meeting of the sub-committee on steel wheels as held at New York Jan. 6, 1914. An account of this meeting was published on page 86 of the *ELECTRIC RAILWAY JOURNAL* for Jan. 10, 1914. No important changes were made in this report. At Mr. Barnes' suggestion, also, the matter of gages was postponed.

POWER DISTRIBUTION

The committee on power distribution met on Thursday, Jan. 28, with the following members present: G. W. Palmer, Jr., chairman; Prof. A. S. Richey, Gaylord Thompson, Charles Rufus Harte, R. H. Rice, F. H. B. Paine and C. F. Woods.

The first matter to be discussed was that of revising the specifications for trolley wire. Professor Richey, as chairman of the sub-committee covering this subject, reported that the sub-committee met in November with the sub-committee of the American Society for Testing Materials and had continued the consideration of the specifications, embodying therein recommendations on elongation and torsion tests. The specifications included not only round wire but also grooved wire and figure-eight wire, the latter being included at the request of the American Society for Testing Materials on account of its use in mine work. There was a general discussion on the matter of omitting the torsion test on figure-eight and grooved wire and on the possibilities for substituting some other test to take its place. The torsion test could not be satisfactorily used with the latter two forms of wire on account of the small cross-section through the body of the wire so that the tensile and elongation tests were the only ones available at the present time.

Mr. Rice, as chairman of the sub-committee on specifications for rubber-insulated wire and cable, gave an account of the work of the sub-committee, and this was followed by an extended discussion on the revision of the details of the proposed specifications as published in Appendix A of the 1913 committee's report. In the discussion it was brought out that these specifications could be harmonized in all essential features with the specifications of five other technical societies. The report was approved subject to such minor changes as had been brought out in the discussion.

In the matter of specifications for overhead construction it was decided to leave the suggested revisions to the sub-committee on overhead construction. The sub-committee on specifications for concrete poles, of which Mr. Rice was chairman, reported progress, stating that an account of the experiences of the New York State Railways had been obtained in detail, together with a mass of other data. It was expected that this information would be collated for the next meeting. Mr. Thompson spoke of the formulas for strength and deflection of concrete poles and said that there was a possibility of deriving simple equations for hexagonal poles in case they were desirable. After a general discussion on weights, methods of handling and proper cross-sections, it was decided that there was necessity for having experiments made on actual poles of the design given by the proposed formulas, and it was left to Mr. Rice to make the necessary arrangements. The committee was also to continue its elaboration of the theoretical considerations.

Mr. Harte, as chairman of the sub-committee for standard overhead-line construction and material, reported progress and outlined plans for the 1914 report. These included the consideration and making up of specifications and establishing standards for different classes of material.

The matter of revision of such previous standards or recommended practices as have been recommended by the power distribution committee was then taken up. Professor Richey read a letter from the Bureau of Standards stating that minor changes had been made in that organization's specification for copper wire tables for the purpose of allowing for the variations in length and size of wire which would accord with the listed changes in temperature. After a general dis-

ussion it was decided that Professor Richey should report on these revisions. It was also decided that Professor Richey's sub-committee should obtain and discuss the A. S. T. M. specifications on hard-drawn, semi-hard-drawn and soft copper wire, not including trolley wire.

In the matter of electric wire and cable terminology, Chairman Palmer read a letter from the Bureau of Standards calling attention to minor changes which had been made in its nomenclature, and he stated that he would report in full upon these matters. Chairman Palmer also suggested a revision of the specifications for galvanizing on iron and steel so that they would cover either sherardized or galvanized metal, and it was decided that he should make a report on this matter.

BLOCK SIGNALS

The joint committee on block signals of the Engineering and Traffic & Transportation Associations met on Thursday, Jan. 29. There were present from the Engineering Association J. M. Waldron, co-chairman; Gaylord Thompson and C. H. Morrison. From the Transportation & Traffic Association there were present C. D. Emmons, co-chairman; J. W. Brown, J. J. Doyle and H. A. Nicholl.

Mr. Waldron, after opening the meeting, submitted a letter from the executive committee of the American Electric Railway Engineering Association giving the following subjects as assignments for the work of the committee during the coming year: (a) to bring up-to-date the digest of block signal law, and rulings on block signals and safety devices; (b) to make a further study of installations made subsequent to the 1913 report; (c) to consider the design of standard signal apparatus.

It was decided that subject *a*, as proposed by the executive committee, should be assigned to Mr. Doyle as a sub-committee of one, and that subject *b*, as proposed by the executive committee, be assigned to Mr. Nicholl as chairman of a sub-committee, with Mr. Emmons acting on this sub-committee in co-operation with Mr. Nicholl. In the discussion on this subject it was decided to include in the scope of its work the matters of efficiency of signal systems and cost of signal operation and maintenance. Mr. Brown suggested that in submitting the data sheet for information from the various member companies a definition of "signal failure" should be included, and it was decided to follow this suggestion, using the definition which appears in the Signal Dictionary.

Mr. Waldron pointed out the desirability of bringing the bibliography up to date and offered to act on a sub-committee to cover this work. The suggestion was approved with the recommendation that Mr. Cloud should be requested to act with Mr. Waldron.

Mr. Waldron also suggested that the matter of rules for signaling, including interlocking plants and cab signals, should be considered, completing the report of last year. The suggestion was approved, and Messrs. Brown, Thompson and Waldron were assigned as a sub-committee to cover this subject.

Messrs. Waldron, Leisenring and Morrison were then assigned as a sub-committee to take up subject *c* as proposed by the executive committee.

The necessity for further consideration of light signals was brought up and Messrs. Morrison and Nicholl were requested to take up this work. Messrs. Waldron and Morrison were then assigned to act as a sub-committee on automatic stops, bringing the information contained in previous reports of the committee up to date.

After a general discussion it was decided that the next meeting should be held in Chicago at the time of the American Railway Engineering Association's con-

vention in March. The members are to meet on Tuesday morning, March 17, at 10 o'clock in the Congress Hotel, Chicago.

COMMITTEE ON STANDARDS

The meeting was attended by Martin Schreiber, who presided in the absence of Chairman H. H. Adams, and G. H. Pegram, W. H. Roberts, Norman Litchfield, F. R. Phillips, E. B. Katté, G. W. Palmer and J. Lindall. The committee considered and approved the recommendations referred to it by the executive committee of the association as covered in the 1913 *Proceedings*, pages 313 and 314. These referred to specifications for 600-volt d.c. overhead construction, the use of continuous track circuits for the control of automatic signals for high-speed service, and light aspects for car-spacing signals operated by trolley contactors or other forms of end-set device.

In the discussion attention was directed to the proper height of trolley wire at steam railroad crossings, on which there is no agreement among the steam roads. The standard adopted is the minimum, it being understood that in many cases higher elevation will be demanded. The standards for signal aspects were adopted after suggestions from signal manufacturers had been considered. No change was made, however, as there were no fundamental data presented which had not already been considered by the joint committee on block signals for electric railways.

The joint use of track by steam and electric railways in relation to signaling was considered in connection with the adoption of signaling standards, especially in view of the fact that these are the first signal standards to be adopted. While it was realized that steam and electric railway signals are at present radically different, no confusion is anticipated on roads carrying both kinds of traffic, as, for the present at least, electric cars operated over steam track will be in charge of trained steam enginemen.

President J. H. Hanna expressed for the committee his gratification that the executive committee of the American Association had formally approved the standards and recommendations of 1912 and 1913 and the revised rules for adopting standards. This puts the work of the Engineering Association's standards committee and those who have contributed to it on a new and official basis.

WAY MATTERS

The meeting of the committee on way matters was scheduled for Wednesday, Jan. 28. Those present were: C. S. Kimball, Washington, chairman; E. H. Berry, Cincinnati; C. H. Clark, Cleveland; E. P. Rounday, Syracuse; W. F. Graves, Montreal; R. C. Cram, Brooklyn; C. W. Gennet, Jr., Chicago, and J. B. Tinnon, Joliet.

The discussion on the first subject, "Proper Foundation for Tracks in Paved Streets," was opened by Mr. Cram. The speaker did not believe that a track should be constructed on the basis of more than twenty years' life, and this was one reason why he did not favor the general use of a heavy concrete sub-base. After a general discussion on soils, sub-base and ballast, the committee decided to send out a circular letter to find out what railways had done to determine the bearing values of different soils.

The companies will also be asked to explain why they are using specific kinds of rails. In addition to this, the committee will study the rail reports of the American Society of Civil Engineers and the American Railway Engineering Association. Mr. Cram will make a separate report on this subject for the committee.

The "Use of T-Rails in Paved Streets" and "Pavement for Use in Connection with Girder and High T-

Rails" were next considered. Study will be made of the report of the previous committees, and members will take photographs of different types of track as used for given periods and conditions. Messrs. Clark and Cram will submit figures on the comparative costs of T and girder rails, detailed maintenance figures on T-rail will be obtained from a large city of the Middle West and comparison will be made of liability of both classes of rails to corrugation.

As the result of a general discussion on paving, several members promised to prepare notes on traffic studies and their relation to paving life. The committee then worked out a data sheet on T-rail paving and foundation.

The members then discussed the question of paving in connection with the use of girder and high T-rail. Paving was classified for study under the following heads: granite block, Medina pressed sandstone block, creosoted wood block, slag block and vitrified paving brick. Mr. Clark will write a report on this subject which will be submitted to each member for suggestions and referred to the chairman for summary and comment. The subject of "alloyed steel rails," including special work, was next taken up. After discussion, Mr. Gennet agreed to prepare a report on this subject.

A supplementary session of the committee to discuss details was held on Thursday with President Hanna present.

COMMITTEE ON ELECTROLYSIS

The committee on electrolysis held two meetings during the week. The first was held on Tuesday, Jan. 27. Prof. A. S. Richey, chairman; G. W. Palmer, Jr., and E. J. Blair being present. At this meeting the committee talked over in a general way the discussion on the report of last year and the comments which had been made since the convention regarding both the report and the discussion.

The committee also discussed in general the tentative scope of the report for the current year. This will, in all probability, be along lines of last year's report, but will go into considerably greater detail regarding the engineering features of the subject.

On Thursday, Jan. 29, a second session was held, the committee from the Engineering Association meeting with Calvert Townley, representing the electrolysis committee of the American Association, in order to arrange a definite program for the new work. It was decided to follow the plan outlined above.

HEAVY ELECTRIC TRACTION

A meeting of the committee on heavy electric traction was held on Friday afternoon, Jan. 30. Those present were E. R. Hill, chairman, New York; E. B. Katté, vice-chairman, New York; J. M. Bosenbury, Peoria, and C. H. Quinn, Roanoke. The first subject considered was overhead clearances. It was decided to co-operate with other associations interested in this subject and also to comply with the suggestion of the American Railway Engineering Association that a fifth diagram covering minimum 600-volt d.c. clearances be added to those given in the committee report of last year. The second question taken up was that of third-rail clearances and train stops. This matter, as well as a reconsideration of third-rail gages, will be taken up with associated bodies including the American Institute of Electrical Engineers. After a general discussion of the operating conditions which affect locomotive design, the committee decided it would be opportune to make a series of drawings showing the drives of modern electric locomotives and the conditions for which they are used.

EXECUTIVE COMMITTEE ACCOUNTANTS' ASSOCIATION

The executive committee of the Accountants' Association had a large attendance at its meeting. The following were present: M. W. Glover, president; W. G. Nicholson, H. D. Vickers, Robert N. Wallis, M. R. Boylan, Thomas P. Kilfoyle, H. B. Cavanaugh, Walter Shroyer, E. L. Kasemeier, H. S. Swift, P. S. Young and C. S. Mitchell.

President Glover announced that H. B. Cavanaugh, Cleveland, Southwestern & Columbus Railway, has been appointed a member of the committee on interline accounting. He also announced that, on account of inability to give time to the work, J. H. Neal, Boston Elevated Railway, had resigned from the committee on education, and that John L. Conover, Jr., Public Service Railway of Newark, N. J., had been appointed to succeed him.

In accordance with a suggestion of W. F. Ham, Washington Railway & Electric Company, the committee to attend the 1914 annual meeting of the National Association of Railway Commissioners was appointed. Following are the members of this committee: W. F. Ham, H. J. Davies, Cleveland Railway, and C. L. S. Tingley, American Railways Company.

It was decided to change the name of the committee on prepayment car operation to prepayment car accounting, and that the members of this committee should become the accounting members of a joint committee on transportation accounting, should the executive committee of the Transportation & Traffic Association agree in authorizing the appointment of such a committee.

President Glover read a letter of invitation to attend a meeting of the Central Electric Railway Accountants' Association, which is to be held probably in February to discuss the new system of accounting which will be issued tentatively in the near future by the Interstate Commerce Commission. It was decided that the association should be represented at this meeting. The members of the committee on a standard classification of accounts have been asked to attend the meeting. It was decided that the secretary should ask members of the association to send their criticisms of the new classification directly to the classification committee.

The Accountants' Association will have a joint committee with the Claims Association to prepare a classification and distribution of expenditures for claim department operations.

W. H. Forse, Jr., Union Traction Company of Indiana, has resigned from the committee on education. G. G. Whitney, Washington Railway & Electric Company, was appointed to fill the vacancy.

It was decided to appoint a committee on accounting definitions. The following were appointed: Frederic Nicholas, *ELECTRIC RAILWAY JOURNAL*, chairman; W. B. Brockway, Ford, Bacon & Davis, and Robert N. Wallis, Fitchburg & Leominster Street Railway.

The following subject for a paper to be presented at the 1914 condition was approved: "Accounting Treatment of Bond Discount."

STANDARD CLASSIFICATION OF ACCOUNTS

The committee on a standard classification of accounts of the Accountants' Association held sessions each day from Jan. 26 to 29, inclusive. The following members of the committee were present: H. L. Wilson, chairman; W. B. Brockway and W. F. Ham. The Interstate Commerce Commission was represented by George Geekie, examiner.

The work on which the committee has been engaged for some time is the preparation of a form of general balance sheet, income account and profit and loss account, and a revision of the classification of operating

expenses and operating revenues and road and equipment accounts. A little later these will be submitted to all electric carriers for suggestion and criticism. There will be a little delay in the issue of the circular, including the new classifications, which is to be sent out by the Interstate Commerce Commission. It is hoped, however, that the circular will be ready for submission to electric carriers in about thirty days. It is hoped that the new system will become effective on July 1, 1914.

COMMITTEE ON EDUCATION OF THE ACCOUNTANTS' ASSOCIATION

The committee on education of the Accountants' Association met on Jan. 29. Those present were F. J. Pryor, Jr., chairman, and John L. Conover, Jr. The committee has made a tentative arrangement with Prof. John R. Wildman, of the New York University School of Commerce, Accounts and Finance. The plan is to offer a course of sixteen lectures, to be presented by correspondence during a period of two years, or at the rate of eight lectures a year. The course will cost \$10 a year for each subscriber. Examinations will be held and the answers of subscribers will be marked. The arrangement is contingent upon acceptance by 400 subscribers.

The committee also will prepare circulars calling the attention of member companies to the advantages the plan offers to their employees and urging acceptance. These circulars, according to the conclusion of the committee, will be issued from the office of the secretary of the American Association. One of the suggestions received by the committee is that the course of study offers an opportunity for companies to pay part of the expense for the benefit of the employees if they wish to do so.

COMMITTEE ON EXPRESS AND FREIGHT ACCOUNTING

The committee on express and freight accounting of the Accountants' Association outlined plans for the preparation of the report for the 1914 edition. The meeting was attended by E. L. Kasemeier and Walter Shroyer.

JOINT COMMITTEE ON ENGINEERING ACCOUNTING

The joint committee of the Engineering and Accountants' associations met on Wednesday afternoon. The Engineering Association was represented by J. P. Barnes, co-chairman; J. P. Ripley, F. A. Bagg and Lee H. Parker. The Accountants' Association was represented by M. W. Glover, J. C. Collins and J. M. Joel. The committee discussed definitions and plans in connection with the subjects of interdepartmental and overhead charges and cost accounting assigned to it by the executive committee. Motions were passed that the co-chairmen should appoint a sub-committee to gather data and formulate a report on the subject of cost accounting, to be presented at the next meeting of the committee, and also that since the subject of overhead charges had been referred to the joint committee a sub-committee should be appointed by the co-chairmen to investigate the subject in consultation and co-operation with the committee on overhead charges of the Accountants' Association.

Plans have been approved in Chile for the construction of an electric railway to connect Villa Alegre station with Villa Alegre town, in the province of Linares, and an electric railway in Valparaiso. The Buenos Aires, Villasana and Lo Prado Districts Tramway & Electric Light Company, Ltd., has secured a concession to construct an electric railway and also lighting facilities in the districts named.

Equipment and Its Maintenance

Short Descriptions of Mechanical and Electrical Practices from Every Department of Electric Railroading

(Contributions from the Men in the Field Are Solicited and Will Be Paid for in Accordance with Our Regular Rates.)

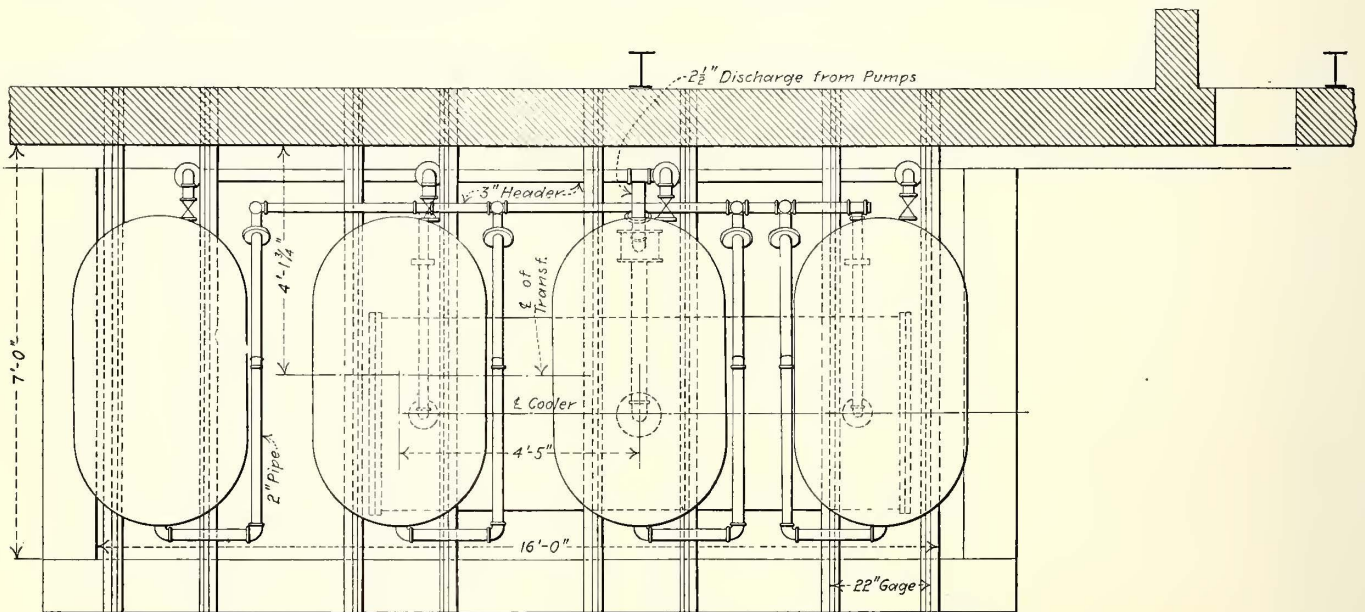
SURFACE CONDENSERS FOR COOLING TRANSFORMERS

BY H. ROOT PALMER, GENERAL SUPERINTENDENT OF LIGHT AND POWER, VIRGINIA RAILWAY & POWER COMPANY

As a result of the construction of a new power station by the Virginia Railway & Power Company, Richmond, Va., four 750-kw, 2300-volt to 13,200-volt, water-cooled, oil-insulated, indoor-type, single-phase transformers which had been used at the old station as step-up transformers for transmission to substations became available for other purposes. When it was first decided to use these transformers in a substation

A surface condenser of approximately 2000 sq. ft. cooling surface was installed below the transformers and was equipped with a 48-in. Davidson propeller fan. This fan was bolted directly to the end of the condenser, the water boxes on both ends having been removed in such a manner as to give a circulation of air through the condenser tubes of approximately 15,000 cu. ft. per minute. A 2½-in. electric-driven geared pump was used to circulate the oil through the condenser and transformers.

Oil is pumped from the condenser to a 3-in. header, connections being made from this header to the bottom of each transformer. An overflow is provided at the



Plan Showing Cooling System for Bank of 750-Kw Transformers

where additional step-down capacity was required, several methods of cooling were considered.

Owing to the lack of available space, it was necessary to place them outside. To provide new cases of outdoor type for straight oil cooling would have cost, approximately, \$1 per kw, with a reduction in capacity of 33 1/3 per cent. If cooling with city water had been continued, the cost would have been approximately \$400 a year. It would also have been necessary to provide new tops with outdoor type bushings. External radiation was considered, but the cost of operation was so high that the plan was abandoned. Finally, we worked out the following scheme by which the transformers are operated continuously at rated capacity, and with the use of only a small amount of city water, at loads 50 per cent above rating during the peak periods and at temperatures no higher than the original guarantee.

top of each transformer, the oil returning to the condenser by gravity. The water coils are also connected with the city mains, and, in cases of emergency, city water may be circulated through the coils, giving rated capacity without the cooling system in operation.

To install these transformers outside of the station brought up the question of making them waterproof. The transformers were fitted with galvanized iron hoods, supported from the transformers and bolted against the station wall. The leads from each transformer were taken through wall bushings underneath the galvanized hoods and connected to the buses inside. Lugs were placed on the end of the buses and also on the end of the leads from the spare transformer, so that connections could be quickly made to any phase in case of transformer trouble. The accompanying drawings and halftone show the details of this arrangement.

Peepholes were cut in the substation walls opposite

thermometers placed in the oil discharge from each transformer, and incandescent lamps are placed conveniently for reading the thermometer. The oil to each transformer is controlled by a valve with an ex-

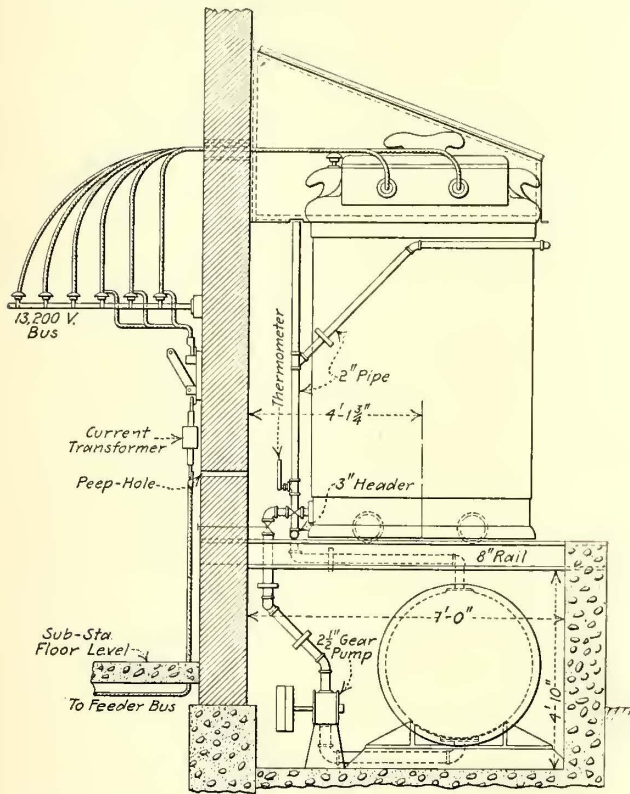
This plan and the details were worked out by W. C. Bell, assistant to the general superintendent of light and power, and at a cost considerably less than 50 cents per kw rated transformer capacity.

GRANITE-BLOCK PAVING FOR SHALLOW T-RAIL ON PARKED STREETS

BY E. L. MATHEWS, BROOKLYN RAPID TRANSIT SYSTEM, FORMERLY ENGINEER OF WAY AND STRUCTURE, CONEY ISLAND & BROOKLYN RAILROAD

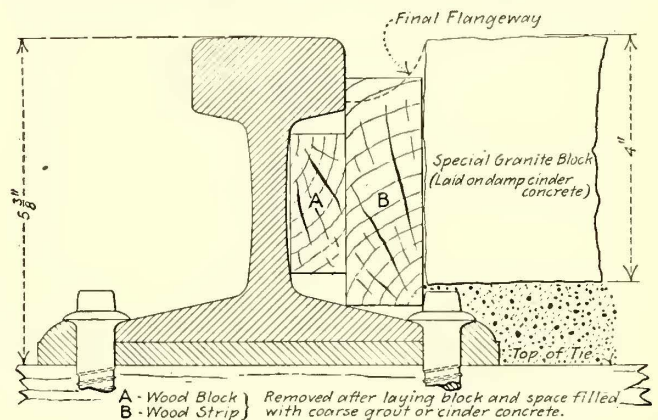
The following method of paving crossings on a parked street, where the travel is at right angles with the tracks, has proved quite successful with the Coney Island & Brooklyn Railroad Company on its reconstructed Coney Island Avenue line. This line was laid with 80-lb. A. S. C. E. rail which necessitated shallow granite blocks.

A strip of wood of the thickness desired for the wheel groove was laid on edge against the gage line of the rails sufficiently below the rail level to allow the passage of car wheels over it. Small wood blocks were inset beneath the head of the rails to keep the strips in position. The blocks were then laid, using the planks or wooden strips as headers. After laying the pave-



Section of Cooling System for 750-Kw Transformers

tended stem and handwheel inside the station. This enables the operator to control the temperature of each transformer from the inside of the station.

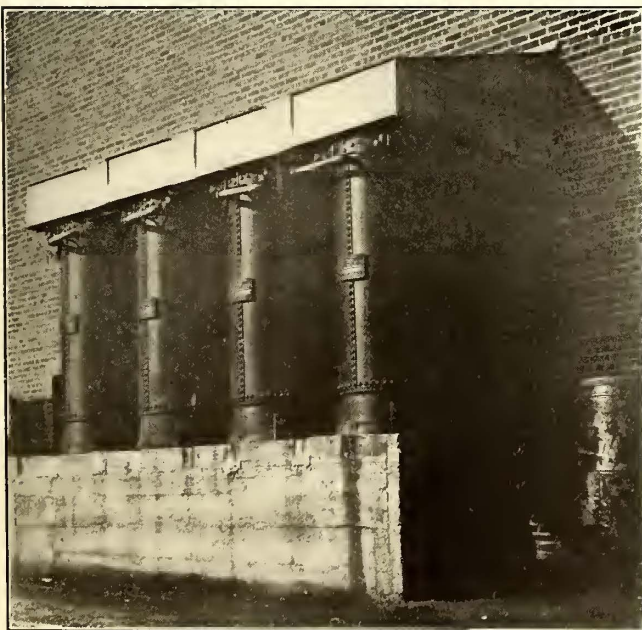


Cross-Section Showing Method of Granite Block Paving in Shallow T-Rail

ment, the strips were carefully lifted from along the rails and the space thus left was filled with concrete to the level of the rail and pavement, thus allowing the car wheels to make their own groove in the moist concrete. In the first concrete mixture cinders were used, but afterward a cement grout was substituted, using a little more sand than was required for the joints between the paving blocks. This change was made merely as a matter of a working convenience. A strong cement grouting of one part cement and two parts sand was used for the joints in the pavement. On account of the shallowness of the pavement, the blocks were laid on a layer of moist cinder concrete instead of a cushion of sand.

The first crossings installed have been in place for about three years and are in practically the same condition as when originally laid.

Purdue University has issued its December, 1913, Bulletin, which contains an annual report by the officers of that institution. Statistics show that out of the total enrolment of 2191 students in the college year 1912-1913, 348 were enrolled in the regular four-year electrical engineering course. Out of the total number of 312 graduates who received degrees in 1913, sixty-nine received bachelors' degrees in electrical engineering and five advanced degrees in electrical engineering.



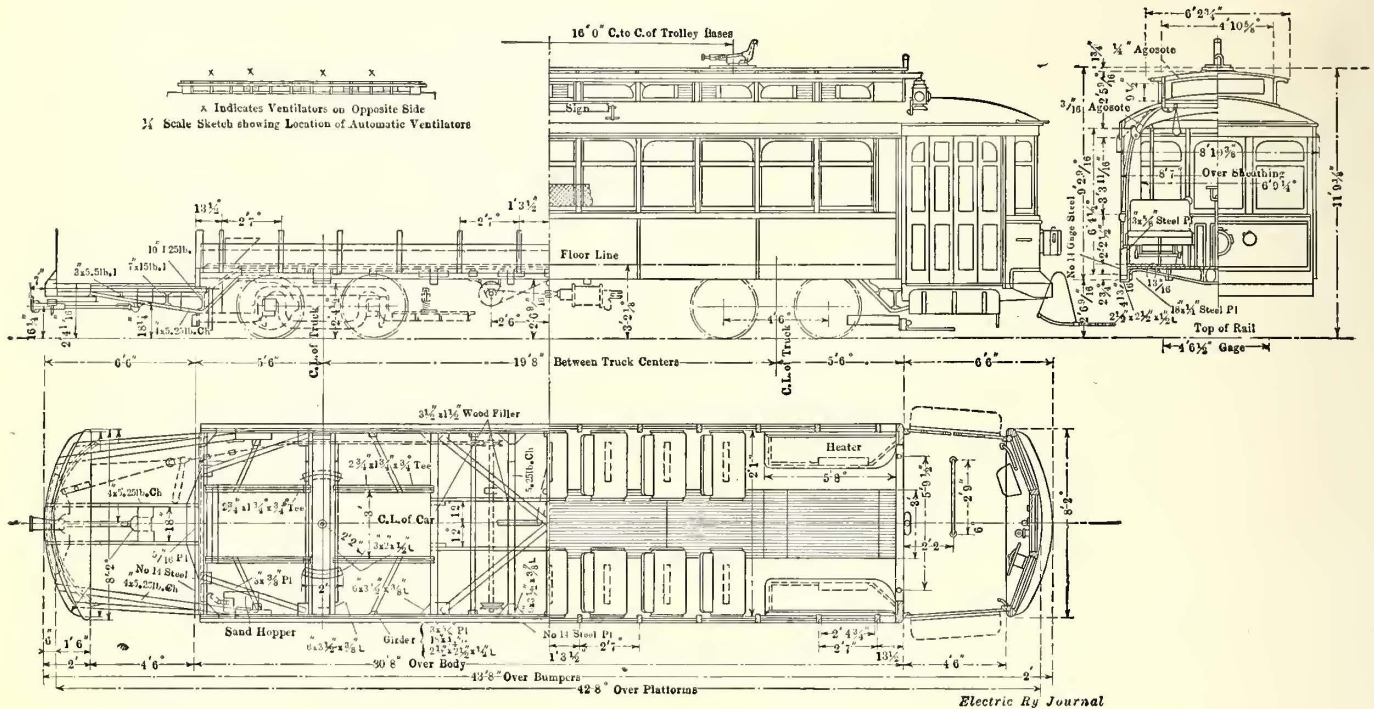
Outdoor Installation of Indoor Transformers

As these transformers are outside, they can be operated continuously in cool weather at about 900 kw each, with the oil-circulating system alone, and over peak-load periods at capacities up to 1250 kw. In the latter case both oil and water-cooling systems are used.

CAPITAL TRACTION COMPANY'S SEMI-STEEL PAY-WITHIN CARS

The Capital Traction Company, Washington, D. C., has recently added for service on its Chevy Chase suburban line five semi-steel cars of the type illustrated. Like its earlier prepayment cars, this design is for pay-

ing doors to inclose the vestibules. The door pockets which are necessarily required for sliding doors mean greater car cost and inconvenient shortening of corner seats. Folding doors also reduce the operating cost and weight as contrasted with a motor-operated sliding door. Wood was selected for the framing of these doors because of the difficulty which the company has had in



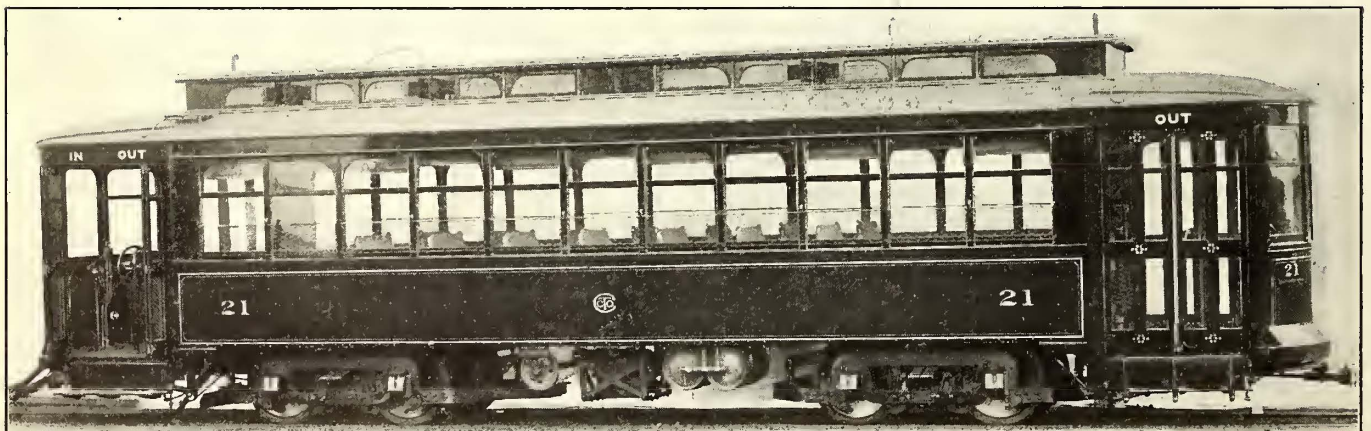
Capital Traction Company—Plan and Elevations, Showing Construction and Seating Details

within operation. However, experience with the cars first used has led the company to make several changes in construction, and, in addition, the latest rolling stock embodies such innovations as light signals for the motorman and illumination with 36-watt tungsten-halophane units.

Like their immediate predecessors, the present cars are 42 ft. 8 in. over the platforms, 30 ft. 8 in. over the body and seat forty-four passengers in a combination

securing replacement material for steel doors. In accordance with modern practices, all door panels are of clear wired glass.

As for the general construction materials of the car, the important members of the underframe are of commercial steel shapes of the sizes indicated on one of the accompanying drawings, the body is of wood except for a sheathing of No. 14 steel up to the window line and the roof has an agasote headlining. The monitor design



Capital Traction Company—New Near-Side Cars with Hand-Operated Folding Doors

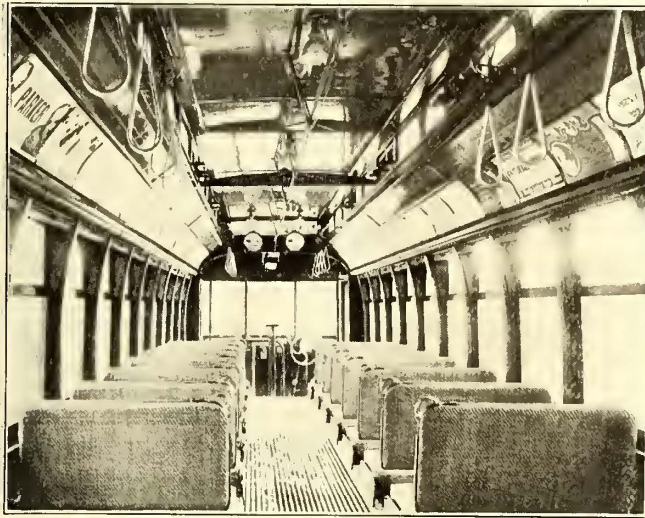
of cross-seats with short longitudinal corner seats. The inside width of 8 ft. 3 in. permits 37-in. cross-seats with a 25-in. aisle between them. This is a gain of 4 in. to 5 in. in clearance as compared with the earlier cars, and this was obtained by choosing roof instead of drop sash. The side construction of these cars has been simplified still further by the use of hand-operated fold-

has been retained, but it has been fitted with Automatic ventilators.

The cars, which were built by The J. G. Brill Company, are carried on Standard 0-50 trucks owing to their use for high-speed suburban service. The braking and motive equipment comprises Westinghouse air brakes, four GE-200 motors and K-29-B platform controllers

with two auxiliary contactors. This form of control was described in the *ELECTRIC RAILWAY JOURNAL*, page 120, Jan. 15, 1910. Its chief purposes may be summarized as follows: When the controller is moved to the off position and also when it passes from the series to the parallel connections, the power circuit is broken in the contactors and not in the controller. The con-

wired on two independent circuits located as shown in the wiring diagram. Several of the interior lamps are so placed as to illuminate the inside route and destination signs. The wiring diagram mentioned also shows the location of the wiring and switching equipment of other auxiliary circuits.



Capital Traction Company—Tungsten-Holophane Lighting in Latest Pay-Within Cars

tactors also open if excessive current passes through the overload coil of the tripping switch.

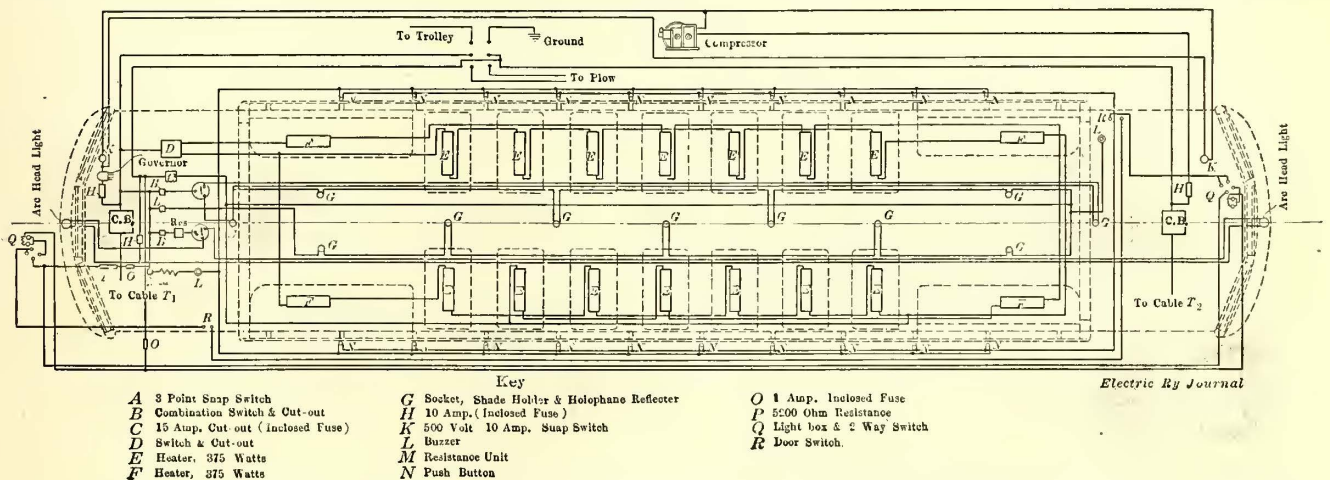
The Consolidated Car Heating Company furnished the buzzers for the push-button system, the heaters with thermostatic control and the light signals for the motorman. The last-named device was first installed by the Capital Traction Company in 1912 and has given satisfactory results. The signal is displayed before the motorman as soon as the doors close. It has proved a most desirable operating feature because it saves time for the conductor just when he is busiest collecting fares, makes it impossible for the conductor to signal

SINGLE-PHASE LOCOMOTIVE OF RHAETIAN RAILWAY, SWITZERLAND

An article by Hans Engel in the January issue of the *A. E. G. Journal* describes the locomotive furnished by the Allgemeine Company for the Rhaetian Railway, Switzerland. The machine is designated 1-D-1, which signifies that it is equipped with pony axles at each end and four intermediate driving wheels. The locomotive will be used between the famous winter resort of St. Moritz and Schuls and on a branch line between Samaden and Pontresina. The line is of 1-meter (39.37-in.) gage. It is operated by single-phase current at a pressure of 10,000-11,000 volts, sixteen and two-thirds cycles. It was stated in the order that the locomotive must be capable of drawing a train having a total maximum weight of 200 metric tons. It was particularly specified that a train having a total weight of 180 tons must be able to start on the grade of 2½ per cent and attain a speed of 17.4 m.p.h. in fifty-two seconds; further, that these trains must travel backward and forward over the entire line from St. Moritz to Schuls four times consecutively—that is, a total distance of 281 miles—without excessive heating of the electrical equipment. The maximum speed is 27.9 m.p.h. The type of brake specified was the Hardy vacuum brake.

The locomotive is constructed to run easily on curves in accordance with the nature of the track. It has two rigid and two movable coupled axles and two Bissel bogie trucks. The upper portion consists as usual of a closed machine compartment and two cabs.

The drive is accomplished by two motors, each having an hourly rating of 350 hp, with gear wheels on both sides which work on to a common gearing shaft. To equalize the pressure each of the gear wheels mounted



Capital Traction Company—Wiring of Tungsten Lighting, Heating, Door and Buzzer Circuits with Key to the Several Details of the Equipment

the motorman before the door is closed and obliges the motorman to face forward at all times. Standard registers of International R-7 type are used for the separate registration of fares and transfers.

An interesting novelty for Washington is the system of tungsten lighting with holophane shades and reflectors. The lamps are of 36-watt capacity and are

on one shaft is provided with teeth set at an angle, this angle being opposite on each wheel. The gearing shaft drives the jackshaft lying between the third and fourth axles by means of coupling rods which are also set at an angle, and the jackshaft in turn drives the coupling axles.

Both motors are connected up in accordance with a

method known as the double-feed system. On starting up, the rotor is short-circuited. The control is effected by electromagnetic contactors operated from the controller which, like the reversing controller for the motors, is fed with alternating current at 300 volts. Owing to the fine graduation of the voltage led to the motors, starting and speed regulation while running can be carried out smoothly and without any shock. Each motor can be separated from the other electrically in a very simple manner, so that if one motor becomes defective the locomotive can be satisfactorily operated with the other alone.

The electrical equipment further comprises two pantograph current collectors, the electro-pneumatically operated high-tension oil switch, the oil-cooled transformer, a motor compressor which generates the compressed air required for raising the current collectors and for the operation of the oil switch, the sander and the signal whistles, also a converter which provides the direct current for the lighting and oil switch release. Finally, the equipment for the vacuum brake, consisting of a motor pump and two brake controllers combined with air valves, should be mentioned.

The energy for heating the trains is taken directly from the transformer; 100 kw can be supplied for this purpose.

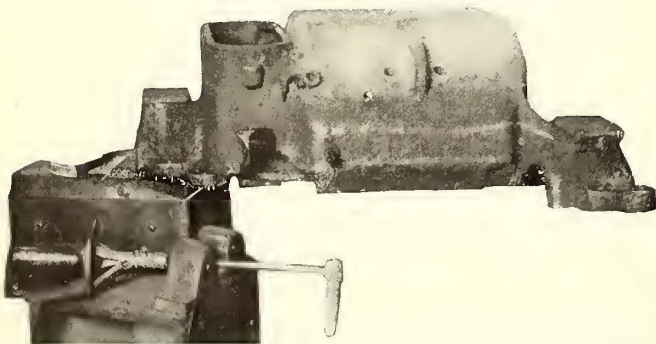
All current-carrying parts are inclosed in special compartments in order to insure the safety of the attendants. In all cases where the apparatus is under high tension these compartments are so interlocked that they can be opened only when the current has been cut off by lowering the pantograph collector. This safety feature is common to European electric locomotives.

The locomotive has covered a total distance of approximately 8680 miles during the first three months in which it has been running without developing any appreciable defects. No wear of the commutators was noticeable and the wear of the brushes was very slight. Similarly, the contactors have not required any overhauling whatever.

At the trial runs the locomotive complied with all the specified conditions.

ELECTRIFICATION OF MELBOURNE RAILWAYS

The abandonment because of insufficient condenser water of the Yarraville site originally selected for the power house for the electrified suburban railways of

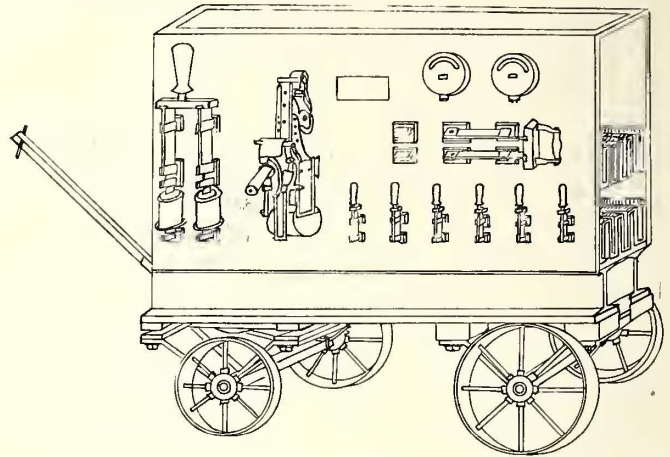


Motor Shell with Lug Destroyed, Also Showing the Style of Arc Holder

Melbourne will mean a considerable delay in the initiation of electric traction. The new site is ideal from the condenser point of view, and the foundations are also better. At present 300 men are engaged in making the necessary excavations for the foundations. None of the machinery is expected to arrive until the middle of 1914, when the power house steel work and equipment will be landed from England.

PORTABLE OUTFIT FOR SHOP AND TRACK WORK WITH ARC METHOD

The Welding Materials Company, New York, in addition to its present single unit arc-welding equipment, has now brought out a compact, portable arc welder which is especially designed for electric railways. The welder may be operated from any source of direct-current voltage. The machine, which is called the

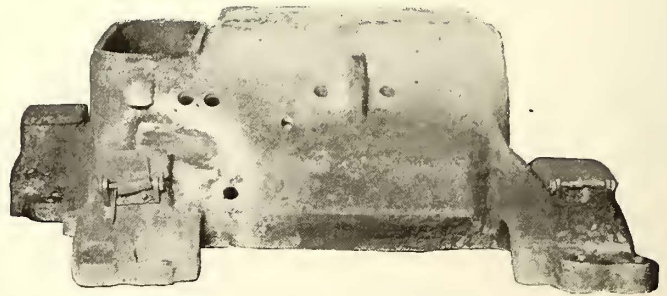


Portable Welder with Cover Removed to Show the Switching Apparatus, Meters, etc.

“Wemco” portable arc welder, is shown in the accompanying line drawing. Its over-all dimensions are as follows: height, 53 in.; length, 48 in., and width, 24 in. Attachment to the trolley wire is made by means of a hooked pole and cable.

It is asserted by the manufacturer that by means of this method of arc welding manganese steel can be welded to the worn surface of open-hearth or Bessemer steel track work with the same ease as one would weld ordinary steel. In general, the outfit is adapted for welding rail joints, disintegrated and cupped joints and for rail bonding; also for shop use in welding broken and worn axle buttons, brakeshoe holders and many other items of electric railway equipment. When operated from the shop circuit the equipment may be used for cutting as well as for welding.

The apparatus is furnished with or without a truck and with a welded steel cover for protection against the weather for outside work. The approximate weight of



Appearance of the Motor Shell After the Lug Had Been Arc-Welded to It

the equipment without the truck is 1000 lb. The accompanying halftones show an old motor case with a lug broken off and afterward welded in position. The time occupied in making this repair was one hour and thirty minutes and the cost \$2.80. This figure includes labor, electrical energy and material, and is based on unit prices of 1 cent per kw-hr. for energy and 30 cents per hour for labor.

News of Electric Railways

Decision by Michigan Supreme Court on Verdier Act

Whether or not the amendment to the Detroit city charter providing for the municipal ownership of street railways adopted last April is constitutional was not passed upon by the Michigan Supreme Court in the decision handed down on Jan. 16 affecting the validity of the Verdier bill, an act designed to give Michigan cities the right to amend their charters piecemeal. Justice Brooke, whose opinion was concurred in by the majority on the municipal ownership question, says it is not determined whether any constitutional provisions were contravened in the municipal ownership amendment and "it should rest in abeyance until the matter is determined in proper proceeding." The court sustained the right of the city to increase its bond limit from 2 per cent to 4 per cent of the city's assessed valuation to acquire public utilities. Although the actual question of the municipal ownership amendment of last April was not taken up by the court, the decision gives the city the power to amend its charter in such manner as it deems advisable to acquire the street railway lines. Of course, every step taken by the city along this line is open to challenge, inasmuch as the court did not determine the validity of the present municipal ownership plan.

The decision has divided the city into two camps, due to the fact that a new charter has been prepared by a charter commission for submission on Feb. 10. Mayor Marx, who was elected on a municipal ownership platform, and many of his supporters have announced themselves as against the new charter on the ground that its municipal ownership provision will endanger what has already been accomplished. The supporters of the new charter point out that if it is adopted all question as to the validity of the charter amendment adopted last April will be removed because the new charter will, they believe, stand the constitutional test in so far as the municipal ownership section is concerned.

The principal effect of the court's decision is that it gives the city the right to amend any section of its charter so long as the amendments conform with the act. Heretofore it has been necessary in Michigan to adopt an entirely new charter before any amendments were valid. The decision does not pass upon the legality of the street railway commission, which was appointed several months ago by the Mayor and has asked the Detroit United Railway for an inventory of its property with a view to its purchase.

Corporation Counsel Lawson, of Detroit, in commenting on the court decision, stated that "it was made evident that the court did not intend to pass judgment on Detroit's most perplexing problems at this time." Allan H. Frazer, special attorney for the city in street railway matters, says that "further contest may be made against the municipal ownership charter amendment when the street railway commission attempts to do certain things under it," but he points out that the decision gives the right to any number of municipal ownership amendments to overcome any invalid provisions which may exist.

Methods Followed in Letting Rapid Transit Contracts in New York

Alfred Craven, chief engineer of the Public Service Commission of the First District of New York, adopted the plan of placing under contract first the most difficult work, in planning the rapid transit system now under construction. Preference was also given to the lines which would be necessary to enable both the Interborough Rapid Transit Company and the New York Municipal Railway Corporation to begin operation by Jan. 1, 1917, as contemplated by the dual system agreements. As far as Brooklyn is concerned, the New Utrecht Avenue elevated railroad has been placed under contract; the Gravesend Avenue elevated line would be under contract except for the failure of the commission to get the necessary consents of property owners and the necessity for applying to the Appellate Division for legalization of the route; plans for the Canal Street subway, to connect the Manhattan Bridge with the Broad-

way subway in Manhattan, will be ready for advertising within two or three weeks; the Broadway subway in Manhattan is under contract as far north as Twenty-sixth Street, and the remainder, between Twenty-sixth Street and Seventh Avenue, would be under contract except for the controversy which has arisen in regard to the Times Square station.

Plans for the extension of the Broadway subway through Fifty-ninth and Sixtieth Streets to the Queensboro Bridge will be ready for advertising by March 1. Plans for the Whitehall-Montague Street and Old Slip-Clark Street tunnels will be ready for advertising about Feb. 15. Plans for the Flatbush Avenue section of the Eastern Parkway subway will be ready for advertising about Feb. 1, and the plans for the remaining sections to Buffalo Avenue, about Aug. 1. Plans for the Nostrand Avenue branch of the Eastern Parkway subway will be ready by July 1, and those for the Livonia Avenue extension by Aug. 1. Mr. Craven reports that contracts for the reconstruction of existing lines in the Brooklyn system have already been let for the Broadway-Myrtle Avenue connection, the Lutheran Cemetery extension and the Sea Beach line.

The commission is now in communication with the federal government with the view of getting its consent to the construction of the Whitehall-Montague Street tunnel, under the East River. There is a difference between the commission and the War Department in regard to the conditions under which this consent shall be given, but it is expected that an agreement will be arrived at in time to prevent delay in the construction of the tunnel.

Petition to Determine Exact Status of Kansas City Company

A petition will be filed in the Supreme Court of the United States at Washington, D. C., to determine the exact status of the Metropolitan Street Railway, Kansas City, Mo., and to pave the way for a reorganization of the company. The court will be asked to outline a general plan of reorganization that will be both legal and fair to all parties. The intervening petition to be filed in behalf of the company will say in part:

"The undersigned, practitioners in this court, William R. Begg, New York; C. R. Clapp, Boston, and W. W. Gurley, Chicago, present these suggestions, *amici curiæ*, and thereupon they respectfully say:

"1. The Metropolitan Street Railway is now in the hands of receivers in three consolidated causes pending in the District Court of the United States for the Western Division of the Western District of Missouri and the First Division of the District of Kansas. These consolidated causes consist of a creditors' and stockholders' bill and two bills to foreclose mortgages.

"2. The street railways have outstanding \$12,752,000 in mortgage bonds held by the investing public, of which \$7,492,000 are past due. They also have outstanding \$14,221,043 of mortgage bonds and notes which, with bonds and notes of the Kansas City Electric Light Company, aggregating \$2,000,000, are deposited as collateral to these notes and bonds, aggregating \$15,678,000, of a holding company known as the Kansas City Railway & Light Company, which are held by the investing public. The property of the latter company consists of the stocks and bonds of the street railway and electric light companies, against which it has issued its own bonds and notes, now past due, aggregating \$15,678,000, and its own stock, aggregating \$25,000,000.

"3. Three bondholders' committees have for some time been acting under the advice of their counsel, Byrne & Cutcheon, New York, of which firm the petitioner, W. R. Begg, is a member, and Ropes, Gray & Gorham, Boston, of which firm the petitioner, C. R. Clapp, is a member. These committees consist of: (a) James J. Storrow, Boston, and Daniel M. Ewing, Boston, and Frederick W. Stevens, New York, being a committee for the issue of \$7,242,000 of bonds of the Metropolitan Street Railway; (b) James J. Storrow, Boston, and Paul M. Warburg, John B. Dennis,

and Acosta Nichols, New York, being a committee for \$10,-200,000 of bonds of the Kansas City Railway & Light Company, secured as hereinbefore stated; (c) James J. Storrow, Boston, Paul M. Warburg, John B. Dennis, and Samuel L. Fuller, New York, being a committee of the remainder of the bond or note holders of said railway and light company.

"4. There is also a committee of stockholders, consisting of George M. Reynolds, Chicago; Oscar Fenley, Louisville; George W. Bacon, New York, and H. T. Abernathy, Kansas City. Of this committee the petitioner, W. W. Gurley, is counsel.

"5. It is essential that the street railway properties at Kansas City be reorganized and placed upon a sound financial basis. It is important that there be no doubt as to the legality of such reorganization. The question here involved seems to be such that a final decision thereof is essential to guide those engaged in such work. The petitioners therefore deem it proper to join, *amici curiæ*, in this application for a certiorari, to the end that this court may determine whether the doctrine laid down in its opinion in Northern Pacific Railway vs. Boyd, 228 U. S., 48, applies to the extent decreed below."

New Toronto Purchase Plan Advocated

W. P. Gundy, the new president of the Toronto (Ont.) Board of Trade, in his speech before that body at the annual meeting on Jan. 19, 1914, advocated a new plan for solving the transportation problem in Toronto. He suggested that the province co-operate with the city and purchase not only the Toronto Railway, but also the radial lines of the MacKenzie-Mann Company, and that the Provincial Hydro-Electric Commission take over the Electrical Development Company. Mr. Gundy dealt at length with the question and announced that he would bring the matter before the members at the earliest opportunity. He said that he was opposed to the purchase of the street railway and the electric light plant from the MacKenzie-Mann syndicate on the terms now offered.

Mayor Hocken has announced that he will hereafter devote practically the whole of his time to the transportation question. He is quoted as follows:

"I will spend all my mornings, as much as possible of my afternoons and my evenings, too, if necessary, toward clearing up this proposition. I do not propose to let the negotiations drag. My principle task will be to bring the draft agreement for the proposed purchase of the Toronto Railway into final shape at the earliest moment."

The Mayor stated that several new points have developed in the course of the negotiations which were not detailed in the original agreement and the amendments thereto and that the elucidation of these points to the satisfaction of the city and the company is at present occupying the attention of the lawyers for both the company and the city.

Plan for Extension of Seattle Municipal Line Proposed

Councilman Oliver T. Erickson recently outlined a plan to the city utilities committee of the City Council of Seattle, Wash., which has for its object the construction of 38.4 miles of double track or 84.25 miles of single track as an addition to the municipal street railway, which now consists of a line 4 miles long extending from Third Avenue and Stewart Street to Salmon Bay. He estimates the cost of the proposed improvement at \$1,218,220 with an additional amount of \$787,000 for equipment, making the total \$2,005,220. A bond issue of \$800,000 for the construction of a municipal street railway from Salmon Bay to Ryan Street in the extreme southern section of the city was adopted by the voters several years ago, and half of this amount remains unused. Mr. Erickson's bill provides for expending the remainder toward constructing the line authorized by the voters.

Robert B. Hesketh, president of the City Council of Seattle, recently introduced an ordinance before that body providing for the loan of \$75,000 from the garbage fund to the municipal street railway fund, the money to be used in completing Division A of the line, for which \$300,000 of street railway bonds were sold to the State nearly two years ago. The line has cost nearly \$400,000 and it is proposed to borrow \$75,000 from the garbage fund to be repaid

whenever the remainder of the \$500,000 of street railway bonds are sold. The bill has been referred to the finance committee.

By the payment of claims against the Highland Park & Lake Burien Railway, amounting to nearly \$40,000, the city of Seattle has received a deed to the right-of-way, tracks and equipment of that company which cost more than \$140,000. The line is approximately 9 miles long and extends through a fertile and well settled community. In all likelihood the city will extend the line to Tree Point, from which a ferry will be operated to Vashon Island. The Highland Park & Lake Burien Railway was organized in 1910 and the line was built in 1911.

New City Administration at Toledo Defines Its Position

The new city administration at Toledo, Ohio, has defined its position with regard to the public utilities in that city in part as follows:

"The citizens of Toledo know, or should know, that this administration is pledged to 3-cent fares and universal transfers, and it is our opinion that such a fare is obtainable, but we are also pledged to the submission of the question to the voters of Toledo, in conjunction with that of municipal ownership, and, in due course, it will be for them to decide whether or not they wish a 3-cent fare and universal transfers by a privately owned corporation, or whether they desire the city to own the traction property.

"This administration believes that the Toledo Railways & Light Company, if it asks a franchise, should give the citizens an honest and impartial statement of who are the people interested in the corporation, their financial responsibility, and the financial responsibility of the company.

"If it is not financially responsible, or is unable to furnish a 3-cent fare, the matter should be put before the people in such a way as to give them an opportunity to choose the company that they desire to have use their streets, and if dissatisfied with all of them to choose municipal ownership. Another element that enters into the situation is the advisability of leasing the streets at a fixed and definite rental, on a fixed fare basis. In other words, if the city is able to obtain a rental for its streets and obtain a 3-cent fare, it should do so.

"No action will be taken by this administration until the entire matter is put into concrete form and submitted to the people. Before very long we hope to be able to present facts and figures relative to the conditions which exist. At present the Toledo Railways & Light Company is using most lines without franchise and only on sufferance."

B. J. Arnold on Chicago Subways and Terminals

Before the meeting of the electrical section of the Western Society of Engineers and the Chicago section of the American Institute of Electrical Engineers on Jan. 26, 1914, Bion J. Arnold gave an illustrated talk on "Subways and Railroad Terminals." He described his 1911 plans with the aid of lantern-slide pictures and explained the general subway situation in Chicago. A vital question is the amount of rental to be paid by the companies for the use of the subways. The original expenditure ought not to be less than \$30,000,000 or more than \$50,000,000, considering the initial project. There should be no grade crossings in the subways, and this safety measure necessitates double-deck subways at intersecting points. Public-utility galleries should be provided in any system of subways which is adopted. All subway schemes must, in the end, provide for a comprehensive service with high-speed, ten-car trains. It seems clear that Chicago cannot support a comprehensive, city-wide subway system from the start. It is a fact, however, that a subway for surface cars can be justified only on the ground of relieving congestion. A subway for single-unit surface cars will not pay from a financial point of view. Ultimately such a subway must become part of a comprehensive high-speed system.

Mr. Arnold explained briefly the plan he has worked out for railroad terminals and his proposed system of through-routing of suburban traffic by the steam railroads. There was a brief discussion, in which James Lyman, E. N. Lake and others took part. In answer to a question Mr. Arnold said that the two-track "initial subway," recommended for

Clark Street by the Board of Supervising Engineers, was not planned as a four-track subway at the beginning because the money to build it was not available. The subway, however, has been planned so that it could be extended to accommodate four tracks later. Mr. Arnold expressed sympathy with the idea of defraying the cost of subways by special assessments on the property benefited and mentioned the rise in the value of real estate along the line of the subways in New York north of 125th Street.

New Road Opened in Florida.—The East Florida Traction Company has completed and placed in operation its line connecting Daytona, Seabreeze and Daytona Beach.

Municipal Ownership Referendum Recommended.—The City Solicitor of Toledo, Ohio, has recommended that the Council proceed to secure by referendum an expression of opinion in regard to municipal ownership before any new city franchises are granted.

New Road Opened in Minnesota.—The Electric Short Line Railway has been completed and placed in operation between Minneapolis and Wayzata, a distance of 14 miles. It is expected that the road will be ready for operation from Wayzata to Long Lake, an additional 14 miles, by Feb. 15.

Service Resumed in Oskaloosa.—The Oskaloosa Traction & Light Company has resumed service suspended since Nov. 8, 1913, following a strike riot. The men operating the cars have the authority of police officers. Former employees have returned to work and the company is operating on the "open shop" basis.

The Strike at Hazleton.—Up to Jan. 28 there had been no change from the conditions noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 24, 1914, page 201, in connection with the strike of the employees of the Lehigh Traction Company, Hazleton, Pa. The company had not up to the time previously mentioned attempted to run any cars and there were then no immediate prospects of resumption.

Suit to Remove Chicago's Loop in Supreme Court.—A suit against the elevated railways of Chicago, filed by States Attorney Hoyne, in the form of quo warranto proceedings to annul the charter of the Union Consolidated Railway, the owner of the Chicago elevated loop structure. Action was started in this suit in July, 1913, and the case has just been taken to the Supreme Court, being filed in the form of an appeal from the Circuit Court.

Committee Approval of Philadelphia Subway Plans.—The comprehensive plans committee of the Councils of Philadelphia, Pa., has approved the subway and elevated transportation system devised by Transit Commissioner A. Merritt Taylor. Following the meeting of the comprehensive plans committee Director Cooke, of the Department of Public Works, said: "Commissioner Taylor explained his subway and elevated railway scheme at length to the comprehensive plans committee. As approved, the system comprises a tube in Broad Street north from the City Hall to Pike Street, where elevated spurs, running north and northeast, begin. The South Broad Street plan includes a tube to Oregon Avenue, with an open subway to the entrance to the Philadelphia Navy Yard."

Subway Committee to Report in Providence.—It is generally agreed that nothing but a system of subways will relieve the surface congestion in down-town Providence, R. I., and at the same time furnish a means of rapid transit to the suburbs. For months a special committee of the City Council, assisted by a Boston engineer who participated in the work of supplying the new system of subways for the city of Boston, has been at work studying the situation. Certain points have been selected as the most desirable between which underground lines might run, and borings have been made to determine the character of the soil through which the tubes would have to be laid. It is now expected that this committee will submit its report to a special session of the City Council on Feb. 2.

Further Subway Discussion in Cleveland.—At a meeting of the County Commissioners, contractors and city officials at Cleveland, Ohio, on Jan. 23, the propriety of building a subway and terminals to connect with the new Superior Avenue bridge was discussed. The business men and residents of the West Side favor the immediate construction of the bridge and advise that the subway project

be left for a later date. The fact that a subway at the west end of the bridge, or rather two subways, would carry the cars some distance underground caused business men on West Twenty-fifth Street and a portion of Detroit Avenue to oppose the plan on the ground that it will depreciate property values in the locality where cars will be taken from the surface. One of the contractors for the bridge suggested that the piers be so constructed that a subway may be built later. He estimated the additional cost at about \$25,000.

Plan for General Reorganization of Brooklyn Transfers Agreed Upon.—Counsel to the Public Service Commission for the First District of New York has issued a statement to the effect that a committee, composed of representatives of the commission and representatives of the Brooklyn Rapid Transit Company, which has been studying the transfer situation, has about agreed upon a plan for a general reorganization, by which transfers upon transfers will be eliminated, and yet the opportunity to transfer between any two points on a journey in the same general direction for a single fare will be preserved. The proposed arrangement will include the lines of the Coney Island & Brooklyn Railroad, now owned by the Brooklyn Rapid Transit System, as well as all the surface lines of that system. The report in detail, with maps showing the transfer points, will be on public exhibition at the offices of the commission for a week beginning Feb. 10, and on Feb. 17 the commission will hold a public hearing thereon.

Bill for Municipal Ownership in Washington, D. C.—Representative Crosser of Ohio, chairman of the subcommittee of the House District committee, has prepared a bill which provides for the District of Columbia taking over the electric railways in the District. Briefly, the Crosser bill stipulates that the commissioners of the District shall take over the railroads, issue thirty-year bonds at 3½ per cent to pay for the property and operate the roads. The commissioners are authorized to deal with the railroads in an effort to reach an agreement as to the price to be paid. If they fail within six months to reach such an agreement the commissioners are to institute condemnation proceedings in the Supreme Court of the District of Columbia. The court is to appoint a jury of three disinterested men to ascertain the damages each railroad would sustain by the change. The court is also to hear exceptions and will be empowered to vacate or set aside any verdict, in whole or in part, and may, if necessary, appoint an entirely new jury. One paragraph provides that any "party aggrieved by any final order of the court may prosecute error proceedings to the Court of Appeals."

LEGISLATION AFFECTING ELECTRIC RAILWAYS

KENTUCKY

Representative Myers has introduced a bill in the Kentucky Legislature to create a public utilities commission by giving the Railroad Commission jurisdiction over the public utilities of the State. A bill has also been introduced in the Legislature providing for fixing a flat rate of 2 cents to be charged by all railroads and passenger-carrying companies.

NEW JERSEY

The New Jersey Inter-State Bridge & Tunnel Commission announced on Jan. 26 that it had completed the draft of a bill to be presented to the present Legislature which would authorize the construction of a bridge or a tunnel across the Hudson between New York and New Jersey and across the Delaware at Camden and Philadelphia. The commission states the problems presented are not engineering difficulties but those of finances. The commission estimates the cost of a tunnel or two tubes between Jersey City and lower New York City at \$11,000,000, and that a bridge from about Fifty-seventh Street, New York, to the opposite New Jersey shore would cost approximately \$42,000,000.

NEW YORK

The following bills have been introduced in the Legislature recently: an act to amend the railroad law in relation to the rate of fare on railroads operated by steam in cities of more than 1,000,000 inhabitants; an act to amend the rail-

road law in relation to the establishment of stations and the stopping of trains thereat; an act to amend the railroad law in relation to persons employed as drivers, conductors, motormen or gripmen; an act to amend the code of criminal procedure in relation to the payment of expenses of prosecutions of crimes committed on railway trains. The proposal to amend the railroad law in relation to persons employed as drivers, conductors, motormen or gripmen provides that all applicants for any of the positions mentioned shall be placed on a car with "a competent instructor for a period of fifteen days, such instructor to be a driver, conductor, motorman or gripman who is regularly operating on the lines of the corporation that the applicant intends to operate cars upon, and when the instructor is satisfied as to the applicant's capability for the position of driver, conductor, motorman or gripman, he shall so certify to the officers of the corporation, and if appointed, the applicant shall be placed in the shop or power house where he can be made familiar with the power and machinery he will control."

OHIO

The Mills public utility bill will probably be taken up by the Ohio Legislature at an early date. The original plan was to take up the bill later in the special session. Representative Herbert S. Bigelow, Cincinnati, has succeeded in having the measure reported out of the committee and placed upon the calendar. The bill provides that bonds may be issued by municipalities to construct or acquire public utilities, without reference to the limitations imposed by the Longworth municipal debt act. Perhaps the most important question involved is whether the bonds so issued shall be a lien against the general credit of the municipality or the liability rest merely against the railway property and the income from it. As drawn, the bill would make the bonds a lien against the credit of the city, but an amendment has been offered to limit the liability to the property constructed or acquired.

RHODE ISLAND

Several additional bills of interest to the steam and electric roads in Rhode Island have been introduced in the Legislature. One is a measure which proposes an extension of the present transfer system on electric railways so as to make it possible for a passenger to travel from any point within the limits of a 5-cent ride to the end of any other route on which a single fare is charged, by means of a transfer. For some time residents of the suburban sections bordering Providence have complained that they could not obtain a transfer even in the heart of the city which would entitle them to ride to their homes. The bill stipulates that the provisions of the transfer measure shall be effective only from 5:45 a. m. until 8 p. m.

Another measure which has been introduced and is now pending in the files of the House judiciary committee provides that all street railways which operate in the State shall equip their cars with fenders, wheelguards, electrically heated rail sanders, and such other tools as may be required in emergencies, within six months of the passage of the act. The bill provides a penalty of \$25 for each day that any car remains unprotected. Still another measure provides for a flat rate of 2 cents a mile on all lines operating within the State, and not more than 1 cent a mile for children under twelve years of age. A bill which has caused considerable discussion since its introduction in the House is an act prohibiting the erection of billboards along the line of any public highway within 300 ft. of any place where a railroad crosses a street at grade. In Providence and the territory contiguous to it many signs completely block the view at crossings.

PROGRAMS OF ASSOCIATION MEETINGS

Central Electric Railway Association

The annual meeting of the Central Electric Railway Association will be held at the Hollenden Hotel, Cleveland, Ohio, on Feb. 26 and 27, 1914. The annual meeting of the Central Electric Traffic Association will be held at the same place on Feb. 25. It is expected that the programs for the meetings will be completed soon.

Financial and Corporate

Stock and Money Markets

Jan. 28, 1914.

The volume of trading on the New York Stock Exchange to-day was greater than on Tuesday, but the dealings were at a somewhat lower level in prices. Under renewed pressure New Haven declined $1\frac{1}{4}$ to $73\frac{3}{4}$. A generally stronger tone prevailed in the afternoon trading. Rates in the money market to-day were: Call, 2 per cent; sixty days, $2\frac{1}{2}$ @ 3 per cent; four months, 3 @ $3\frac{1}{2}$ per cent; six months, $3\frac{1}{2}$ @ 4 per cent.

The Philadelphia market was broad and the total of transactions was quite large. The demand for bonds was exceedingly good, transactions totaling \$61,800, par value.

In Chicago the market was broad. The feature of the trading was the activity in Chicago Railways Series 2s, the sales totaling 2555 shares. The bond transactions totaled \$99,000, par value. The sales of City Railway 5's totaled \$27,000, par value.

The Boston market opened steady but was narrow. It reacted near the close of the day in sympathy with New York.

The market for stocks in Baltimore to-day was broad. No transactions in bonds were reported.

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

	Jan. 21	Jan. 28
American Brake Shoe & Foundry (com.)....	90	93
American Brake Shoe & Foundry (pref.)....	131	139
American Cities Company (com.).....	36	36
American Cities Company (pref.).....	64 $\frac{1}{4}$	68
American Light & Traction Company (com.)..	328	350
American Light & Traction Company (pref.)..	105 $\frac{1}{2}$	106
American Railways Company.....	39	39 $\frac{3}{8}$
Aurora, Elgin & Chicago Railroad (com.)....	37 $\frac{3}{4}$	81 $\frac{1}{2}$
Aurora, Elgin & Chicago Railroad (pref.)....	80	*80
Boston Elevated Railway.....	88 $\frac{1}{2}$	84 $\frac{1}{2}$
Boston Suburban Electric Companies (com.)..	7	7
Boston Suburban Electric Companies (pref.)..	60	60
Boston & Worcester Electric Companies (com.)	*6 $\frac{1}{2}$	*6 $\frac{1}{2}$
Boston & Worcester Electric Companies (pref.)	39	39
Brooklyn Rapid Transit Company.....	91 $\frac{1}{2}$	91 $\frac{1}{2}$
Capital Traction Company, Washington.....	112 $\frac{5}{8}$	112 $\frac{1}{2}$
Chicago City Railway.....	140	160
Chicago Elevated Railways (com.).....	20	20
Chicago Elevated Railways (pref.).....	70	70
Chicago Railways, pteptg., ctf. 1.....	96 $\frac{1}{4}$	92 $\frac{1}{2}$
Chicago Railways, pteptg., ctf. 2.....	32 $\frac{1}{2}$	33
Chicago Railways, pteptg., ctf. 3.....	7	7 $\frac{7}{8}$
Chicago Railways, pteptg., ctf. 4.....	2 $\frac{1}{2}$	2 $\frac{1}{4}$
Cincinnati Street Railway.....	106	107 $\frac{3}{4}$
Cleveland Railway.....	104	105 $\frac{1}{8}$
Cleveland, Southwestern & Columbus Ry. (com.)	5	*5
Cleveland, Southwestern & Columbus Ry. (pref.)	26	*26
Columbus Railway & Light Company.....	18	13
Columbus Railway (com.).....	62	75
Columbus Railway (pref.).....	80	90
Denver & Northern Railway.....	70	70
Detroit United Railways.....	71	71
General Electric Company.....	147 $\frac{3}{4}$	147
Georgia Railway & Electric Company (com.)..	120 $\frac{1}{4}$	120 $\frac{3}{8}$
Georgia Railway & Electric Company (pref.)..	83	83 $\frac{1}{2}$
Interborough Metropolitan Company (com.)..	15 $\frac{5}{8}$	15 $\frac{3}{8}$
Interborough Metropolitan Company (pref.)..	61 $\frac{1}{8}$	61 $\frac{1}{2}$
International Traction Company (com.).....	*3	*3
International Traction Company (pref.).....	*90	*90
Kansas City Railway & Light Company (com.)	15	*15
Kansas City Railway & Light Company (pref.)	30	*30
Lake Shore Electric Railway (com.).....	*6	*6
Lake Shore Electric Railway (1st pref.).....	*92	*92
Lake Shore Electric Railway (2d pref.).....	*24	*24
Manhattan Railway.....	130	132
Massachusetts Electric Companies (com.)....	12	12 $\frac{1}{2}$
Massachusetts Electric Companies (pref.)....	63 $\frac{1}{2}$	65
Milwaukee Electric Ry. & Light Co. (pref.)..	95	95
Norfolk Railway & Light Company.....	*24 $\frac{3}{4}$	24 $\frac{3}{4}$
North American Company.....	72 $\frac{5}{8}$	72
Northern Ohio Light & Traction Co. (com.)..	70	62
Northern Ohio Light & Traction Co. (pref.)..	101 $\frac{1}{2}$	98 $\frac{1}{2}$
Philadelphia Company, Pittsburgh (com.)....	41 $\frac{1}{2}$	41 $\frac{1}{2}$
Philadelphia Company, Pittsburgh (pref.)....	42 $\frac{1}{2}$	42 $\frac{1}{2}$
Philadelphia Rapid Transit Company.....	20	18 $\frac{7}{8}$
Portland Railway, Light & Power Company..	48	48
Public Service Corporation.....	107	107
Third Avenue Railway, New York.....	43 $\frac{1}{4}$	42 $\frac{3}{4}$
Toledo Traction, Light & Power Co. (com.)..	20	30
Toledo Traction, Light & Power Co. (pref.)..	80	80
Twin City Rapid Transit Co., Minneapolis (com.)	107 $\frac{3}{4}$	107
Union Traction Company of Indiana (com.)....	11 $\frac{1}{2}$	11 $\frac{1}{2}$
Union Traction Company of Indiana (1st pref.)	80	80
Union Traction Company of Indiana (2d pref.)	14	14
United Rys. & Electric Company (Baltimore)..	25 $\frac{1}{4}$	26 $\frac{1}{2}$
United Rys. Inv. Company (com.).....	21	21 $\frac{1}{2}$
United Rys. Inv. Company (pref.).....	41 $\frac{1}{2}$	43
Virginia Railway & Power Company (com.)..	53	52 $\frac{1}{2}$
Virginia Railway & Power Company (pref.)..	95	95
Washington Ry. & Electric Company (com.)..	89	89 $\frac{3}{4}$
Washington Ry. & Electric Company (pref.)..	89	89 $\frac{3}{4}$
West End Street Railway, Boston (com.)....	73	72 $\frac{1}{2}$
West End Street Railway, Boston (pref.)....	90	90
Westinghouse Elec. & Mfg. Company.....	69 $\frac{3}{4}$	71
Westinghouse Elec. & Mfg. Co. (1st pref.)....	117	116

*Last sale.

ANNUAL REPORT

Lehigh Valley Transit Company

The corporate operating report of the Lehigh Valley Transit Company, Allentown, Pa., for the years ended Nov. 30, 1912 and 1913, follows:

	1913	1912
Passenger receipts	\$1,431,395	\$1,242,007
Operating expenses	740,280	650,079
Net earnings from railway operation.....	\$691,115	\$591,928
Sale of power, etc.....	333,602	280,243
Net earnings applicable to fixed charges, rentals, taxes, etc.....	\$1,024,717	\$872,171
Interest, rentals, taxes, etc.....	578,144	497,844
Surplus	\$446,573	\$374,327
Discount on bonds	\$14,132	\$12,678
Dividend on preferred stock.....	99,566	99,566
Depreciation reserve	141,660	117,360
Total deductions from surplus.....	\$255,358	\$229,604
Net surplus	*\$191,215	\$144,723

*There have been charged against this surplus construction and other items aggregating \$111,645, leaving the total accumulated surplus as of Nov. 30, 1913, \$292,717.

Beginning with the fiscal year 1911, there has been credited to an account called "maintenance, renewals and depreciation" an amount equal to 22 per cent of the gross earnings of the railway lines. To this account are charged all items of maintenance and renewal, the balance being applicable to depreciation. This account as of Nov. 30, 1913, showed a credit of \$128,109.

H. R. Fehr, president of the company, says in part: "The rolling stock of the company consists of forty-one open cars, 108 closed cars and forty-three service cars, making 192 cars in all. Of this number twelve are modern inter-urban cars equipped with all the latest safety and controlling devices; twenty-four convertible cars of the pay-within type; thirty-seven cars of the St. Louis type, equipped with HL control, Westinghouse brakes and Baldwin trucks, and twenty of the semi-convertible type. Of the service cars nine are snow plows, ten sweepers, five work cars, four line cars, one wreck car, four express cars, two sprinkling cars and seven miscellaneous cars.

"The company purchased ninety-one acres of land in South Allentown, on part of which is being built a concrete carhouse, of two bays, each 400 ft. long and containing four tracks. The building will include offices for the superintendent and dispatcher; locker, recreation, wash and toilet rooms for employees; also boiler rooms, storage for coal and sand, etc. The work is about half completed, and occupancy is expected about April 1, 1914.

"A 6000-kw Westinghouse turbo-generator, with its auxiliaries; a transformer substation, and a large brick smokestack have been added to the main power station.

"On July 1, 1913, the company purchased 27,600 shares, the controlling interest in the stock of the Easton Consolidated Electric Company, paying therefor \$851,000 in collateral trust bonds of the Lehigh Valley Transit Company. This gives the company control of all the trolley roads in the Lehigh Valley from Slatington, Pa., to Phillipsburg, N. J. A through service has been established between Easton and Allentown, doing away with the change of cars at Bethlehem and thereby materially increasing the receipts of both companies.

"The Allentown Bridge was completed and opened for public travel on Nov. 17, 1913. This bridge makes available for residence purposes a large area hitherto inaccessible. It is the largest structure of its kind ever erected by an electric railway, being 2650 ft. long and 138 ft. in height. All the Philadelphia, South Bethlehem and Macungie cars enter and leave the city via this new bridge, thereby eliminating the severe grades and railroad crossing on the old South Sixth Street line. A material saving is expected in power and wear and tear on the power station apparatus and cars by reason of this improvement.

"New light companies have been organized and charters secured during the year covering the Borough of North Catasauqua and Allen Township in the County of Northampton; the Borough of Coplay and Upper Saucon Township in the County of Lehigh; the Townships of Doylestown, Hilltown, Richland, Springfield, East Rock Hill and New

Britain in the County of Bucks, and Hatfield in the County of Montgomery. With one minor exception all franchises are without time limit.

"In summarizing the year's work, especial attention should be called to the Allentown Bridge; the limited service giving quick, economical traveling accommodations from Philadelphia to the towns and cities of the Lehigh Valley; the installation by the Adams Express Company of agencies at all important points on the lines of the Lehigh Valley Transit Company; the increasing efficiency of the company's freight and express service; the addition of six first-class, high-speed interurban cars and three freight cars; the installation of additional power equipment; a new carhouse to facilitate the handling of cars, with added comforts for the men, and important improvements in removal of tracks from the highways to private rights-of-way with consequent elimination of sharp curves and heavy grades."

The United Properties Purchase

The following statement has been issued by J. K. Moffitt, chairman of the United Properties trustees, and Frank B. Anderson, chairman of the F. M. Smith advisory committee, in regard to the conclusion of the negotiations by which George C. Moore, Detroit, representing the Investment Registry, Ltd., and B. Fitzgerald, representing Basil Montgomery, Fitzgerald & Company, both of London, Eng., will take over the San Francisco-Oakland Terminal Railways, referred to briefly in the ELECTRIC RAILWAY JOURNAL of Jan. 24, 1914, page 206:

"The United States Properties Company trustees and the F. M. Smith advisory committee have completed the legal formalities whereby they have sold to George C. Moore and associates the control of the San Francisco-Oakland Terminal Railways. Mr. Moore will immediately take over the control, management and operation of these railways. We believe that the consummation of this transaction will not only prove of great benefit to the communities served by these properties, but will have a wholesome effect on the local financial situation. To accomplish this, it was found necessary to separate the railroad properties from the United Properties Company.

"Both committees are satisfied that the complete financing and rehabilitation of these railroad properties will greatly benefit the communities dependent upon their service. The two committees wish further to inform the public that the settlement of the transbay railroad situation is coincident with an arrangement whereby Mr. Moore and his associates undertake the refinancing, development and advancement of the United Light & Power Company and the Union Water Company as soon as these corporations can be segregated and detached from the United Properties Company of California. This settlement disposes of all disputes existing among the three principals who consolidated these properties."

The statement issued by Mr. Moore follows:

"George C. Moore, having read the announcement of the United Properties Company trustees and the F. M. Smith advisory committee of bankers, said, on behalf of himself and his associates, that the same was correct. He did not like to say in advance what he expected to accomplish, as he always preferred to have the public judge results for itself rather than to depend upon promises."

It was the misunderstandings that arose between Mr. Smith and Messrs. Tevis and Hanford during the summer and fall of 1912 that led to the trust agreement of Jan. 25, 1913, under which Herbert Fleishhacker, W. S. Reams and J. F. Carlston were named as trustees with control of the properties and their disposition, as well as the power to arbitrate the differences between the principals. While these trustees were in office Mr. Hanford secured from George C. Moore a proposal for financing or purchase, but the negotiations were not successful, and in May these trustees were succeeded by the five who have since conducted the negotiations as far as the United Properties are concerned. These are J. K. Moffitt, Vanderlynn Stow, William Bissell, W. I. Brobeck and Gavin McNab.

At the same time, May 5, 1913, the Smith advisory committee was named, consisting of Frank B. Anderson, John S. Drum, Mortimer Fleishhacker, C. O. G. Miller and W. W. Garthwaite. This committee represented the creditors

of Mr. Smith. Its problem was to collect the collateral which Smith had given for various loans and to assemble it in the hands of the Mercantile Trust Company under an agreement with the creditors. Both committees undertook to provide for the Halsey and Key Route Basin notes, which were about to become due, and which constituted the most pressing debts incurred by Mr. Smith. Arrangements were made for continuing both these loans.

Mr. Hanford appeared before the United Properties trustees asking for an option on the Smith holdings in the United Properties Company, which was given him in August, with the added condition that he find a purchaser for the traction stock held by the Smith advisory committee at a valuation of \$50 a share. He stated in October that it would be necessary to modify the terms of this option. In December negotiations were resumed with the two boards of trustees and the principals. The negotiations were then completed and the contracts signed.

Trustees Proposed for Rhode Island Properties

In an interview in Providence, R. I., on Jan. 28, 1914, with a representative of the ELECTRIC RAILWAY JOURNAL, Duff F. Sherman, vice-president of the Rhode Island Company, admitted the possibility of the property of the company being turned over to a board of trustees to manage pending the sale of the property by the New York, New Haven & Hartford Railroad. Mr. Sherman, however, would not say positively that this plan would be the one followed out to separate the company from the control of the New Haven Road, although he seemed inclined to believe that at present, at least, the plan appeared to be the most feasible for carrying out of the requirements of the Department of Justice at Washington. He said:

"There is a possibility that the Rhode Island Company will be turned over to a board of trustees for management, pending its sale by the New Haven Road, but such a plan has not as yet been definitely determined upon. The property is a large one and the separation of it from the parent company is not the work of a minute. A plan of separation is being worked out, and I think may soon be ready to be put into effect, but considerable study of the situation is necessary first. I am going to New York on Jan. 29. There I shall meet Howard Elliott, chairman of the board of the New York, New Haven & Hartford Railroad. There may be something definite to give out upon my return to Providence."

While no limit has been set in regard to the time in which the New Haven Company must dispose of its properties, it is understood in Providence that the transfer of the Rhode Island Company is to be carried out with as little delay as possible. It is for this reason that A. E. Potter, president of the Rhode Island Company, and Mr. Sherman are leaving for New York. Mr. Potter, Mr. Sherman and Robert W. Taft, the latter a director of the company, constitute the committee upon which will devolve the burden of working out the plan to be used in complying with the government's demands. With regard to the plan to turn the property over to a board of trustees Mr. Sherman said that while it might appear a possible solution of the problem, it could not be said just how such a plan would appeal to the people of Rhode Island and to the government. Any plan suggested in Providence will have to go before the officers and board of directors of the New York, New Haven & Hartford Railroad for approval, after which it will be submitted to the government for its sanction.

Financial and Legal Questions in New York

Efforts are being made by Swartwout & Appenzeller, New York, N. Y., to have Joseph H. Choate chosen as an arbiter in the dispute between holders of the New York Railways 5 per cent adjustment income bonds and the directors of the company, as noted in the ELECTRIC RAILWAY JOURNAL of Jan. 24, 1914. The firm mentioned, representing certain holders of the bonds, contends that unexpended amounts set up in accident reserves should be turned back into surplus earnings, which would permit payment of the full interest on the income bonds. In a letter to the five directors of the company appointed to represent the bondholders, the suggestion is made that a friendly suit be instituted to es-

tablish the rights of the income bondholders. It is reported that the company will probably not arbitrate but will welcome a suit to establish the point at issue.

In the deficiency judgment suit brought by bondholders of the Twenty-eighth & Twenty-ninth Streets Crosstown Railroad the Central Trust Company, New York, N. Y., one of the defendants, recently asked that the transfer of the assets of the old Metropolitan Street Railway to the New York Railways be adjudged null and void as against it and such bondholders of the Crosstown Railroad as shall elect to share the expenses of the action. The Central Trust Company further asks that the franchises, assets, etc., of the New York Railways, formerly owned by the Metropolitan Street Railway or acquired pursuant to the plan of reorganization, be declared subject to the lien of the judgment, \$1,745,344, obtained against the Metropolitan Street Railway, and have priority over all other claims against the New York Railways except mortgages placed thereon for a valid consideration at the time of the reorganization. Furthermore, a petition is made for a receiver to be appointed for the property, franchises and assets of the New York Railways and a foreclosure sale to take place under the judgment obtained in the bondholders' suit.

Dividend Increases and Reductions in 1913

The issue of the *Wall Street Journal* for Jan. 17, 1914, contained an interesting summary of the history of dividends during the calendar year 1913. Dividend reductions were of more importance than dividend increases although they were not so numerous. Forty-seven companies reduced or passed their dividends, while fifty-five increased their rate. Initial dividends were paid by fifty-six companies, most of which were on new issues of preferred stock. Stock dividends were paid by twenty-six companies, and extra cash dividends by sixteen. Fully two-thirds of the companies that increased their rate in 1913 were public utilities. Only one steam railroad was included in the list. Thirty-three public utilities increased their dividend rate, and twenty public utility companies started initial payments. This is exclusive of many minor public utility companies whose dividends were not recorded. On the other hand, the list of companies that passed or reduced their disbursements to stockholders included ten important steam railroad systems. Reductions in dividend rate by these railroads alone means an annual loss to stockholders of over \$20,000,000. The following table shows the total dividends paid and the last dividend declared in 1913 and 1912 of the more prominent public utilities in the electric railway field that increased their rate the past year:

	When Increased	Total Paid		*Last Declared	
		1913	1912	1913	1912
American Gas & Electric Co.	Mch.	8%	7%	2%	1 3/4 %
American Public Utilities.	Sept.	2 1/4	1 1/2	8 1/4	1 1/2
Brooklyn Rapid Transit Co.	May	5 3/4	5	1 1/2	1 1/4
Cape Breton Electric Co.	Apr.	\$6	\$5	\$3	\$2
Cincinnati, Hamilton & Dayton Traction Co.	Mch.	4	3 1/2	1	3/4
Cities Service Co.	Dec.	4 5/6	4	1/2	1/3
Detroit United Ry.	Feb.	6	5	1 1/2	1 1/4
Galveston Houston Electric Co. †Feb.	Feb.	5 1/2	3 1/2	3	1 1/2
Havana Electric Railway, Light & Power Co.	‡Apr.	\$5.25	\$4.50	\$2.50	\$2.25
Manila Electric Railway & Light Co.	Mch.	7	7	1 3/4	1 1/2
New Hampshire Electric Rys., pfd.	Jan.	4	2	2	1
Northern Texas Electric Co.	Aug.	6 1/2	6	1 3/4	1 1/2
Omaha & Council Bluffs St. Ry. Public Service Company of Northern Illinois	Jan.	5	4	1 1/4	1
Railway & Light Securities Co.	Oct.	5	4	1 1/4	1
Virginia Railway & Power Co.	Jan.	6	5	3	2 1/2
Washington Railway & Electric Co.	Feb.	3	2	1 1/2	1
York Railways, pfd.	May	5 1/2	4	1 1/2	1
	Jan.	5	3	2 1/2	1

*Last dividend declared in 1913 and 1912.

†Increased one-half of 1 per cent in February and September.

‡Increased 50 cents in April and reduced 25 cents in October.

The holders of the following electric railway stocks received their initial payments in 1913: Illinois Traction System, common, three-quarters of 1 per cent; Central Arkansas Railway & Light Company, preferred, 1 3/4 per cent; Montreal Tramways (interim), 5 per cent; United Light & Railways Company, common, 1 per cent; Union Railway, Gas & Electric Company, common, 1 per cent; J. G. White Corporation, 1 3/4 per cent.

The stockholders of the Boston Elevated Railway and the Electric Bond & Share Company received the right to subscribe to additional stock during the past year.

The principal companies that passed up dividends during 1913 were the New York, New Haven & Hartford Railroad and the Federal Utilities Company. The largest example of reduced dividends among electric railways was the Portland Railway, Light & Power Company, which cut from \$5 to \$4.

Boston Elevated Railway Reduces Dividend

The directors of the Boston (Mass.) Elevated Railway have declared a semi-annual dividend of 2 per cent, a reduction from a 6 per cent annual basis. The 6 per cent rate had been in effect since 1902. In 1901, 5¼ per cent was paid, and in 1900, 4½ per cent. The dividend is payable on Feb. 16 to stock of record Feb. 2. The following statement, signed by President Bancroft of the company for the board of directors, is being sent to stockholders:

"The recent award of the board of arbitration which arbitrated the question of wages and working conditions of the employees of the company will increase the operating expenses by a substantial amount, and will be so serious a financial burden in the immediate future that your board of directors does not feel warranted in declaring a dividend at the present time of over 2 per cent. It is hoped that this reduction will be temporary, and it should be, provided the public realizes that investors in public service corporations such as yours are entitled to a fair, just and reasonable return, and consequently does not in the future force burdens on the company which it cannot afford."

Federal District Court Declares Michigan "Blue Sky" Law Invalid

The Michigan "blue sky" law is unconstitutional, according to an opinion filed in the Federal District Court at Detroit, Mich., on Jan. 29, 1914. The opinion is the result of a judgment recently rendered by Circuit Judge Dennison, of the Appellate Court, and District Judges Arthur J. Tuttle and Clarence A. Sessions. It was held that the Michigan law would act in restraint of commerce of all kinds and be a burden on the Interstate Commerce Commission, which the government would not permit. Attorney-General Fellows is reported to have said that the case will be carried to the Michigan Supreme Court and to the Supreme Court of the United States if necessary. The decision was rendered in an action brought by several plaintiffs, including the Continental & Commercial Trust & Savings Bank and N. W. Halsey & Company, Chicago, Ill.; A. B. Leach & Company, New York, N. Y., and Lee, Higginson & Company, Boston, Mass.

Financial America published in its issue for Jan. 30, 1914, a statement made by Caldwell, Masslich & Reed, who as counsel for the Investment Bankers' Association, directed and argued the suit attacking the Michigan "blue sky" law. This statement follows in part:

"This decision by three federal judges applies in effect to the 'blue sky' laws of Arkansas, California, Florida, Georgia, Idaho, Iowa, Kansas, Missouri, Montana, North Carolina, Ohio, Vermont, Oregon, South Dakota, North Dakota and West Virginia. It is most important in connection with the legislation pending and proposed in other states.

"These laws, in effect, give a state officer or board an absolute control over the buying and selling of securities. The Investment Bankers' Association has found it necessary to oppose these laws in order to maintain the freedom of business now existing between the states, and also to protect investors against possible fraud and loss from securities which happen to pass the scrutiny of the state officials under these laws. Few investment dealers can afford the burden of complying with the varying requirements of a great number of state officials, and the tendency of these acts has been to give the investment market to local dealers of promotion securities. The association favors more effective laws against fraud in the sale of securities.

"The laws of the state should be made at least as effective as the federal postal law. As an instance of the extreme character of the Michigan and other similar laws, the Attorney-General of Michigan was compelled to concede in

open court that under that law it would be difficult, if not impossible, to finance by the sale of securities a business venture similar to that of the original Ford Automobile Company, that is a venture which involved a decided element of risk.

"We believe the present decision will be sustained by the United States Supreme Court, but regardless of this, the legislative and public attitude has changed materially toward such legislation. The association has co-operated wherever possible in the framing of just laws and will continue to do what it can both in the framing of such laws and in the detection and prosecution of fraudulent dealers in securities."

American Water Works & Guarantee Company, Pittsburgh, Pa.—The stockholders' protective committee of the American Water Works & Guarantee Company has fixed March 1 as the limit of time for receiving deposits of common and preferred stocks under the protective agreement of July 27, 1913. A considerable amount of both classes of stock has been deposited and stock will be accepted after March 1 only on such terms as the committee may see fit to impose.

Brooklyn (N. Y.) Rapid Transit Company.—The *Wall Street Journal* says that the bulk of the refunding mortgage 4 per cent convertible bonds of the Brooklyn Rapid Transit Company will probably be exchanged into stock, par for par, before the conversion privilege expires on July 1, 1914. Until 1913 practically none of these bonds had been converted, but the increase in the dividend rate from 4 per cent to 5 per cent and then to 6 per cent during the last quarter of the 1913 fiscal year stimulated the first outburst of conversion, with the result that, as of June 30, 1913, some \$4,177,000 of the bonds had been exchanged into stock. There were, as of that date, \$28,901,000 bonds in the hands of the public. At present the amount unconverted has been reduced to about \$21,400,000. Conversion of all the bonds would create \$78,000,000 of stock, against the old-time figure of \$45,000,000, on which share profits were always calculated up to 1913. The conversion of \$33,000,000 of these bonds into an equal amount of stock will increase the amount required for dividends by \$660,000 per annum and would probably bring the balance for the shares down from a fraction above 9 per cent to 7 per cent for the year to June 30, 1914. Frederick L. Allen has been elected a director of the Brooklyn City Railroad to fill the vacancy caused by the death of Theodore F. Miller.

Buffalo & Williamsville Electric Railway, Williamsville, N. Y.—The Buffalo & Williamsville Electric Railway has accepted the offer of the Railway Storage Battery Car Company, New York, N. Y., for the purchase of the line in Batavia. Efforts have been made for some time to dispose of the line because the officers stated it was not making expenses. The price agreed upon is less than \$10,000, but at the request of the officials of the line the committee will not make the price public. The city of Batavia will subscribe for part of the stock in a new company to be organized to operate the road.

Chicago (Ill.) Railways.—General Counsel Gurley of the Chicago Railways has asked the State Public Utility Commission for permission to issue bonds to cover about \$1,400,000 interim certificates issued for repair and construction work this fiscal year and \$4,000,000 to \$5,000,000 to be issued similarly during the coming fiscal year.

Cleveland (Ohio) Railway.—The report of the Cleveland Railways for December, 1913, shows a deficit in the maintenance fund of \$48,781, which brings the total deficit in that fund up to \$1,250,863, according to the view taken by the company officials. Peter Witt, street railway commissioner, claims that \$750,000 of this amount is to be charged off for the abandonment of old power houses and does not belong in the maintenance fund. In case the maintenance allowance were increased to take care of the large deficit shown, the present interest fund of \$375,000 would soon dwindle and this would call for an increase in fares.

Georgia Railway & Electric Company, Atlanta, Ga.—C. C. Harrison, Jr., & Company, Philadelphia, Pa., have purchased from the Georgia Railway & Electric Company between \$700,000 and \$800,000 of its refunding and im-

provement mortgage 5 per cent bonds due 1949 and are offering these at 96½ and interest to pay about 5.2 per cent. The Pennsylvania State tax is to be refunded on this block of bonds.

Idaho Railway, Light & Power Company, Boise, Idaho.—Judge Dietrich of the United States District Court at Boise has set March 16, 1914, as the date for the foreclosure sale of the properties of the Idaho Railway, Light & Power Company. The appointment of a receiver for this company was noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 10, 1914.

Interborough Rapid Transit Company, New York, N. Y.—Lee, Higginson & Company, Boston, Mass., and N. W. Harris & Company and Kissell, Kinnicutt & Company, New York, N. Y., announced on Jan. 22, 1914, that all the \$30,000,000 first refunding mortgage 5 per cent bonds of the Interborough Rapid Transit Company purchased by them have been sold and the syndicate closed. William A. Read, of the banking firm of William A. Read & Company, has resigned from the directorate of the Interborough Rapid Transit Company. No successor has been elected to Mr. Read. There are now two vacancies in the board. Mr. Read also has resigned as a director of the Subway Realty Company and the Rapid Transit Subway Construction Company.

Ithaca (N. Y.) Street Railway.—H. W. Fitz, New York, chairman of the committee representing bondholders of the Ithaca Street Railway, bid in the property of the company under foreclosure recently for \$100,000.

Kansas City, Clay County & St. Joseph Railway, Kansas City, Mo.—The Kansas City, Clay County & St. Joseph Railway has been authorized to issue bonds to the extent of \$135,000 by the Missouri Public Service Commission. As stated in the *ELECTRIC RAILWAY JOURNAL* of Jan. 10, 1914, page 96, the proceeds of the issue will be used to install a block signal system on the road.

Los Angeles (Cal.) Railway.—The hearing by the California Railroad Commission on the application of the Los Angeles Railway to issue \$23,544,000 of its recently authorized \$50,000,000 bonds has been postponed until the company and the city can get nearer together on an estimate of the value of the street railway lines. The city estimated \$14,782,112 as the present value and \$19,762,389 as the reproductive value of the line and on this showing protested against a bond issue of \$23,544,000 on the property. The company estimated the present value of the properties at \$24,288,400 and the reproductive value as \$26,030,865. It is reported that the bonds to be issued will probably bear 6 per cent interest, although the rate on these bonds, as well as on those reserved for future corporate purposes, is left to be fixed by the commission. The term of the bonds will be twenty-seven years. A sinking fund of three-quarters of 1 per cent a year on the bonds is to be provided, which will retire 4 per cent of the issue before maturity.

Mahoning & Shenango Railway & Light Company, Youngstown, Ohio.—Lee, Higginson & Company, Boston, Mass., are offering at 98½ and interest to yield about 5.8 per cent first consolidated refunding mortgage 5 per cent bonds of the Mahoning & Shenango Railway & Light Company, dated 1905 and due 1916, and redeemable at 105 and interest on any interest date. The company now has outstanding \$4,746,000 of these bonds.

New York, Auburn & Lansing Railroad, Ithaca, N. Y.—The property of the New York, Auburn & Lansing Railroad will be sold under foreclosure at Ithaca on March 6, 1914.

Northern Ohio Traction & Light Company, Akron, Ohio.—The annual meeting of the stockholders of the Northern Ohio Traction & Light Company was held on Jan. 24. F. H. Goff, president of the Cleveland Trust Company, was elected a director to succeed the late Louis E. Beilstein. The other directors were re-elected. The board organized by re-electing the old officers. The issue of \$2,000,000 of new preferred stock was approved by the stockholders.

Ocean Shore Railroad, San Francisco.—An issue of \$5,000,000 of 5 per cent bonds has been authorized by the stockholders of the Ocean Shore Railroad to provide for the

improvement and development of the company's lines in San Mateo County.

Omaha & Council Bluffs Street Railway, Omaha, Neb.—C. W. Lyman, one of two trustees of the Barton estate, has been elected a director of the Omaha & Council Bluffs Street Railway to succeed the late K. C. Barton.

Pekin & Petersburg Interurban Railway, Pekin, Ill.—J. A. Melick has filed objections with the court to the confirmation of the sale of the property of the Pekin & Petersburg Interurban Railway as "junk" recently by the master in chancery to Walter A. Lautz. The court has the appeal under advisement.

Philadelphia Company, Pittsburgh, Pa.—Ladenburg, Thalmann & Company, New York, N. Y., recently offered at 89½ to yield about 6.75 per cent \$2,000,000 of 6 per cent cumulative preferred stock of the Philadelphia Company. The Union of London & Smith's Bank, Ltd., also received subscriptions in London for the issue at 92 per cent, London terms. Of this stock there is authorized \$25,000,000 and outstanding \$6,102,000, including the present offer. This preferred stock is protected by an agreement of the company not to increase its mortgage or secured indebtedness requiring authorization by its stockholders or to create any class of stock ranking with the 6 per cent cumulative preferred stock without the consent of the holders of two-thirds of this stock outstanding. Application to be made through James Capel & Company to list the stock of the Philadelphia Company on the London Stock Exchange.

Portsmouth Street Railroad & Light Company, Portsmouth, Ohio.—The Portsmouth Street Railroad & Light Company has applied to the Ohio Public Utility Commission for authority to distribute as a stock dividend \$250,000 of 6 per cent preferred stock and at the same time issue \$500,000 of first mortgage bonds. The stock dividend is to be paid from accumulated surplus. This is the first application of the kind that has come before the commission. The proceeds of the issue of new bonds are to be used to extend the electric line from Sciotoville to Hanging Rock, about 20 miles, where it will connect with the Ohio Valley Electric Railway, which operates through Ironton and to Hanging Rock. The cost of construction of the new line is estimated at \$400,000. Part of the proceeds of the bond issue will be used in double-tracking the street railway in Portsmouth and in making other extensions and improvements.

South Bend & Logansport Traction Company, South Bend, Ind.—Gabriel R. Summers, South Bend, Ind., who purchased the property of the South Bend & Logansport Traction Company at receiver's sale some time ago, is reported to be negotiating with representatives of an English syndicate with the end in view of securing funds with which to resume construction and complete the road.

Stark Electric Railroad, Alliance, Ohio.—At the annual meeting of the stockholders of the Stark Electric Railroad W. H. Purcell and S. L. Sturgeon were elected directors, one to fill a vacancy and the other to take a new place, the board being increased from eight to nine members.

Third Avenue Railway, New York, N. Y.—On an opinion rendered by Commissioner Milo R. Maltbie, the Public Service Commission for the First District has authorized the Mid-Crosstown Railway to issue \$150,000 in capital stock, and has authorized the Third Avenue Railway to purchase that stock by issuing its own 4 per cent bonds to the extent of \$187,000. The Mid-Crosstown Company owns the Twenty-eighth and Twenty-ninth Streets crosstown lines in Manhattan, which are now operated by storage battery cars supplied by the Third Avenue system. The Third Avenue Railway asked for permission to issue \$500,000 in bonds to acquire the stock of the Mid-Crosstown Railway, but the commission found that the fair value of the property of the latter was only \$150,000, and limited the capital stock issue to that amount. Therefore, it refused to authorize an issue of bonds by the Third Avenue Railway to purchase such stock in excess of the value of the stock. The opinion points out that if the Third Avenue Railway wishes to pay more than this for the stock, the excess so paid must not be charged against capital account.

Traffic and Transportation

Recommendations in Regard to Service in Albany

The following recommendations are contained in a report which Charles R. Barnes, electrical expert for the Public Service Commission of the Second District of New York, has made to the commission in regard to the service of the United Traction Company in Albany:

The improvement of the power supply so as to avoid in the future such interruptions in the service as occurred on the coldest day of the coldest spell this winter.

Additional service in the South End section.

The extension of the tracks on Arbor Hill.

The purchase of additional "modern" cars.

The retirement of the obsolete cars now in use, and the repair of other cars still capable of giving proper service.

The substitution of hot-air or hot-water heat for the present electric heaters.

The abolition of the practice of swinging the Troy cars around at the junction of State Street and Broadway, and the re-routing of these cars.

The installation of better car service between the railroad station and the Capitol.

The installation of a telephone system along the United Traction lines in Albany, so that instant communication would be possible under all conditions.

The substitution of Mazda lamps in all cars for the low-powered electric lamps in use on some of the lines.

Mr. Barnes will also investigate the operation of the generating station at Spier Falls, which is the source of most of the power used by the company.

New Double-Deck Car for Columbus.—The new double-deck car for the Columbus Railway & Light Company, Columbus, Ohio, ordered some time ago, has been promised for delivery by Feb. 1, 1914, by the builder, The J. G. Brill Company.

Punching the Line in Detroit.—Under a new transfer regulation issued by the Detroit (Mich.) United Railway conductors must punch the line to which the passenger intends to transfer. Exception to this rule is made in the rush hours of the morning and evening.

Inquiry into Increase in Commutation Fares in Ohio.—The Cleveland, Southwestern & Columbus Railway, Cleveland, Ohio, has been called before the Public Service Commission of Ohio on the question of increasing commutation fares between Berea and Cleveland, Ohio. Heretofore the rate on commuters' tickets has been 21 cents a round trip. This has been increased to 25 cents, and the books of tickets limited to thirty instead of sixty days.

Crusade in Buffalo Against Spitting.—N. H. Brown, superintendent of the International Railway, Buffalo, N. Y., has ordered conductors to hand a card bearing the following notice to passengers who spit in cars: "To spit upon the sidewalk or other prohibited places will subject you to a fine or imprisonment, or both. Dr. Francis E. Fronczak, Health Commissioner." Police officers have been instructed by the superintendent of police to enforce this law strictly.

Suit of Trespasser's Relatives Dismissed.—A person who walks down the middle of an electric road's track does so at his own peril and relatives have no ground for damages, according to a recent decision of the Kansas Supreme Court at Topeka in the case of Margaret Jones against the Pittsburg & Joplin Railway. David Jones, the woman's husband, was killed by a car of the company. Evidence showed that he had deliberately walked between the rails.

Winter Traffic Advertising Resumed in New Albany.—The Louisville & Southern Indiana Traction Company and the Louisville & Northern Railway & Lighting Company, New Albany, N. Y., which did a considerable amount of newspaper advertising during the summer months for the purpose of encouraging passenger traffic on Sunday, has decided that business of that kind can also be developed by the right kind of advertising in the winter, and has resumed its "Take the Big Red Car" announcements.

Increase in Wages for Coney Island & Brooklyn Employees.—Following the transfer of the stock of the Coney Island & Brooklyn Railroad to the Brooklyn (N. Y.) Rapid

Twin City Rapid Transit Company, Minneapolis, Minn.—Edmund Pennington, president of the Soo Line, and George Partridge, Minneapolis, have been elected directors of the Twin City Rapid Transit Company. One of the new directors was elected to fill a vacancy and the other to take the place of Clinton Morrison, deceased.

United Railways, St. Louis, Mo.—At the annual meeting of the stockholders of the United Railways A. C. Brown and Henry H. Hillard were elected directors to succeed Charles H. Hutting and A. D. Brown, deceased.

United Light & Railways Company, Grand Rapids, Mich.—The United Light & Railways Company has sold to the Continental & Commercial Savings Bank, N. W. Halsey & Company and Russell, Brewster & Company, Chicago, \$500,000 of its first and refunding 5 per cent twenty-year bonds, due June 1, 1932. The bonds are being offered at 86 to yield 6.25 per cent and are redeemable at 102½ and interest on any interest date on sixty days' notice.

Dividends Declared

American Railways, Philadelphia, Pa., quarterly, 1¼ per cent, preferred.

Binghamton (N. Y.) Railway, 2 per cent.

Cumberland County Power & Light Company, Portland, Me., quarterly, 1½ per cent, preferred.

Harrisburg (Pa.) Traction Company, 3 per cent.

Illinois Traction System, Peoria, Ill., quarterly, 1¼ per cent, common.

Monongahela Valley Traction Company, Fairmont, W. Va., 2½ per cent, preferred.

Union Street Railway, New Bedford, Mass., quarterly, 2 per cent.

United Power & Transportation Company, Philadelphia, Pa., \$1.52.

West Penn Railways, Connellsville, Pa., quarterly, 1¼ per cent, preferred.

ELECTRIC RAILWAY MONTHLY EARNINGS

AMERICAN RAILWAYS, PHILADELPHIA, PA.						
Period	Gross Earnings	Operating Expenses	Net Earnings	Fixed Charges	Net Surplus	
1m., Dec., '13	\$461,719	.....	.....	.....	.....
1 " " '12	431,492	.....	.....	.....	.....
6 " " '13	2,862,315	.....	.....	.....	.....
6 " " '12	2,638,117	.....	.....	.....	.....
ATLANTIC SHORE RAILWAY, SANFORD, MAINE						
1m., Dec., '13	\$24,608	\$20,715	\$3,893	\$662	\$3,230	
1 " " '12	23,407	17,756	5,651	465	5,186	
CHATTANOOGA RAILWAY & LIGHT COMPANY, CHATTANOOGA, TENN.						
1m., Dec., '13	\$100,378	*\$60,774	\$39,604	\$26,114	\$13,490	
1 " " '12	95,454	*57,085	38,369	23,963	14,406	
12 " " '13	1,204,928	*717,625	487,303	298,082	189,221	
12 " " '12	1,064,674	*634,616	430,058	266,029	164,029	
JOPLIN & PITTSBURG RAILWAY, PITTSBURG, KAN.						
1m., Dec., '13	\$50,916	*\$30,232	\$20,684	\$12,542	\$8,142	
1 " " '12	49,723	*27,980	21,743	12,542	9,201	
12 " " '13	576,618	*348,307	228,311	150,500	77,811	
12 " " '12	533,538	*315,928	217,610	152,752	64,858	
LEWISTON, AUGUSTA & WATERVILLE STREET RAILWAY, LEWISTON, MAINE.						
1m., Dec., '13	\$50,420	*\$37,118	\$13,302	\$15,338	†\$2,036	
1 " " '12	47,359	*32,286	15,073	14,400	673	
12 " " '13	675,554	*427,715	247,839	179,575	68,264	
12 " " '12	618,030	*389,543	228,487	173,074	55,413	
PORTLAND (MAINE) RAILROAD						
1m., Dec., '13	\$79,897	*\$51,057	\$28,840	\$23,498	\$5,342	
1 " " '12	76,693	*60,247	16,446	10,253	6,193	
12 " " '13	1,036,316	*689,476	346,840	180,881	165,959	
12 " " '12	981,052	*675,594	305,458	121,167	184,291	
PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.						
1m., Dec., '13	\$607,476	*\$275,872	\$331,604	\$175,483	\$156,121	
1 " " '12	586,857	*278,683	308,174	151,403	156,771	
12 " " '13	6,723,742	*3,298,310	3,425,432	2,008,601	1,416,831	
12 " " '12	6,642,308	*3,328,911	3,313,397	1,760,991	1,552,406	
REPUBLIC RAILWAY & LIGHT COMPANY, YOUNGSTOWN, OHIO						
1m., Dec., '13	\$282,301	*\$176,848	\$105,453	\$43,299	\$62,154	
1 " " '12	264,561	*164,783	99,779	44,085	55,694	
12 " " '13	2,997,670	*1,843,310	1,153,706	536,264	617,442	
12 " " '12	2,655,682	*1,610,571	1,045,031	528,935	516,196	
ST. JOSEPH RAILWAY, HEAT & POWER COMPANY, ST. JOSEPH, MO.						
1m., Dec., '13	\$117,830	*\$60,351	\$57,479	\$20,194	\$37,285	
1 " " '12	110,874	*57,373	53,501	19,710	33,791	
12 " " '13	1,252,904	*712,228	540,676	241,365	299,311	
12 " " '12	1,179,839	*669,023	510,816	236,060	274,756	

*Includes taxes. †Deficit.

Transit Company the management of the latter announced an increase in the wages of the employees of the Coney Island & Brooklyn Railroad, affecting all the motormen and conductors and other transportation employees. The new rates will start at \$2.40 a day for the first year of service and increase to \$2.80. The latter rate applies to those who have been in service more than ten years.

Philadelphia Rapid Transit Company Subject to Commission.—According to an opinion expressed by Public Service Commissioner Ewing in the course of John H. Fow's argument for the continuation of free railroad and street railway passes for firemen and policemen, the City Councils of Philadelphia no longer have authority over the Philadelphia Rapid Transit Company in the matter of free transfers, rates of fare or the routing of cars. Jurisdiction over such matters, Mr. Ewing said, is now vested wholly in the commission, under the public service commission law which became effective on Jan. 1.

Terminal and Office Building Proposed for Buffalo.—The International Railway, Buffalo, N. Y., has bought the Garden Theater property in Pearl Street between Church and Niagara Streets and running through to Franklin Street in front of the City and County Hall, and will erect a large passenger terminal on the property with upper floors for the executive offices of the corporation. The station will be a terminal for the Buffalo & Niagara Falls Electric Railway, the Rochester & Lockport line, the Lancaster line, and probably the Buffalo & Lake Erie Traction Company and the Hamburg, Orchard Park & Armour line. The executive officers of the International Railway are now on the eighth floor of the Ellicott Square building.

New Tariff of Queens County Line.—The Manhattan & Queens Traction Corporation was granted special permission by the Public Service Commission for the First District of New York to put into effect a new tariff to cover the extension of its line to Jamaica, which opened on Jan. 26, 1914. The tariff provides for a 5-cent fare generally and a special school rate of 3 cents for school children under eleven years of age to certain schools in the Borough of Queens. The company now operates an electric railway from Manhattan over the Queensboro Bridge and through Thomson Avenue to Broadway. The extension runs from Broadway through Hoffman Boulevard, Jamaica Avenue and other streets to the Long Island Railroad station in Jamaica.

Passenger Traffic on United Railways of St. Louis.—According to an annual report filed with City Register R. H. Witter, the United Railways of St. Louis, St. Louis, Mo., carried 8,180,373 more passengers in 1913 than in 1912, while its cars made only 254,874 more trips. During the last quarter of the year the average number of cars Sundays and holidays was 717, on Saturdays 1163, and on week days 1216. During this period a total of 1,619,928 trips were made and 62,787,202 passengers carried (1,145,309 half-fare passengers), as against 1,514,094 trips and 60,581,293 passengers carried during the corresponding quarter of the previous year. During the entire year 6,259,908 trips were made and 240,976,404 passengers carried, as compared to 6,005,034 trips and 232,796,231 passengers in 1912.

Recommendation Regarding Routing in Kansas City.—The recommendations of L. R. Ash, engineer of Kansas City, Mo., and Philip Kealy, engineer for the Metropolitan Street Railway, that cars of the company to the new Union depot in that city be routed temporarily through Twenty-fourth Street from Main Street to Grand Street have not as yet been acted on by the franchise committee. The new depot, according to a recent announcement, will be put into commission on May 15. The city engineering department is awaiting the conclusions of the franchise committee regarding the use of the streets named, and as the committee is inactive, there is a likelihood that the Metropolitan Street Railway will not be able to complete work in time to handle the depot crowds as originally planned. It is believed that the routing of cars to the new depot will have to await the result of the city election in April.

"Safety First" on San Francisco-Oakland Terminal Railways.—The San Francisco-Oakland Terminal Railways, Oakland, Cal., has published a small booklet giving the details of the "safety first" organization effected in that company as of Jan. 1, 1914. In organizing the work every

employee is given a problem requiring time, thought and energy for its solution. The book contains the list of appointments for the following committees: executive, advisory, central district, western district, eastern district, northern district, key division, marine, shop, line, way and structures department, general offices and ferry terminal. The first two committees have a permanent tenure of office; the others, four months. Meetings are held twice a month for all committees except the executive committee, which meets only once. A safety suggestion box, a roll of honor for accepted suggestions and bogie charts to create competition will be utilized in the safety work.

Organization of Ontario Safety Board.—The Lieutenant-Governor of Ontario, John M. Gibson, has accepted the honorary presidency of the Ontario Safety League, which was formed a short time ago at the suggestion of the Ontario Railway Board, with a view to reducing accidents on the streets. The president is Dr. James L. Hughes. The vice-presidents are H. M. Pellatt and J. C. Eaton. The executive committee is composed of representatives from the Ontario Railway Board, the City Council, the Board of Education, the Separate School Board, the Ontario Motor League, the Toronto Railway, the Trades & Labor Council and the Toronto Automobile Sales Association. Numerous other organizations have identified themselves with the work and all have representatives on the general council of the league. An educational campaign will be started at once with lectures, literature, newspaper advertisements, etc., all dealing with the dangers of the street and pointing out the advantages of "safety first." The league will direct its efforts to the school children first.

Standard Rules for Michigan Roads Discussed.—At a meeting on Jan. 21 of the members of the Michigan Railroad Commission and officers of the electric railways which operate in that State it was decided to unify the rules governing the conduct of motormen and conductors so that they will be the same throughout the State. A committee of five representatives of the railways was appointed to consult and report to the commission. The following roads were represented: Benton Harbor-St. Joe Railway, E. C. Mason, general manager; Detroit United Railway, Harry Bullen, general superintendent; Grand Rapids, Grand Haven & Muskegon Railway, W. K. Morley, general manager; Grand Rapids, Holland & Chicago Railway, Charles A. Floyd, general manager; Houghton County Traction Company, Gardner Rogers, manager; Michigan United Traction Company, C. E. Morgan, general superintendent; Saginaw-Bay City Railway, A. D. Furlong, general manager; Saginaw & Flint Railway, Charles Arnold, superintendent. The committee on rules will hold weekly meetings in various cities and will use as a basis the standard rules adopted by the American Electric Railway Transportation & Traffic Association. The meeting between the commissioners and the officers of the companies on Jan. 21 was held at Lansing.

Transporting Letter Carriers in Seattle.—The ELECTRIC RAILWAY JOURNAL for Jan. 10, 1914, page 103, contained an item in which it was erroneously stated that the Puget Sound Traction, Light & Power Company and Edgar Battle, postmaster of Seattle, had reached an agreement whereby the order of the company requiring all employees of the post office to pay car fare would not be enforced until March 1. The agreement heretofore existing between the company and the local post office department, whereby the transportation of mail carriers over the company's lines was paid for by the government at an annual figure based on the assumed necessary riding of the carriers was canceled by the company on Jan. 1, 1914. Since Jan. 1, 1914, mail carriers and all employees of the local post office, with the exception of some sixteen or eighteen special delivery boys, have paid regular fare when riding upon the lines of the company. No distinction is made between mail carriers and other patrons. Each mail carrier pays his fare when he rides the same as any other patron does. Special delivery boys, under an agreement with the postmaster, will be allowed to ride without payment of fare within the period of sixty days from Jan. 1, payment to be made at the expiration of this time in accordance with the number of trips made by these boys as furnished by the post office. At the expiration of this period delivery boys will be required to pay regular fare the same as other patrons.

Personal Mention

Mr. L. C. Nash, has resigned as secretary and treasurer of the Omaha & Council Bluffs Street Railway, Omaha, Neb., to go into mercantile business.

Mr. R. S. Rolley, general claim agent of the Chicago (Ill.) City Railway, has been made assistant general claim agent of the Chicago Surface Lines.

Mr. W. G. Nicholson, auditor of the Omaha & Council Bluffs Street Railway, Omaha, Neb., has been elected secretary of the company in addition to his duties as auditor.

Mr. C. A. Newton, superintendent of insurance of the Chicago (Ill.) City Railway for the past two years, has been made superintendent of insurance of the Chicago Surface Lines.

Mr. John M. Kinkel has been reappointed to the Kansas Utilities Commission by Governor Hodges for a term of four years. Mr. Kinkel has just completed one year's service with the commission.

Mr. George Spencer, Winnipeg, Man., who for some time has been on the staff of the Dominion Railway Board of Canada at Winnipeg, has been appointed chief operating officer of the commission.

Mr. J. D. Perry Francis has been elected vice-president of the Alton, Granite & St. Louis Traction Company, Alton, Ill. Mr. Francis succeeds Mr. F. E. Allen as director and vice-president of the company.

Mr. N. M. Thorrson, purchasing agent of the Chicago (Ill.) Railways, has been made assistant purchasing agent of the Chicago Surface Lines. He has been in the company's service twenty years.

Mr. A. S. Widenor, cashier of the Omaha & Council Bluffs Street Railway, Omaha, Neb., has been elected treasurer to perform the duties of that office, heretofore cared for by Mr. L. C. Nash, who has resigned to enter mercantile business.

Mr. Benjamin Phillips, assistant superintendent of transportation of the Chicago (Ill.) Railways, has received the same title with the Chicago Surface Lines. Mr. Phillips entered the service of the Chicago Railways in May, 1884, as a conductor.

Mr. Samuel Riddle, superintendent of transportation of the Louisville (Ky.) Railway, has been elected vice-president of the Engineers and Architects' Club of that city. Mr. Frank H. Miller, superintendent of motive power of the company, has been elected a director of the club.

Mr. Joshua Burgee, general manager of the Calumet & South Chicago Railway, Chicago, Ill., has been appointed assistant superintendent of transportation of the Chicago Surface Lines. He has been in the service of the Chicago City Railway and the Calumet & South Chicago Railway for the last twenty years.

Mr. J. V. B. Duerr has been appointed an assistant engineer of the Pennsylvania Railroad, to succeed Mr. B. F. Wood, who as previously noted in the *ELECTRIC RAILWAY JOURNAL* has been appointed chief engineer of the United Gas & Electric Engineering Corporation, New York, N. Y.

Mr. William T. Cobb has been elected vice-president and managing director of the Rockland, Thomaston & Camden Street Railway, Rockland, Me., a newly created position with the company. He will have full charge and complete authority in all matters relating to policies, operation and service.

Mr. S. W. Huff, formerly president of the Coney Island & Brooklyn Railroad and now vice-president of the Brooklyn (N. Y.) Rapid Transit Company, which has taken over the Coney Island & Brooklyn Railroad, had a dinner tendered to him on Jan. 22, 1914, at the Crescent Club, Brooklyn, by the heads of the departments of the Coney Island & Brooklyn Railroad. Those present in addition to the guest of honor were Messrs. Elwood T. Baker, Duncan B. Cannon, James M. Downey, William N. Dykman, George M. Kirchner, George C. Killeen, John J. Kuhn, Henry B. Lingeman, Edward L. Mathews, James E. Mathews, Jr., Isaac R. Oeland, Robert A. Paine, William E. Thompson, John A. Thake, Stonewall Tompkins and Charles A. Wilkinson.

Mr. Arnold von Schrenk has resigned as general superintendent of the United Traction Company, Albany. Mr. von

Schrenk was formerly general superintendent in charge of the Troy division of the United Traction Company. Before that he was general manager of the Plattsburg (N. Y.) Traction Company. He was graduated from Columbia University, New York, in June, 1901, and in August, 1901, he entered the testing department of the General Electric Company, Schenectady, N. Y. He was transferred to the construction department of the company in July, 1903, and in July, 1905, became connected with the New York Central & Hudson River Railroad as draftsman and inspector. He was promoted to be chief draftsman in December, 1906, and to be assistant engineer in December, 1907, in connection with the electrification work of the company in New York and vicinity. He spent the summer of 1908 studying the leading European railway systems and other examples of foreign engineering. In 1909 he entered the engineering department of the United Traction Company, Albany.

Mr. John F. Uffert has been appointed general superintendent of the United Traction Company, Albany, N. Y., to succeed Mr. Arnold von Schrenk. Mr. Uffert was born in Newark, N. J., in 1880. In 1893 he went to work for the Consolidated Traction Company of New Jersey, now included in the system of the Public Service Railway, Newark, N. J. At the age of seventeen he accepted a position with the Union Railway, New York, N. Y., as shop foreman. After a few years' service with that company he went West and worked for several companies in various capacities. Previous to entering the employ of the United Traction Company at Albany, Mr. Uffert was connected with the Portland Railway, Light & Power Company, Portland, Ore., from which company he resigned in 1912 to become master mechanic of the Hudson Valley Railway, a subsidiary of the United Traction Company. He served so efficiently in this position that on May 27, 1912, he was in addition made master mechanic of the United Traction Company. On Jan. 22, 1914, he was appointed general superintendent of the United Traction Company. He still continues as master mechanic of the Hudson Valley Railway.

Mr. R. W. Reynolds, secretary and general manager of the Hartford & Springfield Street Railway, Warehouse Point, Conn., has been appointed general manager of the Springfield (Mass.) Street Railway, succeeding the late George F. Reed. Mr. Reynolds was born at Mattoon, Ill., in 1882, and was graduated from the Armour Institute, of Chicago, in 1900. After two years' work in the electrical engineering department of Purdue University, Lafayette, Ind., he joined the staff of the Indianapolis & Northern Street Railway, now a part of the Terre Haute, Indianapolis & Eastern Traction Company's system. He became superintendent of this road in 1905, and in 1907 joined the Chicago, South Bend & Northern Indiana Railway, with headquarters at South Bend, also having charge of the operation of the Southern Michigan Railway. In 1910 Mr. Reynolds was elected vice-president of the American Light & Water Company, Chicago, and devoted his attention for two years to the construction of central station and waterworks systems. He succeeded Mr. H. S. Newton as general manager of the Hartford & Springfield Street Railway on Aug. 1, 1912.

Mr. S. G. McMeen has been elected president of the East St. Louis Railway, the East St. Louis & Suburban Railway and the East St. Louis Light & Power Company, East St. Louis, Ill., to succeed Mr. C. M. Clark, of E. W. Clark & Company, Philadelphia, Pa., as president of the first two companies and Mr. L. C. Haynes as president of the East St. Louis Light & Power Company. During the last year the E. W. Clark & Company Management Corporation was organized with headquarters in Columbus, Ohio. Of this corporation Mr. C. M. Clark is president and Mr. M. S. Hopkins and Mr. S. G. McMeen are vice-presidents. This corporation will have charge of the general management of the East St. Louis properties and in the line of carrying out this policy Mr. McMeen has been elected president of the operating companies in East St. Louis. Mr. C. M. Clark is president of The East St. Louis & Suburban Company, the new Delaware corporation, which has been formed to take over the property of the East St. Louis & Suburban Company, of which Mr. Clark has been president since its organization ten or twelve years ago. The election of Mr. McMeen as president of the East St. Louis companies will not in any way change his relations to the Columbus Rail-

way & Light Company, Columbus, Ohio, or, as it is now known, the Columbus Light, Heat & Power Company.

Mr. C. E. Carson, whose appointment as superintendent of the Fort Dodge, Des Moines & Southern Railroad, Boone, Ia., was announced in the *ELECTRIC RAILWAY JOURNAL* of Jan. 17, 1914, was born at Portsmouth, Ohio, on Jan. 9, 1866. After attending common school he entered Carlton College, Ohio, and was graduated in 1882. He entered the service of the Kansas, Fort Scott & Memphis Railroad at Kansas City, Mo., in 1883, as a switchman and filled successively the positions of conductor, chief clerk to division superintendent and general yardmaster. In 1893 he was appointed chief clerk and assistant superintendent of the Terminal Railroad Association of St. Louis, Mo., serving in this position until 1897, when he was appointed superintendent of the Missouri Pacific Railroad at Kansas City, Mo. In 1902 he was transferred to the Missouri Pacific Railroad and the Iron Mountain Railroad as division superintendent with headquarters at St. Louis, Mo. In 1903 he was appointed superintendent of the Northern division of the Colorado & Southern Railroad and served in this capacity to June 1, 1906, when he accepted a position as superintendent of the Kansas City division of the Missouri Pacific with headquarters at Kansas City. On April 1, 1908, Mr. Carson was appointed superintendent of the Mexican Central Railway and National Lines of Mexico, with headquarters at Tampico, Mexico, in which capacity he continued to Jan. 1, 1910, when he was appointed manager of the Mexican Fuel Company at Tampico, Mexico. On Feb. 15, 1911, he was appointed superintendent of the Chicago Great Western Railroad, Western division, with headquarters at Clarion, Ia. He was transferred to the Northern division as superintendent with headquarters at St. Paul, Minn., on Aug. 1, 1911. He resigned from the Chicago Great Western Railroad on Oct. 15, 1913.

Mr. E. T. Munger, who resigned about a year ago from the office of general superintendent of the Hudson & Manhattan Railroad, New York, N. Y., has accepted the position of general manager of the Cumberland County Power & Light Company, Portland, Maine. This company operates the local railway system in Portland and several interurban lines and electric lighting properties. Mr. Munger will take office immediately. Up to his connection with the Hudson & Manhattan Railroad, which took place in 1909, Mr. Munger had been largely identified with the engineering department of electric railways, but as head of the transportation department of the Hudson & Manhattan Railroad he achieved great success as an operator. One of his most important duties was to give personal attention to "the public be pleased" policy of the company, and he personally engaged all of the transportation employees on the system and paid special attention to securing such help as would be courteous and attentive to the public. Previous to his work on the Hudson & Manhattan Railroad, Mr. Munger had held a number of responsible engineering positions, such as master mechanic and later superintendent of motive power and equipment of the Metropolitan West Side Elevated Railway, Chicago, and superintendent and later president and general manager of the Havana (Ill.) Telephone Company. He was graduated with the degree of bachelor of mechanical engineering at the University of Wisconsin in 1892. On Jan. 27, 1914, a farewell luncheon was tendered to him at the Railroad Club by the Deportation Club of New York. Between thirty and forty of Mr. Munger's most intimate friends were present and wished him all success in his new venture. Mr. W. C. Fisk of Harvey Fisk & Sons, New York, was toastmaster, and before the conclusion of the luncheon a handsome silver loving cup was presented to Mr. Munger.

Mr. Harry B. Ivers, general manager of the Cumberland County Light & Power Company, Portland, Maine, for the last three years, has resigned to take effect Feb. 15. He has purchased an interest in the Frank Ridlon Company, Boston, Mass., and will become connected with that company. Mr. Ivers has long been connected with street railway and lighting interests in New England. His experience dates from the spring of 1893, when he entered the employ of the Hyde Park (Mass.) Electric Light Company. During that year the Norfolk Suburban Street Railway was built, and during the two following years the West Roxbury & Roslindale Street Railway and the Norfolk Central

Street Railway were built. Mr. Ivers was connected with the railways and the lighting company in different capacities in and about the power station and the carhouse and in the treasurer's office. The companies were later acquired by the Massachusetts Electric Companies, and Mr. Ivers assisted in consolidating the accounts and in operating the railways, which were organized as a division of the Old Colony Street Railway. He subsequently acted as superintendent of what was known as the West Roxbury division of the Old Colony Street Railway. Later he was transferred to Brockton in the interest of the consolidation and assisted in consolidating and systematizing the accounts of the separate companies in and surrounding Brockton. His headquarters were subsequently transferred to Taunton, in the general superintendent's office, which developed to be the general office of the Old Colony Street Railway. After being connected with these properties for nine years he was elected treasurer and manager of the Westerly Railway & Lighting Company, Westerly, R. I. Four years later he accepted the position of assistant to Mr. John R. Graham, president and general manager of the Bangor Railway & Electric Company, Bangor, Maine, and a few months thereafter was elected treasurer of that company and of the Bar Harbor & Union River Power Company, which constructed the famous water-power plant upon the Union River at Ellsworth, Maine. In March, 1908, Mr. Ivers was appointed general manager of the Lewiston, Augusta & Waterville Street Railway, Lewiston, Maine. In June, 1912, he was appointed general manager of the Cumberland County Power & Light Company, which controls and operates the Portland Railroad, the Portland Electric Company, the Portland Lighting & Power Company, the Consolidated Electric Light Company and the Lewiston, Augusta & Waterville Street Railway. Mr. Ivers is an ex-president of the Maine Electric Association, and is now a member of the executive committee of that association and vice-president of the New England Street Railway Club and the New England section of the National Electric Light Association. He is vice-president of the Lewiston Chamber of Commerce, and chairman of several important committees of other boards of trade and business men's associations. At the last annual meeting of the State Board of Trade at Bangor he was appointed on a committee to study and report to the State board at its next meeting as to advancing the agricultural development of Maine.

Mr. A. W. McLimont, who from May, 1910, to March, 1912, was vice-president and general manager of the Michigan United Railways, Jackson, Mich., now the Michigan United



A. W. McLimont

Traction Company, which operates 251 miles of electric railway in Michigan, has been elected vice-president and general manager of the San Francisco-Oakland Terminal Railways, Oakland, Cal., which operates 241 miles of electric railway in Oakland and vicinity and has been taken over by new interests, as noted elsewhere in this issue. Mr. McLimont is a Canadian by birth. He entered business with the New England Telephone & Telegraph Company in 1885. On Sept. 29, 1889, he became connected with the Thomson-Houston Electric Company, Boston, Mass., and later entered the Chicago office of the company, where he served until the latter part of 1903. During that period he assisted in building, organizing and operating railway properties at Dallas, Houston, St. Joseph, Cedar Rapids, Rockford, Springfield, Marquette, Nashville, Chicago and New Orleans and in installing electric light plants. Subsequently Mr. McLimont became general manager and resident engineer of the Dubuque Light & Traction Company, Dubuque, Ia. In 1905 he resigned from the Dubuque Light & Traction Company and supervised the construction of 70 miles of the overhead work at New Orleans. Upon the completion of that task he joined the foreign department of the General

Electric Company, for which he organized and operated the Petropolis (Brazil) Electric Light Company, and designed, built and operated two monocycle electric light and power plants in Costa Rica, C. A. He next supervised the construction of a long-distance transmission and hydroelectric plant at Cordova, Argentina, for the Cordova Light & Power Company. Returning to the United States, Mr. McLimont took charge of the construction of the high-tension transmission line of the Hudson River Power Transmission Company between Mechanicsville and Albany. Later he built and operated seven electric light plants for the Guanajuato (Mexico) state government and did considerable electric-light power installation work for the Guanajuato Mining & Milling Company. Mr. McLimont next reported for Sperry, Jones & Company, Baltimore, Md., upon a plan to consolidate and electrify the street railways at Monterey, Mex., after which he designed, built and operated an interurban electric railway for W. R. Grace & Company at Lima, Peru, and also built 40 miles of city railway at Lima and operated the system for two years. Returning to the United States again, Mr. McLimont accepted the position of electrical and operating engineer with the Public Service Commission of the First District of New York. In March, 1909, Mr. McLimont resigned from the Public Service Commission to become general manager of the Chicago & Milwaukee Electric Railroad, Chicago, Ill., and in May, 1910, he was elected vice-president and general manager of the Michigan United Railways.

OBITUARY

George H. Babbitt, formerly a member of the Public Service Commission of Vermont, died on Jan. 24, 1914, at his home in Bellows Falls, Vt., aged fifty-two years.

George Voight, for more than fifteen years superintendent of the electrical repair department of the Chicago (Ill.) Railways, is dead. He was forty years old.

Byron E. Merwin, general superintendent of the Aurora, Elgin & Chicago Railroad, Wheaton, Ill., died on Jan. 23, 1914. Mr. Merwin was born on Aug. 25, 1863, at Jewett, N. Y. He commenced railroad work in 1894 as a conductor with the Lake Street Elevated Railway, Chicago, now the Chicago & Oak Park Elevated Railroad. In 1895 he was promoted to train dispatcher, and in 1899 was made assistant superintendent. In May, 1900, he was transferred to the Northwestern Elevated Railway to take the position of trainmaster, where he remained until the end of that year, when he returned to the Lake Street Elevated Railway as superintendent. In June, 1902, he resigned to become general superintendent of the Interurban Railway & Terminal Company, Cincinnati, Ohio. He held that position until November, 1907, when he was appointed superintendent of transportation of the Aurora, Elgin & Chicago Railroad, Wheaton, Ill. Three years later he was promoted to the position of general superintendent of that company.

William Cooper, director of buildings and equipment of the East Pittsburgh works of the Westinghouse Electric & Manufacturing Company, is dead. Mr. Cooper was born near Watertown, N. Y., on Nov. 24, 1861. He attended Cornell University. At the age of twenty-five Mr. Cooper engaged in building automatic screw machines at Ottumwa, Ia. Soon after he started a shop in Minneapolis and subsequently entered the employ of the Twin City Rapid Transit Company, Minneapolis, as master mechanic and chief engineer. In 1894 he entered the employ of the General Electric Company at Schenectady. Three years later he became associated with Blood & Hale, Boston, Mass., consulting engineers. On Sept. 1, 1897, Mr. Cooper was appointed general superintendent of the Bullock Electric & Manufacturing Company, Cincinnati, Ohio, in charge of engineering and manufacturing. About a year later he entered the employ of the railway engineering department of the Westinghouse Electric & Manufacturing Company. His first work with this company in the railway field consisted of an active participation in the design and manufacture of the equipment furnished the New York, New Haven & Hartford Railroad, the St. Clair Tunnel, the Pennsylvania and other roads which have been electrified by the Westinghouse Company. When the works department of the Westinghouse Company was organized two years ago Mr. Cooper was made director of buildings and equipment.

Construction News

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

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

RECENT INCORPORATIONS

***Gulf & Pacific Railway, Sweetwater, Tex.**—Chartered in Texas to build a 125-mile electric or steam railway from Sweetwater to Comanche. Capital stock, \$125,000. Incorporators: J. V. W. Holmes, Thomas Trammel, Benjamin Anthony and others. Headquarters, Sweetwater.

FRANCHISES

Porterville, Cal.—The Southern Pacific Company has received a fifty-year franchise from the Council in Porterville.

San Diego, Cal.—The Railroad Commission has ordered the Los Angeles & San Diego Beach Railway to ask the City Council of San Diego for an extension of the franchise on the La Jolla line, and then to apply for authority to issue bonds to electrify the railway.

San José, Cal.—The San José Railway has asked the Council for an extension of time on its franchise in which to rebuild its line to Toyon Station in San José.

Milton, Fla.—H. S. Laird, Milton, has asked the Council for a franchise in Milton. This is part of a plan to build an electric railway from Milton to Bagdad. [E. R. J., Jan. 17, '14.]

Hutchinson, Kan.—William S. Thompson and associates have asked the Council for a franchise in Hutchinson. This is part of a plan to build an electric railway from Burrton to Hutchinson.

New Orleans, La.—The New Orleans Railway & Light Company has received a franchise on Broadway and Claiborne Street in New Orleans.

Cincinnati, Ohio.—The Cincinnati Traction Company has accepted the franchise granted by the Council for the extension of its Avondale Street line to Bond Hill.

Lawton, Okla.—The Lawton Railway & Light Company has received a twenty-one-year franchise from the Council in Lawton.

Seattle, Wash.—The Puget Sound Traction Light & Power Company has received permission from the Board of Public Works for the extension of the Beacon Hill line on Beacon Avenue from Hanford Street to Spokane Street in Seattle.

Tacoma, Wash.—The City Council has granted a franchise authorizing the issuance of \$75,000 worth of utility bonds for the construction and equipment of a 1-mile municipally owned electric railway across the tide flats in Tacoma.

TRACK AND ROADWAY

Edmonton (Alta.) Interurban Railway.—Arrangements have been made by which this company will connect its lines in Edmonton with the lines of the Edmonton Radial Railway.

Little Rock Railway & Electric Company, Little Rock, Ark.—Plans are being made by this company to build two extensions in Little Rock—one to the Rock Island station and another on Markham Street to the Union Station.

Little Rock, Pine Bluff & Eastern Traction Company, Little Rock, Ark.—Work will be begun at once by this company on its line to connect Little Rock, Altheimer, Stuttgart, Helena and Pine Bluff.

***Healdsburg, Cal.**—Arthur D. Bowen, Santa Rosa, and associates are considering plans to build an electric railway from Healdsburg through Dry Creek Valley and Alexander Valley to Geyserville.

Marin County Electric Railway, Mill Valley, Cal.—This company has asked the State Railroad Commission for a certificate of public convenience and necessity and for authority to issue \$50,000 in stock and \$50,000 in bonds. The company proposes to construct an electric railway in Mill Valley, with a branch from the Northwestern Pacific depot to the Old Hill and Cascade Reservations and to the base of trails leading to points of interest. B. F. Ames, president. [E. R. J., Jan. 24, '14.]

Oakland, Antioch & Eastern Railway, Oakland, Cal.—Improvements are being planned by this company for its line between Oakland and Sacramento.

San Francisco-Oakland Terminal Railway, Oakland, Cal.—This company is asked to consider plans to double-track its Oakland line on Twentieth Street from Macdonald Avenue to Portola Avenue in Oakland.

Geary Street Municipal Railway, San Francisco, Cal.—Plans are being made to begin work soon on the extension to the exposition grounds and other projected points in San Francisco.

Waterbury & Milldale Tramway, Waterbury, Conn.—During the year it is planned to build 3.6 miles of new track between Hitchcock Pond and Milldale.

Wilmington & Philadelphia Traction Company, Wilmington, Del.—Arrangements are being made to extend the Washington Street line in Wilmington along the Boulevard to the Concord Heights section. The terminus of the extension has not been determined, but it will probably be Twenty-sixth Street.

Waycross Street & Suburban Railway, Waycross, Ga.—About 1½ miles of new track will be built during the year in Waycross.

Lewiston-Clarkston Valley Railway, Lewiston, Idaho.—Preliminary arrangements are being made to begin construction soon on the section of this line in Lewiston. This is part of a plan to build an 18-mile electric railway between Lewiston, Idaho, and Clarkston, Wash. F. L. Strum, Lewiston, president. [E. R. J., Dec. 6, '13.]

East St. Louis & Suburban Railway, East St. Louis, Ill.—About 1 mile of new track will be built by this company during the year.

Quincy & Western Illinois Railway, Quincy, Ill.—Plans are being made to begin work soon on the belt line around Quincy. Henry F. Dayton, Quincy, president. [E. R. J., Aug. 9, '13.]

Evansville & Olney Traction Company, Evansville, Ind.—Illinois stockholders in this company have purchased the interests of Elmer Q. Lockyear, Evansville, Ind., and other stockholders there, and plan a reorganization of the company. Plans are being made to begin work soon on the line from Evansville to Olney, Ill., via Mount Carmel. At Mount Carmel a bridge will be built over the Wabash River. [E. R. J., May 11, '11.]

Evansville (Ind.) Railways.—Plans are being considered by this company to build a 7-mile electric line from a point in Indiana opposite Owensboro, Ky., to connect with the Evansville and Rockport line. A new substation will have to be built, if the plans now formed are carried out.

Keokuk (Ia.) Electric Company.—Plans are being considered to extend this company's lines in Keokuk through the lower end of Rand Park and along the proposed new boulevard to the baseball grounds.

Waterloo, Cedar Falls & Northern Railway, Waterloo, Ia.—It is planned to build 22 miles of new track during the year between Urbana and Cedar Rapids.

Manhattan City & Interurban Railway, Manhattan, Kan.—About 10 miles of new track will be built by this company during the year.

***Frontenac, Mulberry & Arcadia Electric Railway, Pittsburg, Kan.**—This company, which plans to build an electric line to connect Frontenac, Mulberry, Arcadia and Pittsburg, has elected the following officers: J. S. Patton, president; Frank Markowitch, vice-president; Antone Mengini, treasurer, and P. J. McGinley, secretary.

Joplin & Pittsburg Railway, Pittsburg, Kan.—About 1 mile of new track will be built by this company during the year.

Arkansas Valley Interurban Railway, Wichita, Kan.—Work will soon be begun on the extension from Halstead to Hutchinson.

Central City, Ky.—Plans for an electric railway to connect a number of towns in western Kentucky have developed at Central City through the application for a franchise for the operation of a local line. The Council is now considering the franchise, which, it is said, has been asked for by Eastern interests. The proposed plan is to operate a

line in Central City, and to build in Drakesboro, Greenville, Hillside, Brownsville, Mercer, Powderly, Cleaton, Bevier and Graham. A large power plant will be built at Central City, and plans for the purchase of the plants at Drakesboro and Greenville to be used in that connection are also being considered. [E. R. J., Jan. 24, '14.]

Quebec Railway, Presque Isle, Maine.—It is reported that during the present year work will be begun on the construction of this railway, which will extend across the northern part of Maine to connect the existing lines at Quebec and New Brunswick, and across New Brunswick to the Quebec border, a distance of 111 miles. A. R. Gould, president of the Aroostook Valley Railroad, is interested. [E. R. J., Jan. 10, '14.]

Winnipeg, Selkirk & Lake Winnipeg Railway, Winnipeg, Man.—The 8-mile extension from Middlechurch to Stony Mountain has been completed and will be placed in operation during the summer. Plans are being considered to build a branch line to Balmoral.

Bay State Street Railway, Boston, Mass.—Plans are being considered by this company to double-track its line between Lawrence and Lowell.

Muskegon-Casnovia Land & Development Company, Muskegon, Mich.—Preliminary arrangements are being made to build this electric line to connect Muskegon, Saginaw, Eggleston, Moorland and Casnovia. Norman B. Lawson, Muskegon, is interested. [E. R. J., Aug. 16, '13.]

Twin City Rapid Transit Company, Minneapolis, Minn.—It is planned to build about 19.50 miles of new track during the year.

***Helena, Mo.**—J. H. Kimmett, Helena, Mo., and J. T. Wagers, King City, Mo., plan to build an interurban electric line from St. Joseph to Pattonsburg. The St. Joseph Commerce Club favors the railway and will assist it financially.

Grand View Railroad, St. Louis, Mo.—During the year this company plans to build about 5 miles of new track in St. Louis.

Missoula (Mont.) Street Railway.—About 4 miles of new track will be built in Missoula during the year.

Red Lodge (Mont.) Electric Railway.—More than one-half of the \$100,000 necessary to build the proposed 10-mile line between Red Lodge, Washoe and Bearcreek has been subscribed. C. C. Bowlen, president. [E. R. J., Dec. 13, '13.]

Fallon (Nev.) Electric Railroad.—It is planned to build between 20 and 30 miles of new track from Hill to Sand Springs during the year.

Omaha & Council Bluffs Street Railway, Omaha, Neb.—Improvements and extensions of its lines in Omaha to cost approximately \$400,000 have just been ordered by the board of directors of this company.

Cape May, Delaware Bay & Sewell's Point Railroad, Cape May City, N. J.—About 1 mile of new track will be built by this company in Cape May City during the year.

New York, Auburn & Lansing Railroad, Auburn, N. Y.—About 3 miles of new track will be built during the year by this company.

Manhattan Bridge Three Cent Line, Brooklyn, N. Y.—During 1914 this company plans to build about 1 mile of new track.

International Railway, Buffalo, N. Y.—About 12 miles of new track will be built by this company during the year between North Tonawanda and Lockport. It is also planned to build 1 mile of new track in Buffalo.

Hornell (N. Y.) Traction Company.—Extensive track improvements in Hornell are being planned by this company in the near future.

Manhattan & Queens Traction Company, New York, N. Y.—During the year this company plans to build between 5 and 6 miles of new track in Greater New York.

Suffolk Traction Company, Patchogue, N. Y.—It is planned to build about 9½ miles of new track between Holtsville and Port Jefferson and between Bayport, Sayville and West Sayville during the year.

New York State Railways, Rochester, N. Y.—During the year this company plans to build about 2.84 miles of new track in Rochester.

*Lancaster, Ohio.—James M. Dollison, Lancaster, James Sharp, Nelsonville, and associates plan to build a 33-mile electric railway between Lancaster and Nelsonville to connect Athens and the Hocking Valley district if they can succeed in leasing the old canal property between these cities from the State.

Western Ohio Railway, Lima, Ohio.—Plans are being made to build extensions of several of this company's inter-urban lines in the near future.

Ardmore & Western Interurban Railway, Ardmore, Okla.—Financial arrangements have been made and work will soon be begun by this company on the line which will extend from Ardmore north to within 1 mile of Springer and west via Woodford, Milo and Oil City. From Oil City one branch will extend 25 miles north to Elmore via Graham and Pooleville. Citizens of Elmore will give a bonus and donate 10 miles of the right-of-way. Another branch will extend south from Oil City to Leon via Cornfish and Orr to the oil fields. F. B. McElroy, Ardmore, president. [E. R. J., Jan. 3, '14.]

Sarnia (Ont.) Street Railway.—Plans are being considered to build an extension south along the river bank in Sarnia.

Toronto, Barrie & Orillia Electric Railways, Toronto, Ont.—A provisional agreement has been made between this company and the Council in Barrie. The first section of the railway is to connect Barrie with a point on the Canadian Pacific Railway at Midhurst. Work on this section will begin not later than April. [E. R. J., Dec. 20, '13.]

*Waterdown, Ont.—At a meeting of the citizens of Waterdown on Jan. 23 plans were considered to build an electric railway from Hamilton to Waterdown through Guelph to a point on the Georgian Bay. It was decided that the line should be built and that the project should be taken up with the Hydro-Electric Power Commission of Ontario.

Portland & Oregon City Electric Railway, Portland, Ore.—Plans are being considered to build an 18-mile branch from Milwaukee to Logan.

Southern Illinois & St. Louis Railway, Harrisburg, Pa.—Preliminary arrangements are being made to begin work in April on the construction of this line to connect Marion, Harrisburg, Benton, Johnson City and Herrin. All the cities through which this line will run have granted franchises to the company. W. H. Schott is interested. [E. R. J., Jan. 24, '14.]

Saskatoon (Sask.) Electric Railway.—The 3-mile extension between Saskatoon and Sutherland has been placed in operation.

Middle Tennessee Traction Company, Franklin, Tenn.—Surveys have been completed for this 70-mile line to connect Nashville, Franklin, Shelbyville and Fayetteville, Tenn., and Huntsville, Ala. P. E. Cox, Franklin, general manager. [E. R. J., Sept. 13, '13.]

Jackson Railway & Light Company, Jackson, Tenn.—Surveys are being made for a 2-mile line extension in Jackson.

Shelbyville, Petersburg & Decatur Railroad, Shelbyville, Tenn.—Surveys have been completed for the first 20 miles of this line to connect Shelbyville, Petersburg and Decatur. G. B. Howard & Company, Franklin, Tenn., engineers. [E. R. J., Jan. 3, '14.]

Eastern Texas Traction Company, Dallas, Tex.—There are forty-three trestles to be constructed on this company's line between Dallas and Greenville. Eleven have been completed between Dallas and East Fork and several are now being built from Greenville west to East Fork. J. W. Crotty, general manager. [E. R. J., Sept. 27, '13.]

Houston (Tex.) Electric Company.—Work has been begun laying additional track on the Harrisburg Road between Milby Street and the old city limits of Houston.

Utah Light & Railway Company, Salt Lake City, Utah.—This company is asked to consider plans to extend its Ninth East Street line from its present terminus at the Country Club to Fifteenth South Street, continuing the route on Ninth East Street in Salt Lake City.

Puget Sound Traction Light & Power Company, Seattle, Wash.—Plans are being considered by this company for an extension between Everett and Mount Vernon.

SHOPS AND BUILDINGS

Fresno (Cal.) Traction Company.—This company has moved its offices from Fresno to Los Angeles.

Oakland, Antioch & Eastern Railway, Oakland, Cal.—A new depot will soon be erected by this company on the site of the present depot on Third Street and I Street in Sacramento. Plans are completed for a two-story structure which will cover the entire lot, covering an area of 75 ft. x 150 ft. The building will be of stone and steel construction. The second story will be used for the offices of the company.

Petaluma & Santa Rosa Railway, Petaluma, Cal.—Plans are being made to begin work soon to build a new passenger station in Sebastopol.

Geary Street Municipal Railway, San Francisco, Cal.—Plans are being made to begin construction soon on the enlargement of this company's carhouse in San Francisco.

Waterbury & Milldale Tramway Company, Waterbury, Conn.—Plans are being considered by this company to build a new carhouse in Waterbury.

Savannah (Ga.) Electric Company.—Preliminary arrangements are being made by this company to rebuild its carhouses at Gwinnett Street and Harmon Street in Savannah. The new structure will be of brick construction. It will contain eighteen sets of tracks and accommodate 160 cars.

Tri-City Railway, Davenport, Ia.—Plans are being prepared and contracts will soon be awarded by this company to build an addition to its new carhouses at Thirty-fifth Street and Moline Avenue in Rock Island. The structure will be of brick, cement and iron construction and will be two stories in height. The second floor will be used for offices and a club room for the employees.

East St. Louis & Suburban Railway, East St. Louis, Ill.—This company has purchased a site on Collinsville Avenue and Main Street in East St. Louis on which it plans to build its new four-story office building at once. Bids will be opened on Feb. 2. The structure will be of brick and reinforced concrete. The cost is estimated to be about \$70,000.

Lewiston, Augusta & Waterville Street Railway, Lewiston, Maine.—Arrangements are being made by this company to build a new carhouse at Lisbon Falls to replace the one destroyed last fall.

Niagara Gorge Railroad, Niagara Falls, N. Y.—Plans are being made by this company to build new carhouses and repair shops in Niagara Falls during the year.

Pennsylvania & Ohio Railway, Ashtabula, Ohio.—This company's carhouse at Conneaut was destroyed by fire on Jan. 22. The loss is estimated to be about \$30,000.

Toronto (Ont.) Railway.—Preliminary arrangements are being made by this company for the construction of two new carhouses in Toronto.

POWER HOUSES AND SUBSTATIONS

Lewiston, Augusta & Waterville Street Railway, Lewiston, Maine.—This company has installed a new rotary converter at its power house in Brunswick and will install a similar machine at Lisbon Falls.

Holyoke (Mass.) Street Railway.—Work preliminary toward increasing the facilities of this company's power house at Holyoke is under way. New engines and machinery will be installed, and an addition to the power house will be constructed. The cost of the improvements is estimated to be about \$150,000.

Eastern Pennsylvania Railways, Pottsville, Pa.—A new addition will be built in the near future by this company at its power plant at Palo Alto to supply power for its Tamaqua division. It is estimated to cost about \$350,000.

Rutland Railway, Light & Power Company, Rutland, Vt.—The Pittsford Power Company, a subsidiary of the Rutland Railway, Light & Power Company, plans to build a new hydroelectric power house at the Chittenden reservoir. This new plant will have a capacity of 2000 hp and the current will be sold one-third to the Colonial Power Company and two-third to the Rutland Railway, Light & Power Company.

Manufactures and Supplies

ROLLING STOCK

Evanston (Ill.) County Traction Company has purchased ten city cars from the St. Louis Car Company.

United Railways, St. Louis, Mo., is expecting to purchase sixty-two center-entrance trail cars during 1914.

Michigan United Traction Company, Jackson, Mich., has purchased ten city cars from the St. Louis Car Company.

Pennsylvania & Ohio Railway, Ashtabula, Ohio, on Jan. 22 lost four cars in a fire which destroyed a carhouse at Conneaut, Ohio.

Parkersburg, Marietta & Interurban Railway, Parkersburg, W. Va., has been building one electric locomotive in its own shops.

United Traction Company, Albany, N. Y., is remodeling several of its larger single-truck cars into the prepayment type. Three such cars are already in use.

Jamestown, Westfield & Northwestern Electric Railway, Jamestown, N. Y., has purchased from the Cincinnati Car Company through W. R. Kerschner six 53-ft. 6-in. all-steel car bodies.

Houghton County Street Railway, Houghton, Mich., on Jan. 12 lost one of its passenger cars by fire. The body of the car, including the wiring, was entirely destroyed, but it is believed that the trucks and motors can be rehabilitated and used again.

Aurora, Elgin & Chicago Railway, Wheaton, Ill., is just putting into service six new high-speed passenger motor cars built by the Jewett Car Company. These cars are 53 ft. 10 in. long and will be operated in trains. The trucks have 7 ft. wheelbase, and quadruple elliptic springs. They were built by the Baldwin Locomotive Works, according to designs made by the purchaser. The heating equipment of the six cars is the Peter Smith electric forced ventilation system.

City Railway, Dayton, Ohio, noted in the *ELECTRIC RAILWAY JOURNAL* of Dec. 13, 1913, as having ordered twenty 29-ft. 6-in. single-end prepayment car bodies from the Cincinnati Car Company, has specified the following equipment for these cars:

Trucks	max. tr.,	Trolley catchers...	Keystone
	Std. Motor Truck Co.	Signs	Keystone
Motors..West.	306 2-motor	Headlights,	
	equipments	Elec. Serv. Sup. Co.	
Air brakes.....	Type a-3	Lighting fixtures	Dayton
	Nat'l Brake & Elec. Co.	Ventilators	Dayton
Heaters.....	Peter Smith	Sash locks	Dayton
Seats.....	Hale & Kil.	Curtain fixtures,	
Push buttons.....	Consol.	Barney & Smith Car Co.	
Sand boxes.....	Keystone		

TRADE NOTES

Cortlandt Engineering Company, New York, N. Y., has transferred its office from 146 Liberty Street to 42 Broadway.

Pathé Frères, Jersey City, N. J., have discontinued the words "Pathéplay" and "Pathé Frères" in speaking of their productions or in advertising them, and henceforth the wording will be only "By Pathé," or "Produced by Pathé."

Electric Railway Improvement Company, Cleveland, Ohio, announces the election of the following officers, who are also the directors, for the coming year: President, F. H. Neff; vice-president, W. S. Gilkey; treasurer, H. S. Stebbins; secretary, R. B. Tewksbury; general manager, W. E. Huber.

R. M. Campbell, for several years connected with the sales department of the Ohio Brass Company, has accepted a position with the Detroit Graphite Company, paint maker, as special representative of its railway department in the Eastern territory. Mr. Campbell's headquarters will be at 135 Broadway, New York.

Nisbet Engineering Company, Inc., New York, N. Y., has recently been organized to engage in general electrical contracting and electric railway construction work, with offices at 146 Liberty Street. George A. Nisbet, formerly construction engineer of the Cortlandt Engineering Company, is president, John N. Gerken treasurer, and J. F.

O'Reilly secretary. The company states that it is prepared to undertake all branches of electric railway construction, and with other work is now engaged in erecting the trolley and feed-wire system for surface lines under the new elevated structure at Woodside, Astoria and Corona, Long Island.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., reports the recent shipment to a large railway company in the Middle West of a twenty-six-panel switchboard in record-breaking time. On Nov. 28 the contract for the board was signed, calling for delivery in twenty-six days, with a bonus and penalty clause. On Dec. 10, or twelve days later, the entire switchboard was shipped complete from the works, and it was done without employing any overtime. The board is designed to control one 800-kw, 250-volt d.c. generator, two 37½-kw, 250-volt d.c. generators, two exciters and two 850-kva, 480-volt, three-phase a.c. generators, the remainder of the panels being devoted to a.c. and d.c. feeders.

King G. Kellogg, who has been chief engineer for the E. E. Brownell Engineering Company for the past four years, has tendered his resignation, to take effect March 1, 1914, and will thereafter devote his entire time to consulting work, specializing in matters pertaining to the electrolytic corrosion of underground metallic structures from stray electrical currents. Mr. Kellogg has had a wide experience in electrolysis work, and has made many electrolysis examinations and tests in more than fifty different cities in this country. He formerly held various positions in the engineering department of the People's Gas Light & Coke Company, Chicago, where he was employed for sixteen years. Mr. Kellogg has announced that he will retain his office at 1836 South Fifty-fifth Street, Philadelphia, Pa.

Hale & Kilburn Company, Philadelphia, Pa., has appointed Charles H. Schlacks as president, with headquarters in Philadelphia, succeeding D. W. Call, who resigned to go into private business. Mr. Schlacks has been connected for many years with western steam railroads. He started his business career by working up through the mechanical and operating departments of the Illinois Central Railroad. In 1891 he became associated with the Denver & Rio Grande Railroad. In 1894 he was appointed assistant general manager of this road. From 1900 to 1904 Mr. Schlacks was general manager of the Colorado Midland Railway. In 1904 he was made vice-president of the Denver & Rio Grande Railroad. Since that time he has served in the positions of president of the Globe Express Company, vice-president of the Utah Fuel Company and vice-president of the Western Pacific Railroad.

ADVERTISING LITERATURE

Phoenix Iron Works Company, Meadville, Pa., has issued a catalog describing its various types of steam boilers, including horizontal return, internal furnace, portable and vertical tubular boilers.

Universal Trolley Wheel Company, Northampton, Mass., has issued a catalog on its self-lubricating composite trolley wheel, which contains testimonials from some of its users.

Pawling & Harnischfeger, Milwaukee, Wis., have issued Bulletin 401, describing their Type H crane. Important features of this crane are its rugged construction, absence of overhung gears and pinions and entirely inclosed gears.

Electric Service Supplies Company, Philadelphia, Pa., has issued a leaflet illustrating its F. & P. car replacer and St. Louis trolley pick-ups. Another folder describes in detail its portable Keystone lamp guards. A conduit box type is also shown.

Redmond & Company, New York, N. Y., have issued a booklet entitled "Investments—1914," which contains detailed information concerning various railroad bonds, convertible bonds, short-term notes, guaranteed stocks and public utility bonds. In the front of the pamphlet there is placed an interesting chart of bond prices from 1907 to 1913, showing that the average price of twenty-five representative bonds is within a point or two of the low 1907 figures. Announcement is made of the establishment of a special department to assist clients in solving income tax problems.